Special Specification 6392  
Installation of Wrong Way Driver Signs and Radar Equipment

1. DESCRIPTION


2. MATERIALS

Provide all materials not supplied by the Department necessary for the installation of the LED Wrong Way Signs, LED Blank Out Signs, Wrong Way Driver Radar Detectors, Contact Closure Radios, Serial Radios, Wireless Modems, and Solar Power Kits. All materials provided by the Contractor must be new. Include a task, in the project schedule, for delivery of Department furnished materials and provide a minimum of 30 days' notice to the Department for pickup of Department furnished materials. Unless otherwise shown on the plans, Wrong Way Drivers Signs and Radar Equipment will be stored by the Department for pick up at locations shown on the plans.

Ensure that all materials and construction methods necessary to complete the installation conform to the requirements of this Item, the plans, and the pertinent requirements of the following Items:
- Item 620, “Electrical Conductors,”
- Item 644, “Small Roadside Sign Supports and Assemblies,”
- Item 656, “Foundations for Traffic Control Devices,” and
- Item 6013, “Electronic Components.”

3. CONSTRUCTION

3.1. Installation. Before installation of any equipment, perform a site survey of the proposed locations to determine the optimal positioning of the signs and radar units to achieve proper operation based on the manufacturer's recommendations. Test wireless links to assure they provide optimal communication between transmitters and receivers. Adjust locations as approved by the Engineer, if necessary. If required, remove any existing Wrong Way signs from their mounts to allow the installation of the new signs.

Install equipment in accordance with this Item and the lines, grades, details, and dimensions as shown on the plans or as directed. Maintain safe construction practices. Ensure the mechanical execution of work complies with NEC, Article 110.12. Equipment must be installed in a neat and workmanlike manner.

Provide all mounting hardware and cabling necessary to install and make operational all equipment. Provide only new and corrosion resistant materials. Consider all mounting hardware and cables as subsidiary to this item with no direct payment.

Adjustments or addition of sign attachment hardware, mounting components, and hardware for radar or solar panels, support brackets and appurtenances, such as conduit, etc., may be necessary for compatibility with specified positioning recommended by the manufacturer, as shown on the plans, or as directed. All adjustments or additional materials will not be paid for directly but will be subsidiary to this Item.

Prevent damage to all equipment provided by the department. Replace any portion of the equipment that is damaged or lost during transportation or installation. Do not use any materials furnished by the Department on any other work which is not part of the contract. Materials not used, which were furnished by the
Department, must be returned undamaged to the location from which the materials were obtained upon completion of the work. Any unused or removed material deemed salvageable by the Engineer must remain the property of the Department and be delivered to a designated site. Accept ownership of unsalvageable materials and dispose of in accordance with federal, state, and local regulations.

The Contractor must complete vendor-provided training on the installation of all equipment before any work begins. The Contractor will provide documentation that they have completed the required training from the equipment manufacturer before final testing of the equipment.

Once installation is complete, contractor will coordinate with equipment manufacturer to ensure radars are properly positioned and the Wrong Way driver detection zones are accurate. Ensure that all equipment is functioning properly and communicating with manufacturer’s cloud server. Testing will begin once proper system functionality is proven.

Stockpile all materials designated for reuse or to be retained by the Department within the project limits or at a designated location as directed.

3.2. **Testing.** Testing of the installed equipment locations is for the purpose of relieving the Contractor of maintenance of the equipment. The Contractor will be relieved of the responsibility for maintenance of the equipment in accordance with Item 7, “Legal Relations and Responsibilities,” after all testing is successfully completed.

Testing of the equipment will consist of the following procedure: once the equipment has been installed and activated, the exit ramp will be closed to traffic. A test vehicle will then be driven the wrong way down the ramp a minimum of ten times. Once a maximum of ten successful detections and notifications of the wrong way vehicle are received at TransGuide, the equipment will be accepted as fully tested and ready for operation. To be accepted, the last 5 successful tests must be consecutive.

After each equipment location has been installed, the Department and the contractor will conduct approved continuity, stand alone, and system tests on the installed field equipment with laptop equipment. A final acceptance test will be conducted to demonstrate all control, monitor, and communication requirements for 60 days. The Engineer will furnish a letter acknowledging the final acceptance testing commencement date stating the first day of the final acceptance test.

The completion of the final acceptance test occurs when less than two false calls have occurred; the system downtime due to mechanical, electrical, or other malfunctions to equipment furnished or installed does not exceed 72 hr.; and any individual points of failure identified during the test period have operated free of defects. Assume responsibility only for test failures directly related to the work in accordance with this Item. Upon completion of successful final acceptance testing, document the acceptance date and project identification information and provide 2 copies to the Engineer.

4. **MEASUREMENT**

Install LED Wrong Way Sign with Solar Power Kit will be measured as each LED Wrong Way Sign with Solar Power Kit installed and made operational in accordance with this specification and as shown on the plans.

Install LED Wrong Way Sign with Wrong Way Driver Radar Detectors with Solar Power Kit will be measured as each LED Wrong Way Sign with Wrong Way Driver Radar Detectors with Solar Power Kit installed and made operational in accordance with this specification and as shown on the plans.

Install Wrong Way Driver Radar Detector with Solar Power Kit will be measured as each Wrong Way Driver Radar Detector with Solar Power Kit installed and made operational in accordance with this specification and as shown on the plans.
Install Wrong Way Driver Radar Detector with camera and equipment box with Solar Power Kit will be measured as each Wrong Way Driver Radar Detector with camera and equipment box with Solar Power Kit installed and made operational in accordance with this specification and as shown on the plans.

5. **PAYMENT**

The work performed and materials furnished, in accordance with this Item and measured as provided under “Measurement,” will be paid for at the unit price bid for “Install LED WW Sign,” “Install LED WW Sign with Radar Detector,” “Install WW Radar Detectors,” and “Install WW Radar Detector with Camera Box.” This price is full compensation for transportation and installation of material furnished by the State; for furnishing and installing any required mounting hardware, connectors, conduit, cables, junction boxes, and equipment cabinets; storing the equipment when required; testing the equipment; replacement or repair of damaged components; disposal of unsalvageable material; and for all manipulations, labor, tools, working drawings, equipment, and incidentals.