OFFICE OF THE PURCHASING AGENT

TOWN OF ARLINGTON
730 Massachusetts Avenue
Arlington, MA 02476

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DATE: November 14, 2019

TO ALL BIDDERS

BID NO. 19-48

SUBJECT: Minuteman Bikeway Improvements/Lake St.

**ADDENDUM NO. 1**

TO WHOM IT MAY CONCERN:

With reference to the bid request relative to the above subject, please note the following:

**SPECIAL PROVISIONS SECTION**

**DELETE: PAGES 14 & 15**
**ADD: ATTACHED REVISED PAGES 14 & 15**

**DELETE: PAGES 55 THRU 62**
**ADD: ATTACHED REVISED PAGES 55 THRU 62**

**ADDENDUM MUST BE ACKNOWLEDGED WITH BID SUBMISSION.**

All other terms, conditions and specifications remain unchanged.

Very truly yours,

Town of Arlington

Domenic R. Lanzillotti
Purchasing Officer

shall be general in character and shall not relieve the Contractor from the responsibility of, or the necessity of, furnishing materials and workmanship conforming to the plans and specifications.

The Contractor shall deliver to the Engineer a certificate of compliance with the manufacturer for all materials purchased from the manufacturer.

Any Electrical Contractor performing work on roadways or signals under the jurisdiction of the Town shall have International Municipal Signal Association (IMSA) Certification as a Traffic Signal Electrician Level II.

In general, work under this Item shall include but not be limited to the following:

**Existing Traffic Control Signal – Lake Street at Brooks Avenue**

The Contractor shall maintain operation of the existing traffic control signal system throughout the construction period until the new traffic signal is operational. In the event the existing traffic control signal system is not operating, police detail(s) shall be used to control traffic operations at this intersection.

**Flashing Operation**

Changes from automatic flashing to stop-and-go operation and from stop-and-go to automatic flashing operation shall occur as set forth in Section 4D.29 of the MUTCD.

**Controller and Cabinet**

The work shall include furnishing and installing a new TS 2, Type 1 controller, a new cabinet on a new cabinet foundation at each location as shown on the plans. A master controller shall be provided at Location 2, with a hard-wired interconnect between Location 1 and Location 2, as shown on the plans. The controllers shall be Siemens m60 Linux Series, or approved equal, and shall be compatible for Advanced Traffic Controller (ATC) and NEMA standards.

The controller, malfunction management unit, bus interface unit and all other ancillary traffic signal control components included in the traffic control cabinet shall comply with the National Electrical Manufacturers Association (NEMA) Standard No. TS 2, Traffic Controller Assemblies. The controller and cabinet assemblies shall be supplied in an 8 phase TS 2 Type 1 configuration as required in the list of major traffic signal items included on the plans for this location. The controller shall have 10 Base-T Ethernet with built-in switch and 4 front panel RJ-45 connectors, ENET1 and ENET2 network switches; 5 10/100 TCP/IP ports; four (4) USB 2.0 ports and a Datakey Port, dedicated GPS-SP8 Port (9pin EIA-574) and a unique MAC address assigned by the Institute of Electrical and Electronic Engineers (IEEE).

The cabinet shall be made of aluminum, shall be painted black, and mounted to the foundation.

TS 2 Type 1 Controllers and Cabinet Assemblies: Controller shall conform to Section 3, Controller Units of NEMA No. TS 2, Traffic Controller Assemblies.

The TS 2 Type 1 cabinet shall meet the requirements of configuration 3 as defined in Table 5-2, "Type 1 Configurations" of the NEMA TS 2 Standard.

The cabinet shall be wired with a normally closed switch connected to a user defined input to the controller for remote monitoring of the control cabinets' door open status. The controller cabinet shall also be supplied with a Manual Police Button to manually control the operations of the traffic signal via the Police Door Access Panel.

Controller cabinet foundations shall not obstruct a sidewalk or crosswalk so that passage by physically challenged persons is impaired.

The following requirements are applicable to the signalized locations and are designed for effective use of a laptop computer in conjunction with traffic signal controllers. These requirements are also designed to permit all engineers, electricians and technicians (including those who are disabled but ambulatory) to work in the cabinet in a safe, effective and comfortable manner. To this extent, the following meets applicable ADA requirements.

1. Adjust the control cabinet height by use of a cabinet extender, adjust the placement of cabinet shelves, adjust the height of the cabinet foundation or provide any combination of these three items so that the top of the LCD or other visual display window of the controller is no more than 48" above finished grade in front of the cabinet. The top of the cabinet door opening shall be at least 68" above finished grade. Any technical provision, plan detail, standard specification or standard drawing to the contrary shall not apply to the extent that it may conflict with this viewing height requirement.

2. Furnish and install one slide-out/slide-in shelf or swing-out/swing-in shelf appropriate for the size and load of a laptop computer. This moveable shelf shall support the bottom of the laptop computer at a height between 40" and 44" above finished grade in front of the cabinet.

3. Furnish and install a paved pad in front of the control cabinet. This pad shall be cement concrete, built in accordance with standard sidewalk specifications, approximately level, approximately 1" above the surrounding unpaved surface, or at even grade with the adjacent surface if paved. This pad shall abut the front of the cabinet, project at least 1" to each side of the cabinet and at least 36" in front. No pad is required if the front of the cabinet immediately abuts an existing or proposed paved sidewalk or other paved surface.

4. Both the firmware and software version for each timer unit supplied shall be the same throughout the project and shall be the latest version available for that product. In addition, the contractor shall promptly furnish and install for the owner the latest versions of both firmware and software through the last day of the inspection period, guarantee period or warranty period, whichever date is later.

5. The contractor shall furnish one cable with each new timer unit to connect a controller to a laptop computer. This cable shall have a termination at one end to match the controller. It shall have a termination on the other end to match the type of serial port found on laptop computers, usually DB9. This cable shall be wired to provide serial RS232C communication between the controller and the computer.

1. surges of up to 10kA and 10kV. RoHS compliant.
2. Luminaire Rating: Minimum IP66
3. Thermal Management: High Flux LEDs mounted to metal core PCB and attached to an external finned aluminum heatsink.
4. Life: L98 of 50,000 hours and L70 of >100,000 hours.
5. House Side Shield: Internal micro-prismatic modification to optical lens (Provide as Required)
6. Warranty: See Section 821.00
7. Listing & Rating:
   a. UL Wet Location Rating
   b. Tested and in conformance w/ IESNA LM-79-08 & LM-80 test standards at 25 degree Celsius

Basis of Design:

Pole: Selux # S635-16'-BK-MS/REC
Motion Sensor: Selux # MS-1-15'-18-D3-BK-Y
Luminaire, Multi Arm Fitter, and Arm: Selux # BPL-2C-R2-5G700-30-BK-UNV-DM

**Submittal Requirements:**

Refer to 'Street Lighting Supplement' for submittal requirements.

**Additional Requirements:**

Refer to 'Street Lighting Supplement' for additional requirements, including testing requirements, installations procedures, standards, and code list.

**SERVICE CONNECTION (OVERHEAD)**

The work under this item shall include the construction of ovehead electric service connection for the street lighting systems.

Electric services shall conform to all current policies of the electric utility company, and all charges by the utility company to the Contractor shall be paid by the Contractor and be included in the lump sum price. Service conduit connections shall be coordinated with local electric utility company and installed as shown on the plans.

Each service shall include a three-wire single phase solid neutral service conductors, conduits, conduit riser; all installed in accordance with the Code and utility company and the Town requirements.

Meter will be furnished and installed by the utility company.

## HIGHWAY LIGHTING LOAD CENTER NO. 1

The work under this item shall conform to the relevant portions of Section 820 of the Standard Specifications and the following:

The work shall include the furnishing and installation of the street lighting power control cabinets at the locations shown on the plans. All work consisting of the furnishing and installation of the street lighting power control cabinets shall be included in the lump sum price.

### Materials

The street lighting power control cabinet shall be as follows:

A. Enclosure

The enclosure shall be a NEMA 3R rated UL: listed convection ventilated and consist of a cabinet and a gasketed door assembly, constructed from 5052-h32 sheet aluminum alloy (less than 0.02% copper) of at least 3,175mm thickness. The enclosure shall be free of dents, cracks and other imperfections.

The enclosure base shall be reinforced for pedestal mounting on a concrete base. Refer to plans and specifications for anchor bolt and mounting details to withstand dead loads and predicted dynamic loads developed by a minimum wind velocity of 90 MILES per hour with an additional 30% gust factor. The enclosure manufacturer shall review modifications or comments shall be so noted in the submittals.

The enclosure shall be provided with (2) two adjustable ”c” mounting channels on both side walls and back wall of the enclosure and an aluminum back panel.

The enclosure shall be #TC583017, as manufactured by APX enclosures, or approved equal. The construction features and details shall comply with the specified product.

B. Panelboard

The branch circuit breakers frame shall be rated 100 amperes with a UL listed interrupting rating of 18,000 amperes symmetrical at 240 volts.

The circuit breakers control coil shall be controlled via one (1) time clock and photocell, with the division of the controlled circuits as directed in the field. The circuit breakers control circuits shall be wired to an insulated terminal strip in a workmanlike manner.

C. Receptacle

Receptacle shall be a specification grade NEMA 5-20R ground fault circuit interrupter type and stainless steel cover in a surface utility outlet box. Receptacle shall be manufactured by Hubbell, Leviton or Bryant.

D. Switch and Lighting Fixture

Switch shall be specification grade 120/277VAC 20amp switch and stainless steel cover in a utility outlet box. Lighting fixture shall be a surface mount 2'-0" long fluorescent with zero degree ballast.

E. Meter Socket

Meter socket shall be utility company approved UL listed 200 amp 240/120V 1 phase 3 wire outdoor type. Number of terminals , bypass release and other features shall be provided as to match utility meter.

F. Grounding Electrode

Grounding electrodes shall be ¾" diameter by 10' long copperweld rods. Rods shall be driven vertically. Coordinate with all existing conditions and underground utilities, and follow "call before dig" procedures prior to driving the rods.

**Grounding Requirements**

A. Ground all systems and equipment in accordance with best industry practice and herein.

B. Provide grounding bonds between all metallic conduits of the light and power system which enter and leave cable chambers or other non-metallic cable pulling and splicing boxes. Accomplish this by equipping the conduits with bushings of the grounding type individually cross connected.

C. Bond metallic conduits containing grounding electrode conductors and main bonding conductors to the ground bus service enclosure and/or grounding electrode at both ends of each run utilizing grounding bushings and jumpers.

D. Provide grounding bonds for all metallic conduits of the light and power system which terminate in pits below equipment for which a ground bus is specified. Accomplish this by equipping the conduits with bushings of the grounding type connected individually to the ground bus.

E. Provide supplementary ground bonding where metallic conduits terminate at metal clad equipment (or at the metal pull box of equipment) for which a ground bus is specified.

Accomplish this by equipping the conduits with bushings of the grounding type connected individually by means of jumpers to the ground bus. Exclude the jumpers where directed.

F. Each grounding type bushing shall have the maximum ground wire accommodation available in standard manufacture for the particular conduit size. Connection to bushing shall be with wire of this maximum size.

G. Bonding conductors on the load size of the service device and equipment grounding conductors shall be sized in relation to the fuses or trip size of the over current device supplying the circuit.

The street lighting power control cabinet shall be provided with all necessary components as listed below and all necessary accessories to complete the system. Refer to electrical drawings for power control cabinet wiring schematic and proposed arrangement.

Main breaker secondary service entrance shall be grounded per code.

**Installation**

Location and orientation of the street lighting power control cabinet shall be field determined with the Engineer to ensure that access to the cabinet and physical protection is sufficient to protect from damage. The location shall not prohibit pedestrian travel. All branch circuitry originating from the cabinet shall be routed directly into the circuit breakers. Provide empty (2)-1" and (2) 1 ½" stub outs to below grade to the nearest non paved area for future use.

Cabinet shall be installed per manufacturer's requirements for a level and plumb installation. Provide touched up finish paint as required for any blemishes.

**PAVEMENT MARKING REMOVAL**
**PAVEMENT ARROWS AND LEGENDS REFL. WHITE (THERMOPLASTIC)**
**6 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)**
**12 INCH REFLECTORIZED WHITE LINE (THERMOPLASTIC)**
**4 INCH REFLECTORIZED YELLOW LINE (THERMOPLASTIC)**

The work for installing pavement markings and performing pavement marking removal shall be included in the lump sum price bid for this Contract and shall conform to the relevant provisions of Section 860 of the Standard Specifications and the following:

All crosswalks and stop lines shall be installed as shown and in the locations shown on the plans.

All centerline markings shall be 4-inch wide.

All pavement markings including arrows, legends, 6-inch white lines, 12-inch white lines, and 4-inch yellow lines shall conform to the MassDOT material specification M7.01.03 and M7.01.04.

Pavement marking removal shall be performed by grinding the pavement marking from the pavement or other method of physical removal approved by the Engineer. Painting over existing markings will not be allowed.

**PAVEMENT MARKINGS FOR BIKE LANE (GREEN)**

The work for installing pavement markings for bike lanes shall be included in the lump sum price bid for this Contract and shall conform to the relevant provisions of Section 860 and the following, at the locations specified in the Plans.

High-visibility green pavement markings for bike lanes shall be consist of methyl methacrylate (MMA) resins with hardwearing aggregate that provides a non-slip material for bicyclists.

Materials used to create the MMA Area Markings shall consist of pre-pigmented MMA resin, hardwearing aggregate and BPO catalyst.

**MMA Area Marking Resin:**

MMA resins shall have the following properties:

| | | |
|---|---|---|
| Tensile | >400 PSI | ASTM D638 |
| Elongation | >180% | ASTM D638 |
| Flash Point | >50°F / 10°C | ASTN D1310 |

**Area Markings Aggregate:**

Corundum shall be provided by the manufacturer and will have a hardness of 9 on the Mohs scale. Aggregate shall be a neutral, light color that will not affect the color of the finished product and will have a mesh sizing of 24. Corundum shall be used for all green pavement markings for bike lanes shown in the Plans.

Catalyst shall come in a powder form and be supplied in bulk at the maximum usage rate of 0.51 +/- 0.2 lbs. per mixed pail of resin and aggregate.

**Application Equipment:**

Squeegees shall be designed for heavy duty usage and sourced locally.

Rollers shall be medium nap in texture and require a roller cage and handle.

Drill shall be high speed, high torque capable of supply enough power to thoroughly mix MMA Area Markings additives when paired with a paint mixing paddle.

**Application:**

Aged surfaces containing reflective cracking should be repaired.

Clean the intended application area thoroughly. All loose particles, dirt, sand dust, etc. must be removed. The surface must be clean, dry, and free of all dust, oil, debris and any other material that might interfere with the bond between the product and the surface to be treated.

**Mixing:**

Catalyst quantity shall be based on ambient and pavement temperature and must be mixed very thoroughly at specified rates and into materials listed in the materials mixing guide. Material

shall mix to approximately 2.79 gallons and weigh approximately 52 lbs. if corundum is used or 47 lbs. if sand is used.

| | | |
|---|---|---|
| Pigmented MMA Resin<br>Aggregate: Corundum/sand | 2<br>25.0 | Gallons<br>Pounds |
| Catalyst<br>< 70°F / 18°C | 8 | Fluid Ounces |
| Catalyst<br>> 70°F / 18°C | 4 | Fluid Ounces |

MMA Area Markings must be 100% cured, which will be a hardened solid state, before traffic is permitted. Curing typically takes 30-60 minutes.

**STREET SIGN REMOVED AND RESET**
**TRAFFIC SIGN REMOVED AND RESET**

The work for removing and resetting street signs and traffic signs shall be included in the lump sum price and shall conform to the relevant provisions of Section 840 of the Standard Specifications and the following:

The work to be done consists of removing and resetting the existing street, warning and regulatory signs and their supports to new locations as shown on the Plans or as required by the Engineer.

The Contractor shall replace at his own expense, all sign panels and supports that are damaged or lost either directly or indirectly as a result of his actions.

The signs shall be mounted in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) and the 1990 Standard Drawings for Signs and Supports.

When the visibility of the relocated sign panels is obstructed by trees and other vegetation, the Contractor shall clear the obstruction for proper sight distance. All clearing shall be done within the roadway layout, as approved by the Engineer. This work shall be incidental to this item.

Traffic Sign panels, to be removed and reset, shall be cleaned before being reset. Damage during removal or resetting to any sign panel designated for reuse by the Engineer shall be repaired or replaced by the Contractor at his own expense. The Contractor shall furnish and install all necessary mounting fixtures (nuts, bolts and other miscellaneous items) required to complete the work.

**TRAFFIC SIGN REMOVED AND DISCARDED**

Work consisting of removing and discarding existing regulatory, warning and directional signs, supports and foundations as shown on the Plans shall be included in the lump sum price.

Signs and attached hardware shall be carefully removed from their supports. The supports and existing foundations shall be completely removed and the holes backfilled with gravel borrow. The surface shall be patched with a material to match the existing ground or as required by the Engineer.

Sign panels, posts and foundations shall be disposed of offsite in a manner that meets all applicable local, state and federal requirements.

If signs are attached to existing light poles, utility poles or traffic poles, only the sign and attached hardware shall be removed and discarded.

The existing signs shall not be removed and discarded without the prior approval of the Engineer.

## POLICE DETAIL

Work under this item shall be performed according to Section 7.00, Subsection 7.11 of the Standard Specifications and the following:

All police details will be paid a minimum of four hours per day.

The Contractor shall be responsible for ordering all police details. Contractor shall notify Police by no later than 4:00 PM on the day prior to when the police detail is needed. Police details shall be provided at the discretion of the Town. All police details will be billed directly to the Town. Costs associated with overtime pay for police details when used for the Contractor's convenience or due to Contractor negligence shall be paid by the Contractor through a credit to the Town. All cancellations must be made a minimum of one-hour prior to the scheduled starting time of the Police Detail. If cancellations are not made within a minimum of one-hour prior to the scheduled starting time of the Police Detail, the cost of the scheduled Police Detail(s) shall be paid by the Contractor through a credit to the Town.

The Town will only pay for Police Details up to 8 hours per calendar day, per detail officer, unless longer work days are permitted by the Town. There shall be no additional cost to the Town if the Contractor works more than 8 hours per day. It is the Contractor's responsibility to ensure all work requiring police details is completed within the 8-hour police detail shift. The Contractor will be charged by the Town for overtime charged by the police details unless approved by the Town on a day-to-day basis.

## TRAFFIC CONTROLS FOR CONSTRUCTION

The work related to Traffic Controls for Construction shall be included in the lump sum price bid for this Contract. Traffic Control for Construction shall be done in accordance with relevant provisions of Section 850 of the Standard Specifications, the Manual on Uniform Traffic Control Devices (MUTCD), the Traffic Management Plans, and the following:

The Contractor shall furnish, install, position, reposition, maintain and remove temporary traffic control devices, including but not limited to detour signs, safety signs, portable changeable message signs, reflectorized drums, warning lights, reflectorized traffic cones, and barricades as required by

the Traffic Management Plans and the MUTCD for this project. All safety devices shall conform to the requirements of the MUTCD.

In the event the Contractor's proposed construction staging and traffic management plan differ from what is shown in the Traffic Management Plans, the Contractor shall submit plans to the Engineer showing the proposed construction staging and/or traffic management plan set-ups. Plans approved by the Engineer will be returned to the Contractor for implementation. Plans not approved will be returned with comments of where the design fails to meet requirements and/or suggest revisions. No construction staging or traffic management set-ups differing from what is shown in the Traffic Management Plans shall be implemented until the approved plans have been returned.

All labor, materials, and equipment necessary to furnish, install, position, reposition, maintain and remove temporary traffic control devices shall be incidental to the overall contract.