ITEM #1118301A - Relocate Pre-emption SYSTEM (Site No. 1)

ITEM #1118302A - Relocate Pre-emption SYSTEM (Site No. 2)

ITEM #1118303A - Relocate Pre-emption SYSTEM (Site No. 3)

ITEM #1118304A - Relocate Pre-emption SYSTEM (Site No. 4)

ITEM #1118305A - Relocate Pre-emption SYSTEM (Site No. 5)

ITEM #1118306A - Relocate Pre-emption SYSTEM (Site No. 6)

ITEM #1118307A - Relocate Pre-emption SYSTEM (Site No. 7)

ITEM #1118308A - Relocate Pre-emption SYSTEM (Site No. 8)

ITEM #1118309A - Relocate Pre-emption SYSTEM (Site No. 9)

ITEM #1118310A - Relocate Pre-emption SYSTEM (Site No. 10)

ITEM #1118311A - Relocate Pre-emption SYSTEM (Site No. 11)

ITEM #1118312A - Relocate Pre-emption SYSTEM (Site No. 12)

ITEM #1118313A - Relocate Pre-emption SYSTEM (Site No. 13)

ITEM #1118314A - Relocate Pre-emption SYSTEM (Site No. 14)

ITEM #1118315A - Relocate Pre-emption SYSTEM (Site No. 15)

ITEM #1118316A - Relocate Pre-emption SYSTEM (Site No. 16)

ITEM #1118317A - Relocate Pre-emption SYSTEM (Site No. 17)

Description:

Relocate existing town owned emergency vehicle pre-emption system (EVPS) (either optical or siren) as shown on the plan or as directed by the Engineer. The EVPS equipment includes but is not limited to the following material:

* Optical Detectors
* Siren Detectors
* Phase Selectors
* System Chassis
* Auxiliary Equipment Cabinets (AEC)
* Confirmation Light
* Detector Cable (where practical)

Install new cable from the controller to the pre-emption detectors where the existing cable cannot be practically relocated.

Material:

All material is existing except for miscellaneous hardware necessary for reinstallation (e.g. changing detector attachment from span wire to mast arm) and the Detector Cable.

Miscellaneous Hardware:

1. Mounting hardware designed and manufactured specifically for use with the existing EVPS.
2. Corrosion and rust resistant.

Detector Cable (Optical):

1. 3-Conductor cable with shield and ground wire.

2. AWG #20 (7x28) stranded.

3. Individually tinned copper strands.

4. Conductor insulation: 600 volt, 167O F (75 deg. C).

5. 1 Conductor-yellow; 1 Conductor-blue; 1 Conductor-orange.

6. Aluminized mylar shield tape or equivalent.

7. AWG #20 (7x28) stranded uninsulated drain wire

8. DC resistance not to exceed 11.0 ohms per 1000 feet (305M).

9. Capacitance from one conductor to other two conductors and shield not to exceed 157pf/M (48 pf./ft.).

10. Jacket: 600 volts, 176O F (80 deg. C), minimum average wall thickness ‑ 0.045" (1.14mm).

11. Finished O.D.: 0.3" (7.62mm) max.

Detector Cable (Audio):

1. 2-Conductor cable with shield and ground wire.
2. AWG #14.
3. IMSA Spec 50-2 Detector Lead-In.

Construction Methods:

Conduct an initial evaluation test before removal and a final test after reinstallation. Thirty days prior to disconnection and removal of the existing pre-emption equipment, test and verify that the system is operational as shown on the plan. The thirty days is intended to provide the EVPS owner an opportunity to correct and resolve any deficiencies identified during the test. If during the thirty days the owner repairs, replaces, or corrects any malfunctioning, disconnected, or missing components, re-test that feature prior to removal. The contractor is not responsible to correct any part of the EVPS that is found to be malfunctioning, disconnected, or missing during the initial test. If the contractor is to assume maintenance responsibility of the traffic signal during Temporary Signalization, the EVPS equipment will not be included. Maintenance responsibility remains with the owner.

**EVPS Test Procedure**

1. Notify the system owner/user, such as the municipal fire chief or public works director, of the scheduled inspection.
2. Request a fire department representative and an emergency vehicle, which has an activation device to conduct the test. If not available, the contractor shall provide an activation device.
3. In the presence of the Engineer and the municipal representative, test each pre-empted approach with the emergency vehicle. Test the following items of the system:
4. Confirm that the emitter or siren activates the phase selector and the phase selector activates the correct pre-emption input to the controller.
5. Confirm adequate range. The traffic signal must be pre-empted to green sufficiently in advance of the emergency vehicle arrival. The vehicle emitter or siren shall initiate pre-emption at a minimum distance of 548.6M (1800 feet).

Exception: An obstructed line-of-sight may reduce the minimum distance. Town concurrence is required.

1. Confirm there are no false calls. Keep the emitter or siren active as the emergency vehicle passes through the intersection. No other detectors shall activate.
2. Document the test. Provide the Engineer and the municipality copies of the test results. Attached is a sample test procedure form.

Keep the appropriate fire department official apprised of when (day and time) the system is disconnected and taken out of operation.

Store all pre-emption equipment intended for re-installation in a suitable location to prevent damage from elements and construction activities. Return all pre-emption equipment not intended for re-installation to the Town.

Mount the AEC on the left side of the controller cabinet, when facing the door. Confirm that the inside of the cabinet wall is clear, so that the installation of the AEC will not damage any equipment inside the controller cabinet. Drill a 25mm (1") hole through the side of the controller cabinet. Install a close nipple through the 25mm (1") hole. Apply clear silicon caulk to both ends of the close nipple. Tighten lock-nuts and fiber bushings. Apply additional caulk if necessary to prevent moisture from entering the controller cabinet and the AEC.

Re-install and wire the pre-emption equipment in a neat and orderly manner, as shown on the plan or as directed by the Engineer. Pre-emption detector locations shown on the plan are for illustration purposes only. Field locate the detectors for the best possible line-of-sight. Install the detector cables continuous with no splices between the optical detector and the AEC. Make all connections from the phase selector to the “D” harness and to the cabinet wiring at the pre-emption termination panel.

Conduct a final test, identical to the initial test, to verify that the EVPS is as operational as before removal. If the initial test was not conducted, it is assumed the EVPS was fully operational as shown on the plan. The Contractor is then responsible for all damaged; faulty; missing; and replacement material necessary to restore the EVPS to fully operational.

If a malfunction is found other than identified during the initial test, or the system needs adjustment (such as range, emitter intensity, or detector location), schedule a follow-up test. Repeat the test procedure for all approaches that did not pass.

Notify the appropriate fire department official that the EVPS has been re-installed and is operational.

If not present in an existing traffic controller cabinet install a pre-emption disconnect switch. When switched off, the traffic controller shall not be affected by EVPS calls.

Method of Measurement:

Work under this item is measured as Lump-Sum per site. Detector Cable shall be measured by the number of linear feet (meters) supplied and installed.

Basis of Payment:

This work shall be paid at the contract Lump Sum price for “Relocate Pre-Emption System (Site No.)” for each site. This item shall include all prior testing, removal, storage, re-installation, final testing, any corrective adjustments, replacement components if necessary, documentation, disconnect switch if necessary, and all necessary hardware, materials, labor and work incidental thereto.

All material and work necessary for installing detector cable is paid for under item 111355XA – Detector Cable (Optical).

 Pay Item Pay Unit

 Relocate Pre-emption System (Site No.\_) L.S.

**EVPS TEST PROCEDURE**

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| **Confirm that the emitter or siren activates the phase selector and the phase selector activates the correct pre-emption input to the controller.** |  |
|  |  |
| **Confirm adequate range.** |  |
|  |  |
| **Confirm there are no false calls.**  |  |