Special Specification 6396  
COFW Emergency Vehicle (EV) Preempt  
(Installation Only)

1. **DESCRIPTION**

   **Installation.** Install Emergency Vehicle Preemption (EVP) provided by the Department as shown on the plans.

2. **MATERIALS**

   Pick up Emergency Vehicle (EV) preempt at times and locations shown on plans.

   Designate in writing, persons authorized to pick up Emergency Vehicle (EV) preempt.

   Upon completion of the work and before final payment, return any unused or removed material deemed salvageable to the Department as directed.

3. **EQUIPMENT AND LABOR**

   Furnish all equipment and labor necessary to install the Emergency Vehicle (EV) preempt. This will include, but not limited to an aerial device capable of reaching Emergency Vehicle (EV) preempt, equipment, tools, and incidentals necessary to complete the work. If at any time equipment is determined defective to the point it may affect the quality of work, return the equipment to the Department immediately to be repaired or replaced.

4. **CONSTRUCTION**

   Emergency Vehicle (EV) preempt detectors can be mounted on mast arms, signal head framework, pedestals, span wire, or other appropriate locations in line of sight of controlled approaches.

   **4.1. Mounting Location.** The typical recommended location of a detector is centered over the approaching traffic on the opposite side of the intersection. Before installing a detector at design location, be sure there are no obstructions limiting the view of the detector. If it is found that the position of trees, hills, curves etc. causes obstructions to limit the view of the detector please contact with the Engineer for alternative location.

   **4.2. Mounting Emergency Vehicle (EV).** Preempt detectors can be configured for either upright or inverted mounting by simply rotating the tube shells. Upright position on a pedestal or mast arm is the recommended configuration where possible. It is recommended that inverted mounting only be used when mounting on span wire.

   Install the EV detector cable, in a continuous run, from the detectors to the traffic signal controller. Leave 5 ft. coiled inside controller cabinet. Identify cable runs on each end of the cable with a different color tape for each run.

   Before installing a detector, punch out the correct weep holes. Use pipe thread tape to waterproof the joint. Do not open the hole any larger than the detent or it may become an entry point for insects. For upright mount, screw the detector into the threaded NPT mount. The tubes should be facing in the direction of approaching traffic. Tighten the locknuts to secure the detector so it will not move. A span wire installation requires a span wire clamp. Depending on span wire use appropriate size of span wire clamps.
4.3. **Aiming Tube Assemblies.** After installing the Emergency Vehicle (EV) preempt Detector, the tube assemblies must be aimed for proper system operation. Loosen the cap assembly. Rotate the tube assemblies to their proper positions. Tubes should be aimed to vehicles approaching the intersection.

Install dual-input single-output detector for all approached on the mast arm. In dual-input single-output detector, one tube may be aimed to cover a curved approach while the other tube covers the straight part of the road. If the road is straight, aim one tube slightly to the left of the center of the road and the other tube slightly to the right. If proper alignment cannot be achieved because of contact with the internal stops, change the position of the detector on the mounting hardware by slightly loosening the base and realigning the unit.

Install dual-input dual-output detector for all approaches on the span wire intersection. Dual-input dual-output detector is used when two approaches to the intersection will be controlled independently. One tube will be aimed to cover one approach of the main line and the other tube will be aimed to cover one of the cross street approach. Location of the detector will be adjusted so that both tubes align to the center of their respective approach as much as possible. When the tube assemblies are aimed properly, firmly tighten the cap screws so the tube assemblies cannot rotate.

4.4. **Electrical Connections.** Use appropriate detector cable for wiring the detector. The detector cable is a three-conductor cable with yellow, orange, and blue conductor wires. It also has a bare shield drain wire. Use of other detector cable may result in improper operation.

Each detector has a four-position terminal strip located in the base of the detector. All four wires must be connected to their designated terminals inside the detector. Insulate the bare wire with electrical tape to prevent it from shorting to other wiring.

For dual-input single-output detector, the yellow wire carries the signal from the tube nearest the detector base. For dual-input single-output detector, the blue wire carries the signal from the tube nearest the detector cap and the yellow wire carries the signal from the tube nearest the detector base. Terminate wires in phase selector in appropriate channel based on the position and direction of the tube assemblies. Store excess wire in the base of the detector.

Each detector input should be connected to its own input into the phase selector inside of the traffic cabinet. Combine the blue and the bare wires in one terminal at the cabinet/phase selector end for dual-input single-output detector. Twist the blue and bare wires together, and insulate the pair with electrical tape to prevent them from shorting to other wiring. Connect the detector cable power ground connection to earth ground to allow dissipation of static charges on the detector cable.

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5. **MEASUREMENT**

This Item will be measured as each Emergency Vehicle (EV) preempt installed and connected.

6. **PAYMENT**

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for under the unit bid price for “CFW Emergency Vehicle (EV) preempt (Installation Only).” This is full price for installing, and establishing a connection to each Emergency Vehicle (EV) preempt. Any tools or incidentals needed to accomplish this will not be paid for separately, but will be considered subsidiary to this bid item.