



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE
04333-0016

JOHN ELIAS BALDACCI
GOVERNOR

DAVID A. COLE
COMMISSIONER

February 10, 2009
Subject: **Lewiston**
Federal Project No. STP-1306(100)X
State Pin No.013061.00
Amendment No. 2

Dear Sir/Ms:

Make the following changes to the Bid Documents:

In the Bid Book, after page 90, **INSERT** the attached “Special Provision, Fiber Optic Cable, Section 643”.

In the Bid Book, after page 90, **INSERT** the attached “Special Provision, Rectangular Rapid Flashing Beacon, Section 643”.

In the Bid Book, after page 90, **INSERT** the attached “Special Provision, Traffic Signals, Section 643”.

In the Bid Book and Plans, **CHANGE** all occurrences of “ARTC” to read “**ATRC**”. Make this change in pen and ink.

In the Plans, SHEET NUMBER 4 OF 78, ESTIMATED QUANTITIES, Item No. 202.202 (added in Amendment #1), **CHANGE** the UNIT from CY to “**SY**”. Make this change in pen and ink.

The following questions have been received:

Question: The plans reference “ARTC” specifications but we believe this should be “ATRC” specifications. Please confirm that this should be ATRC specifications. Per these items, the specifications are not complete and leave ample room for an incomplete system and various order battles.

Response: Please see the above pen and ink change and the attached Special Provisions.

Question: The ATRC specifications on the traffic signal equipment and fiber optic equipment needed were not included in the project plans or specifications and there was no contact information for ATRC listed so that those specifications could be obtained by interested parties. Please provide these specifications and a contact for the ATRC as an addendum.

Response: Please see the attached Special Provisions.



PRINTED ON RECYCLED PAPER

Question: The plans show advance detection zones up to 400 feet away yet the plans only show 4 cameras. In order to effectively do both 400 feet advance detection zones and stop-bar presence zones, 2 additional cameras would be required for each mainline approach for a total of 6 cameras instead of 4. In addition, 10 feet of camera mounting height is required for every 100 feet of distance to the back of the farthest detection zone. This means that the camera for a 400 foot advance detection zone would need to be at least 40 feet high. The mast arms at this location are only 20 feet high. Even with an oversized 10 foot extension (not recommended), only a 30 foot mounting height would be obtained, which is still not a proper mounting height for this application. The best way to get a 40 foot mounting height for the advance detection cameras would be to have the mast arms for these approaches built with 40 foot tall vertical poles, which would be costly.

Should the contractor bid a 6 camera system for each intersection to accommodate the advance detection zones? Additionally, should the mast arms be built with 40 foot vertical poles to accommodate the advance detection cameras? Please advise on the above and issue an addendum accordingly.

Also, the second way to provide advance detection 400 feet from the intersection is with the SmartSensor Advance by Wavetronix. Would this be accepted as a less expensive alternate to the additional two video detection cameras and taller poles?

Response: Use Wavetronix Advance Detection System for advanced detection on Russell St. at each intersection. Disregard all video advanced detection shown on Sheet Numbers 11 of 78 and 12 of 78. Use video for stop bar detection only.

Question: The plans only call for fiber optic cable between the two intersections. However, the Communications Equipment portion of the ATRC specification implies that a fiber optic connection should be brought back to the ATRC computer. There is no such requirement or allowance in the project plans or specifications. Will a connection back to the ATRC computer be required? If so, does it need to be fiber optic or can it be an alternate communications medium such as a fee based DSL modem, Cable modem, or a Cellular modem?

Response: At this time, no connection to the ATRC computer is requested. Please see the attached Special Provisions.

Question: The preemption at College Street can be re-used since it consists of a recently installed Tomar preemption system. However, the preemption system at Central Ave cannot be re-used for several reasons. First, it may not be functional. Second, it is designed for use with Legacy traffic control cabinets and will not work with the newer TS2 Type 1 cabinets to be installed. A new preemptive system will be required at this location but it has not been specified. Please advise whether the bidders should include new preemptive equipment for the Central Ave intersection and issue an addendum for this.

Response: The bidders should bid the contract as written. No new preemption equipment for the Central Avenue intersection is needed at this time.

Question: There was no coordination data provided on the plans, only signal timings. Who will be responsible for providing the coordination data? Will ATRC provide this through Sewall, will MDOT be providing it or will the contractor be responsible for providing Coordination data?

Response: Coordination data to be provided by ATRC.

Question: The plans only call for a foundation mounted cabinet but does not specify the size. The cabinets should be specified as P44 cabinets since they will be housing video detection equipment, fiber optic communications equipment, preemption equipment, etc. Please specify what size traffic controller cabinet and issue an addendum.

Response: As per MDOT Standard Specification 718.08, the “cabinet shall be of sufficient size to accommodate all control equipment ...”.

Question: There are no specifications for the flashing beacons on sheet 13. Will these be Solar or AC powered? Are the beacons 24 hour flashing or push button activated? Please provide more detailed specifications.

Response: Please see the attached Special Provisions.
As per Plan Sheet 13 of 78, Power is taken from the College Street intersection.
As per Plan Sheet 13 of 78, two pedestrian push buttons are required

Question: After reviewing both the Landscape Plans (Sheet Number 71 of 78) and the Bid Book, Special Provision, Section 621 (page 80), Landscape, (Plant Species Specifications and Quantities List), it appears that the plant lists are not the same regarding species, sizes and quantities. Which plant list should I be using to submit my bid to the bidders on contract for the landscape portion?

Response: The bid should be based on the plant list contained in the Schedule of Items, Special Provision 621 (pages 80 through 82) in the Bid Book and the Estimated Quantities on Sheet Number 4 of 78. The Landscape Plan pages (Plan Sheet 71 of 78) are meant for conceptual locations only. All final locations will be determined in the field.

Consider these changes and information prior to submitting your bid on February 18, 2009.

Sincerely,



Scott Bickford
Contracts & Specifications Engineer

**Special Provision
Fiber Optic Cable
Section 643**

The Contractor shall install fiber optic cable in conduit where shown on the plan sheets.

ATRC Fiber Optic Specifications:

To ensure compatibility and proper operation with the traffic signal network equipment, all fiber optic materials related to the controller cabinet shall be supplied by the controller cabinet supplier. All other fiber optic materials, including but not limited to the fiber optic cable, shall be reviewed and approved by the controller cabinet supplier.

Fiber Optic Cable shall have the following features and characteristics:

- Loose tube outside plant cable for conduit or lashed aerial. If the cable cannot be lashed to existing cable, the contractor shall use a self-supporting figure-8 type aerial cable.
- Minimum of 12 fibers.
- All-Dielectric (Non-armored).
- Dielectric central and outer strength members.
- Ripcord for easy stripping.
- Color-coded fibers and buffer tubes for easy identification.
- Rated for outdoor use.
- Dry cable with water-blocking design. Gel-filled cable shall not be allowed.
- Storage and operating temperature of -40o to +70oC (-40o to +158oF).
- 9/125 type single-mode cable with a 9µm core, 125µm clad and 245µm coating.
- Maximum attenuation of 0.35dB per km for 1310nm, 0.35dB per km for 1383nm and 0.25dB per km for 1550nm.
- Serial Gigabit Ethernet distance of 5000m for 1310nm.
- Serial 10 Gigabit Ethernet distance of 10000m for 1310nm and 40000 for 550nm.
- Single-mode fibers shall comply with EIA/TIA-492CAAA and ITU recommendation G.652.
- All fiber optic splices shall be fusion spliced with a fusion splicer.
- The fusion splicer shall have automatic core alignment in the horizontal and vertical planes. It shall be capable of splices with a typical loss of 0.02dB for single-mode fiber and it shall capable of estimating the splice loss.
- All fiber optic slack shall be stored aerially in a pair of fiber optic sno shoes prior to each cabinet drop. Alternatively, a single adjustable/circular sno shoe may be used at drops with less than 20 feet of slack.

Aerial Splice Enclosures shall have the following features and characteristics:

- Minimum of 72 splice capacity.
- Minimum of 3 fusion splice tray (24 splice) capacity.
- Shall require no special tools or equipment for installation.
- Shall be constructed with black UV stabilized Xenoy (hardened plastic).
- Shall use stainless steel hardware.
- Shall pass a 20 foot water immersion test.
- Shall meet or exceed 150 pound pull out for cables.
- Shall include aerial hanger brackets.
- Nominal dimensions of 24.5"L x 8"W x 5"D.
- Maximum cable diameter of 0.625".
- Two (2) 24-fiber fusion splice tray.

Internal Fiber Optic Patch Panels shall have the following features and characteristics:

- Internal patch panels shall be used at all locations with P44 cabinets. The panel shall be mounted inside of the cabinet on the right above the power panel.
- Wall/Panel mount.
- Minimum of 24 port capacity.
- Modular adapter/connector panel type.
- Four (4) adapter/connector panel positions.
- Two (2) fusion splice tray capacity.
- Fully gasketed top and bottom cable entries.
- Single door with lock option.
- Internal cable management.
- Heavy gauge aluminum construction.
- Durable powder coat finish in beige, black or natural aluminum.
- Nominal dimensions of 12"H x 13"W x 3.25"D.
- Two (2) SC Duplex 6-pack adapter/connector panel.
- Two (2) Blank-out panels.
- Two (2) 12-fiber single-mode pigtail assembly with SC connectors, 3 meters long.
- Two (2) 12-fiber fusion splice tray.
- Four (4) LC-SC duplex single mode patch cords.

External Fiber Optic Patch Panels shall have the following features and characteristics:

- External patch panels shall be used at all locations with M34 cabinets. The panel shall be mounted on the outside of the cabinet on the left or back side.
- NEMA 3 rated.
- Wall/Panel/Pole mount.
- Minimum of 48 port capacity.
- Modular adapter/connector panel type.
- Six (6) adapter/connector panel positions.
- Four (4) fusion splice tray holders.

- Multiple cable entrances.
- Single gasketed lockable door.
- Stainless steel hardware.
- Internal cable management.
- Heavy gauge aluminum construction.
- Durable powder coat finish in beige, black or natural aluminum.
- Nominal dimensions of 19"H x 16"W x 6"D.
- Two (2) SC Duplex 6-pack adapter/connector panel.
- Four (4) blank-out panels.
- Two (2) 12-fiber single-mode pigtail assembly with SC connectors, 3 meters long.
- Two (2) 12-fiber fusion splice tray.

643.18 Method of Measurement

The interconnect wire shall be measured for payment by the lump sum in place.

643.19 Basis of Payment

The interconnect wire will be paid for at the contract lump sum price, which payment will be full compensation for furnishing all materials including, but not limited to fiber optic cable, connectors, switches, splice kits and all appurtenances and incidentals required for a complete and functioning installation and furnishing all tools and labor necessary for completing the installation.

Payment will be made under:

<i>Pay Item</i>	<i>Description</i>	<i>Pay Unit</i>
643.90	Interconnect Wire Between: College Street and Central Avenue along Russell Street	Lump Sum

**Special Provisions
Traffic Signals
Item 643**

Where called for on the contract plans, traffic signal equipment shall meet the following specifications:

**ATRC
Signalized Intersection Specifications**

Intent of this Specification:

It is the intent of this specification to provide a minimum equipment standard for any new or modernized traffic signal project, which is fully compatible and operable with the ATRC StreetWise remote computer signal control and monitoring equipment. ATRC has established a goal of being able to remotely access all existing and future traffic signal installations within the ATRC boundaries. ATRC staff has received considerable training in the operation of the StreetWise system. Neither ATRC, nor the member communities, have the staff or financial resources to operate or maintain more than one such traffic control system. Therefore, if a traffic control system or peripheral equipment, other than that listed below, is proposed for installation within the ATRC area, the supplier shall replace all signal equipment, software, and peripherals that are connected to the Streetwise system, and shall include training of ATRC staff in the operation and maintenance of the system to the level they currently enjoy. The expense associated with a complete system replacement and training shall be at no cost to ATRC.

New Signal System:

The decision to install a new or modernized signalized intersection within an existing signal system, new signal system, or to operate the intersection as an isolated signal shall be solely at the discretion of ATRC and MaineDOT.

Controller Equipment:

- Controllers shall be fully compatible with the existing Naztec StreetWise ATMS Software installed at the ATRC office, 125 Manley Road, Auburn, ME 04210. Controllers shall be compatible with both Naztec and NTCIP protocols.
- All major components of the controller cabinet assembly shall be from the same manufacturer; this includes cabinet assembly, controller, MMU, BIUs and cabinet power supply.
- Traffic control cabinets shall be Naztec Model M34 or P44 TS2 Type 1 Series only. Base mount cabinets shall have a 15” extension base.

- Secondary traffic controllers shall be Naztec Model 980-E TS2 Type 1 Series with Ethernet Port only.
- Master controllers shall be Naztec Model 981-E Series with Ethernet Port only.
- Malfunction management units shall be Naztec Model MMU-516L with LCD, Keypad and Communications Port only.
- Bus interface units shall be Naztec Model BIU-130 only.
- Cabinet power supply shall be Naztec Model TS2-CAB-PS only.

Detection Equipment:

Only video detection equipment shall be installed and shall be fully compatible with the existing Traficon WATTS Software installed at the ATRC office.

- Video detection communication hub shall be Traficon Model ViewCom/E with Ethernet Port only.
- Video detection units shall be Traficon Model VIP3D.1 & VIP3D.2 Series only.
- Video detection camera assemblies shall be Traficon approved models only.
- Video detection cameras shall be Day/Night cameras; the cameras shall be color in bright light and high sensitivity B&W in low light.
- Video detection cameras shall be individually surge protected and fused. Fuses shall be field replaceable.
- Video monitor shall have a built-in sequential switcher and quad splitter.
- A Traficon VIP Keypad and 10" video monitor shall be supplied in each cabinet for on-site setup and configuration. Complete on-site setup and configuration shall be possible without the use of a computer.

Communications Equipment:

- Any new control equipment supplied on an interconnected signal system shall be provided with a fiber optics connection to the remote computer interface at the ATRC office, assuming such a connection is not present when the new control equipment is installed. Likewise, if a new signal system is installed or established, fiber optics communication to the ATRC remote computer shall be provided. If the nearest fiber optics line is not within 1000 feet of a system controller, the method of remote communications shall be determined by ATRC and MaineDOT. Additionally, any new isolated traffic signal installation shall also be connected to the ATRC remote computer as noted above.
- Environmentally Hardened Ethernet Switches shall be Cisco Catalyst Model 2955 with Naztec Model 2955PS Power Supply only.

Fiber Optic Equipment:

- Fiber optic cable shall consist of a minimum of 12 single-mode fibers.
- See the "Special Provision, Fiber Optic Cable" for additional information.

Optical Preemption Equipment:

- Optical preemption equipment shall be fully compatible with Tomar secure emitters.
- Optical preemption equipment shall be fully compatible with Tomar OSPsoft IP software installed at the ATRC office.
- Optical signal processor card shall be Tomar Model 3140 Series only.
- OSP device server shall be Wavetronix Click! Model 301 only.
- Card cage shall be Tomar Model 1881 only.
- Optical detector shall be Tomar Model 2090-SD or 2091-SD only.
- Confirmation strobe shall be Tomar Model 804-110-R only.

Uninterruptible Power Supply (UPS) / Battery Backup Equipment:

When required for safety considerations as determined by ATRC, UPS units shall be installed in designated controller cabinets.

- UPS enclosure shall be an Alpha Flextra Model S4 or approved equal.
- UPS enclosure shall have a built-in bypass/generator switch and generator port.
- UPS unit shall be an Alpha Novus FXM Model 1100 or approved equal.
- UPS unit shall have an LCD and keypad for user interface.
- UPS unit shall have an integral SNMP Ethernet port and web-based interface. External serial to Ethernet converters are not acceptable.
- UPS batteries shall be Alpha Model 210GXL or approved equal.
- UPS batteries shall have a 5-year full replacement warranty.

Vehicle Signal Equipment:

- Vehicle signal housings shall be McCain Model MTSTA or MTSTP Series only (Yellow body, Black door, Yellow outside/ Black inside visor.)
 - Vehicle signal housings shall include backplates (black finish.)
 - LED modules for vehicle indications shall be GELcore Model DR6 Series only
- Pedestrian Signal Equipment:
- Pedestrian signal housings shall be McCain Model 1000 Series only (Yellow body, Black door, Yellow outside/ Black inside visor.)
 - LED countdown modules for pedestrian indications shall be GELcore Model PS7-CFC9-01A Series only.
 - Accessible Pedestrian Signal (APS) pushbuttons shall be Campbell Company Advisor Model A-57 or approved equal.

Traffic Structures:

- Mast arms shall be Valmont SM16 or CB16 Series or approved equal.
- Strain poles shall be Valmont SW56 Series or approved equal.

Arterial Coordination:

At the discretion of the City Engineer, the traffic consultant shall provide an arterial coordination plan for intersections within 1500' of one another. All plans shall be approved by ATRC prior to initialization by the contractor.

- The coordination plan shall consist of a minimum of 4 time-of-day plans: AM Peak, Midday, PM Peak and Free.
- The cycle lengths, splits, and offsets shall be based on recent traffic counts and average speeds of the coordinated intersections.

643.18 Method of Measurement

As per *Maine Department of Transportation Standard Specifications*

643.19 Basis of Payment

Maine Department of Transportation Standard Specifications

<i>Pay Item</i>	<i>Description</i>	<i>Pay Unit</i>
	<i>Maine Department of Transportation Standard Specifications</i>	

Special Provision
Rectangular Rapid Flashing Beacon
Item 643

The Contractor shall install rectangular rapid flashing beacons on each of four (4) pedestrian crossing warning signs where shown on the plan sheets. Their installation shall be as described in this special provision.

1. Beacon Dimensions and Placement in Sign Assembly:
 - a. Each rectangular rapid flashing beacon (RRFB) shall consist of two rectangular-shaped yellow indications, each with an LED-array based light source. Each RRFB indication shall be a minimum of approximately 5 inches wide by approximately 2 inches high.
 - b. The two RRFB indications shall be aligned horizontally, with the longer dimension horizontal and with a minimum space between the two indications of approximately seven inches (7 in), measured from inside edge of one indication to inside edge of the other indication.
 - c. The outside edges of the RRFB indications, including any housings, shall not project beyond the outside edges of the W11-2.
 - d. As a specific exception to 2003 MUTCD Section 4K.01 guidance, the RRFB shall be located between the bottom of the crossing warning sign and the top of the supplemental downward diagonal arrow plaque, rather than 12 inches above or below the sign assembly.
2. Beacon Flashing Requirements:
 - a. When activated, the two yellow indications in each RRFB shall flash in a rapidly alternating "wig-wag" flashing sequence (left light on, then right light on).
 - b. As a specific exception to 2003 MUTCD Section 4K.01 requirements for the flash rate of beacons, RRFBs shall use a much faster flash rate. Each of the two yellow indications of an RRFB shall have 70 to 80 periods of flashing per minute and shall have alternating but approximately equal periods of rapid pulsing light emissions and dark operation. During each of its 70 to 80 flashing periods per minute, one of the yellow indications shall emit two rapid pulses of light and the other yellow indication shall emit three rapid pulses of light.
 - c. The flash rate of each individual yellow indication, as applied over the full on-off sequence of a flashing period of the indication, shall not be between 5 and 30 flashes per second, to avoid frequencies that might cause seizures.
 - d. The light intensity of the yellow indications shall meet the minimum specifications of Society of Automotive Engineers (SAE) standard J595 (Directional Flashing Optical Warning Devices for Authorized Emergency, Maintenance, and Service Vehicles) dated January 2005.

3. Beacon Operation:

- a. The RRFB, normally dark, shall initiate operation only upon pedestrian actuation, and shall cease operation at a predetermined time after the pedestrian actuation.
- b. All RRFBs associated with a given crosswalk shall, when activated, simultaneously commence operation of their alternating rapid flashing indications and shall cease operation simultaneously.
- c. A pedestrian instruction sign with the legend PUSH BUTTON TO TURN ON WARNING LIGHTS should be mounted adjacent to or integral with each pedestrian pushbutton.
- d. The duration of a predetermined period of operation of the RRFBs following each actuation shall be 20 seconds.

643.18 Method of Measurement

All rectangular rapid flashing beacons installed on signs associated with a single crosswalk shall constitute a single installation. Each installation will be measured for payment by the lump sum in place.

643.19 Basis of Payment

The rectangular rapid flashing beacon will be paid for at the contract lump sum price, which payment will be full compensation for furnishing all materials including, but not limited to the LED-arrays, flasher, timer, controller cabinet, pole risers, wiring, pedestrian push buttons and all appurtenances and incidentals required for a complete and functioning installation and for furnishing all tools and labor necessary for completing the installation.

Payment will be made under:

<i>Pay Item</i>	<i>Description</i>	<i>Pay Unit</i>
643.60	Rectangular Rapid Flashing Beacon at: Russell St. and Bardwell St.	Lump Sum