



# Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

May 28, 2021

SUBJECT: Various Routes  
Project NHPP-STP-TBX6(306)  
Section (1,202,133,6-2,4)TS-1  
Madison County  
Contract No. 76P52  
Item No. 74, June 11, 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 pages 1, 5, 6, and 12-15 of the Special Provisions.

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

## STATE OF ILLINOIS

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### 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; Project NHPP-STP-TBX6(306); Section (1,202,133,6-2,4)TS-1; Madison County; Contract No. 76P52 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

Location 1:

FAP 2 (IL 3) and FAP 789 (IL 143) in Wood River in Madison County.

Location 2:

FAP 789 (IL 143/ IL 157) and Buchanan St. in Edwardsville in Madison County.

Location 3:

FAP 582 (IL 111) and FAP 785 (IL 140) E. Jct in Bethalto in Madison County.

Location 4:

FA 789 (IL 3 / IL 111) and Seminary St. in Alton in Madison County.

Location 5:

FAP 582 (IL 111) and Horseshoe Lake Rd. in Pontoon Beach in Madison County.

#### DESCRIPTION OF PROJECT

This project consists of the replacement of **five (5)** traffic signal controllers, traffic signal head additions, and one (1) battery backup system. Work shall include cable installation, traffic signal head installation, camera installation, and traffic signal controller and cabinet removal and new installation.

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The UPS shall provide the following operational modes when operating on battery

- Full operation of all traffic signal devices
- Flash operation
- Combination of full and flash operation

**2.2 Run Time**

The UPS shall provide a minimum of 8 hours of full-time operation with a 450 watt load @ 25°C.  
The minimum battery size requirement is listed in the Batteries section.

**2.3 Compatibility**

The UPS shall be compatible with Model 30X, 33X, and 34X cabinets; the ITS cabinet; model 170 and 2070 controllers and any NEMA style cabinet, enclosures and controllers; the Advanced Transportation Controller; and all cabinet components for full time or flash operation

**2.4 Output Capacity**

The UPS shall provide a minimum of 1100W/1100VA@25°C active output capacity with 83 percent minimum inverter efficiency with 30% minimum loading.

**2.5 Output Voltage**

When operating in backup mode, the UPS output shall be 120VAC ± 2%, pure sine wave output, ≤3%THD, 60Hz ± 5%.

**2.6 DC System Voltage**

The UPS DC system voltage shall be 48VDC nominal.

**2.7 Transfer Time**

The maximum transfer time allowed, from disruption of normal utility line voltage to allowable time shall also apply when switching from the inverter line voltage to utility line voltage after the line has stabilized inverter line voltage from batteries, shall be 5 milliseconds (ms).

**Include a modular battery analysis system with the following capabilities:**  
**Base unit must provide battery Conductance (state of health assessment), voltage and integrated temperature measurement.**  
**Tests individual Lead-Acid or Nickel-Cadmium cells or Monoblocs (up to 16 Volts) in any common configuration, approximately 10-6000Ah.**  
**Battery Pack to support test time of 6-8 hours.**  
**Multimeter functionality**  
**Generator starting battery test**  
**Hard Case**  
**Probe and Cable**  
**Voltage range: 0.8 – 20.0 Volts DC**  
**Conductance Range: 100 – 19,990 Siemens**

**REMOVE EXISTING TRAFFIC CONTROLLER AND CABINET**

Removal of existing traffic signal controller and cabinet shall be according to Article 895.05 of the Standard Specifications.

Add the following to Article 895.05 of the Standard Specifications:

All equipment to be returned shall be delivered by the Contractor to the Department, as directed by the Engineer. All equipment shall be delivered within 30 days of removing it from the traffic signal installation. The Contractor shall provide **1 copy** of a list of equipment that is to remain the property of the Department, including model and serial numbers, where applicable. The Contractor shall also provide a copy of the Contract plan or special provision showing the quantities and type of equipment. Controllers and peripheral equipment from the same location shall be boxed together (equipment from different locations may not be mixed) and all boxes and controller cabinets shall be clearly marked or labeled with the location from which they were removed. If equipment is not returned with these requirements, it will be rejected. The Contractor shall be responsible for the condition of the traffic signal equipment from the time Contractor takes

maintenance of the signal installation until the acceptance of a receipt drawn by the Department indicating the items have been returned in good condition.

The Contractor shall safely store and arrange for pick up or delivery of all equipment to be returned to agencies other than the Department. The Contractor shall package the equipment and provide all necessary documentation as stated above.

Traffic signal equipment which is lost or not returned to the Department for any reason shall be replaced with new equipment meeting the requirements of these Specifications at no cost to the contract.

Add the following to Article 895.08 of the Standard Specifications:

Basis of Payment.

**This item shall be paid for at the contract unit price each for REMOVE EXISTING TRAFFIC CONTROLLER AND CABINET, which price shall be payment in full for furnishing the labor as described above.**

**INTERCEPT EXISTING CONDUIT**

This pay item shall include necessary work to intercept existing conduit and wiring as shown on the plans. This work shall conform to Section 810 of the current "Standard Specifications for Road and Bridge Construction."

This item shall be paid for at the contract unit price each for INTERCEPT EXISTING CONDUIT, which price shall be payment in full for furnishing the labor and equipment as described above.

**MAINTENANCE OF EXISTING ELECTRICAL DEVICES**

This work shall be performed according to the Articles 801.10 and 801.11, and as modified herein.

The existing electrical devices which lie within the construction limits of this project will continue to be the maintenance responsibility of the Illinois Department of Transportation. Electrical devices are defined to mean highway lighting installations, traffic signals, flashing beacons, sign truss illumination units, changeable message signs, ITS, motorist aid call boxes, dewatering pumps, speed monitoring devices, traffic volume count stations, wrong way movement detectors, following-too-close monitors, ice/fog detectors or any such devices or facilities the Department may have to maintain.

Any damage or malfunctions of these devices, observed by the Contractor, shall be reported immediately to the Department.

If it is determined by the Engineer that the Contractor is responsible for damage of any type to above-mentioned existing electrical devices, including underground wiring, as a result of negligence or poor workmanship, the Contractor shall be responsible for the repair of these facilities. These repairs shall be accomplished by whatever method the Department deems necessary. In the event the repairs are not made by the Contractor, the Contractor shall be required to reimburse the Department for such repairs within 60 days of receiving written notification of said damage.

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- 6.2.2. Alternately, a fluorescent lighting fixture shall be mounted on the inside top of the cabinet near the front edge. The fixture shall be rated to accommodate at minimum a F15T8 lamp operated from a normal power factor UL or ETL listed ballast. The lamp shall be wired to either a 15-amp ON/OFF toggle switch mounted on the power panel or to a door activated switch mounted near the top of the door.
- 6.2.3. Alternately, an LED cabinet lighting system may be used to illuminate the internal structure of the cabinet assembly. The LED cabinet lighting shall be Luxem Bright LED modules Model#772-W0013 and approved power supply.
- 6.3. A resealable print pouch shall be mounted to the door of the cabinet. The pouch shall be of sufficient size to accommodate one complete set of folded cabinet prints.
- 6.4. A minimum of two sets of complete and accurate cabinet drawings shall be supplied with each cabinet.

## 7. Cabinet Test Switches and Police Panel

7.1. A test switch panel shall be mounted on the inside of the main door. The test switch panel shall provide as a minimum the following:

- a. SIGNALS ON/OFF SWITCH - In the OFF position, power shall be removed from signal heads in the intersection. The controller shall continue to operate. When in the OFF position, the MMU shall not conflict or require reset.
- b. AUTO/FLASH SWITCH - When in the flash position, power shall be maintained to the controller and the intersection shall be placed in flash. The controller shall not be stop timed when in flash. Wired according to NEMA-TS2-2003 the MMU forces the controller to initiate the start-up sequence when existing flash.
- c. STOP TIME SWITCH - When applied, the controller shall be stop timed in the current interval.
- d. CONTROL EQUIPMENT POWER ON/OFF - This switch shall control the controller, MMU, and cabinet power supply AC power.

Momentary test push buttons for all vehicle and pedestrian inputs to the controller are not required. The TS2 controller to be provided with the cabinet assembly shall provide vehicular and pedestrian call inputs from its keyboard while in the standard status display.

*The police door switch panel shall contain the following:*

- a. SIGNALS ON/OFF SWITCH - In the OFF position, power shall be removed from signal heads in the intersection. The controller shall continue to operate. When in the OFF position, the MMU shall not conflict or require reset.
- b. AUTO/FLASH SWITCH - When in the flash position, power shall be maintained to the controller and the intersection shall be placed in flash. The controller shall be stop timed when in flash. Wired according to NEMA-TS2-1998 the MMU forces the controller to initiate the start-up sequence when exiting flash.
- c. AUTO/MANUAL SWITCH - Cabinet wiring shall include provisions for an AUTO/MANUAL switch and a momentary push button or hand cord. The AUTO/MANUAL switch and push button or hand cord shall not be provided unless it is called for in the CUSTOMER SPECIFICATION.

All toggle type switches shall be heavy duty and rated 15 amps minimum. Single- or double-pole switches may be provided, as required.

Any exposed terminals or switch solder points shall be covered with a non-flexible shield to prevent accidental contact.

All switch functions must be permanently and clearly labeled.

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All wire routed to the police door-in-door and test switch push button panel shall be adequately protected against damage from repetitive opening and closing of the main door.

All test switch panel wiring shall be connected to the main panel via a 50-pin Molex Robotic type connector Model# 54332-5001, or exact equivalent.

Wiring from the main panel to the test switch panel shall be connected to the switch panel via a 30-pin Molex Robotic type connector Model# 54332-3070 or exact equivalent.

#### ~~8. Controller Telemetry Interface Panel~~

~~A telemetry interface harness and interface panel shall be supplied with each cabinet assembly when specified in the special provisions.~~

~~The harness shall be a minimum of 6 feet long and shall consist of two twisted shielded pairs, 22 AWG wire with drain wire in an overall jacket, terminated to a 9-pin "D" type connector at one end. The pin out of the 9-pin connector shall be in exact accordance with the NEMA TS2 Standard. The opposite end of the harness shall be terminated on a 10-position EDCO PCB-1B or exact equal lightning protection socket base.~~

~~All terminal block designations and peripheral board-mounted components shall be labeled as to their number and function and shall correspond to the cabinet wiring diagrams.~~

~~The following signals shall be accessible from the telemetry interface panel:~~

- ~~• Local controller command lines 1 & 2~~
- ~~• Local controller read back lines 1 & 2~~
- ~~• Master controller command lines 1 & 2~~
- ~~• Master controller read back lines 1 & 2~~
- ~~• Earth grounds~~

~~A socket mounted communication line transient protection device shall be supplied with the telemetry interface panel. The device shall be an EDCO model PC642C-008D or exact approved equivalent. The transient protection device shall be wired in series with the telemetry communication circuit.~~

~~Communication line impedance shall be matched to the transmitter output impedance to minimize noise on the communication lines. The panel shall allow connection of a 620-ohm resistor across the command and read back lines, where necessary.~~

#### 8. Auxiliary Devices

##### Load Switches

- 8.1.1. Load switches shall be solid state and shall conform to the requirements of Section 6.2 of the NEMA TS2 Standard.
- 8.1.2. Signal load switches shall have a minimum rating of 10 amperes at 120 VAC for an incandescent lamp load.
- 8.1.3. The front of the load switch shall be provided with three indicators to show the input signal from the controller to the load switch.
- 8.1.4. Load switches shall be dedicated per phase. The use of load switches for other partial phases is not acceptable.
- 8.1.5. The full complement of load switches shall be supplied with each cabinet to allow for maximum phase utilization for which the cabinet is designed.

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#### Flashers

- 8.1.6. The flasher shall be solid state and shall conform to the requirements of section 6.3 of the NEMA TS2 Standard.
- 8.1.7. Flashing of field circuits for the purpose of intersection flash shall be accomplished by a separate flasher.
- 8.1.8. The flasher shall be rated at 15 amperes, double pole with a nominal flash rate of 60 FPM.

#### Flash Transfer Relays

- 8.1.9. All flash transfer relays shall meet the requirements of Section 6.4 of the NEMA TS2 Standard.
- 8.1.10. The coil of the flash transfer relay must be de-energized for flash operation.
- 8.1.11. The full complement of relays shall be supplied with each cabinet to allow for maximum phase utilization for which the cabinet is designed.

#### Malfunction Management Units (MMU)

- 8.1.12. Each cabinet assembly shall be supplied with one MMU as defined by the requirements of Section 4 of the NEMA TS2 Standard.
- 8.1.13. Malfunction Management Units shall be a Type 16. The MMU shall be Econolite Control Products, Inc. Model MMU-16 (EDI Model MMU-16) or approved equal.

#### Bus Interface Units (BIU)

- 8.1.14. All BIUs shall meet the requirements of Section 8 of the NEMA TS2 Standard.
- 8.1.15. The full complement of Econolite Control Products, Inc. Model 32860G1 Bus Interface Units shall be supplied with each cabinet to allow for maximum phase and function utilization for which the cabinet is designed.
- 8.1.16. Each Bus Interface Unit shall include power on, transmit and valid data indicators. All indicators shall be LEDs.

#### Cabinet Power Supply

- 8.1.17. The cabinet power supply shall meet the requirements of Section 5.3.5 of the NEMA TS2 Standard.
- 8.1.18. The cabinet power supply shall provide LED indicators for the line frequency, 12 VDC, 12 VAC, and 24 VDC outputs.
- 8.1.19. The cabinet power supply shall provide (on the front panel) jack plugs for access to the +24 VDC for test purposes.
- 8.1.20. One Econolite Control Products, Inc. Model 1084-003 cabinet power supply shall be supplied with each cabinet assembly and shall be wired directly to the Power Bus Assembly via a 12-pin Molex Robotic type connector Model# 54332-1270 or exact equivalent.

#### 9. Testing and Warranty

##### Testing

- 9.1.1. Each controller and cabinet assembly shall be tested as a complete entity under signal load for a minimum of 48 hours.
- 9.1.2. Each assembly shall be delivered with a signed document detailing the cabinet final tests performed.
- 9.1.3. The cabinet shall be assembled and tested by the controller manufacturer or authorized local distributor to ensure proper component integration and operation.

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Warranty

- 9.1.4. The controller and Malfunction Management Unit shall be warranted by the manufacturer against mechanical and electrical defects for a period of two years from date of shipment. The manufacturer's warranty shall be supplied in writing with each cabinet and controller. Second party extended warranties are not acceptable.
- 9.1.5. The cabinet assembly and all other components shall be warranted for a period of one year from date of shipment.
- 9.1.6. Any defects shall be corrected by the manufacturer or supplier at no cost to the owner.
- 9.1.7.

Intersections for IL 3 at IL 143, IL 111 at IL 140, and IL 111 at Horseshoe Lake Rd. will require 2 detector racks in the cabinet.

**STATUS OF UTILITIES TO BE ADJUSTED**

NO UTILITIES TO BE ADJUSTED

The above represents the best information of the Department and is only included for the convenience of the bidder. The applicable provisions of Sections 102, 103, and Articles 105.07 and 107.20 of the Standard Specifications for Road and Bridge Construction shall apply.

If any utility adjustment or removal has not been completed when required by the Contractor's operation, the Contractor should notify the Engineer in writing. A request for an extension of time will be considered to the extent the Contractor's operations were affected.

**COMPENSABLE DELAY COSTS (BDE)**

Effective: June 2, 2017

Revised: April 1, 2019

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.”

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