

805-T-173 WIRELESS VEHICLE DETECTION SYSTEM

(Revised 04-25-21)

Description

This work shall consist of furnishing and installing wireless vehicle detection systems for vehicle detection at traffic signals.

Materials

The wireless vehicle detection system, WVDS, is comprised of wireless magnetometer detectors, contact closure cards, receiver processors, and wireless repeaters installed for a signalized intersection. The system shall be capable of monitoring vehicles on a roadway via detection of changes in inductance caused by the presence or passage of a vehicle and shall provide detector outputs to a traffic signal controller.

The WVDS shall include magnetometer detectors, a minimum of two receiver processors, the required mounting equipment, cables, rack mounted cards, set-up and operating software, all connectors, and miscellaneous equipment necessary for the installation and operation of the system. If required, the WVDS shall also include wireless repeaters.

Only models from the QPL of Traffic Signal and ITS Devices shall be used.

Ethernet cable for wireless vehicle detectors shall be outdoor rated and UV shielded.

Construction Requirements

Prior to the installation, the Contractor shall test all wireless magnetometer detectors and demonstrate proper operation and communication between the wireless magnetometer detectors and the receiver processor and wireless repeater, if required.

Prior to the installation, the Contractor shall demonstrate that each wireless magnetometer detector is within range of its corresponding receiver processor, using wireless repeaters as necessary. All wireless magnetometer detectors assigned to either a receiver processor or wireless repeater shall be located within a 120° arc measured from the receiver processor or wireless repeater.

The Contractor shall install each wireless magnetometer detector in the roadway according to the manufacturer's recommendations with one wireless magnetometer detector programmed to count vehicles for each through travel lane. Holes cored in the pavement shall be cleaned and dried before installing wireless magnetometer detectors. The cored pavement shall be backfilled according to the manufacturer's recommendations.

Receiver processors and wireless repeaters shall be mounted on traffic signal steel strain, pedestal, cantilever poles, or square steel sign posts. If a square steel sign post is used, it shall have a length of no more than 24 ft and a Type 3 object marker shall be installed on the post, with a mounting height of 4 ft, measured from the edge of the traveled way to the bottom of the object marker. The mounting height of receiver processors above the pavement surface shall be between 20 ft and 35 ft. The mounting height of wireless repeaters above the pavement surface shall be between 13 ft and 35 ft.

The minimum distance between a receiver processor and wireless repeater mounted on the same structure shall be 2 ft. This distance may be increased to enable better communication between the devices.

After installation, the Contractor shall demonstrate successful communication between each wireless magnetometer detector, receiver processor, and wireless repeater to the Engineer.

Method of Measurement

Wireless magnetometer detectors, contact closure cards, receiver processors and wireless repeaters will be measured by the number of units installed.

Basis of Payment

Wireless magnetometer detectors, contact closure cards, receiver processors and wireless repeaters will be paid for at the contract unit price per each.

Pay Item	Pay Unit Symbol
Contact Closure Card.....	EACH
Receiver Processor.....	EACH
Wireless Magnetometer Detector.....	EACH
Wireless Repeater.....	EACH

The cost of coring the pavement, sealant, and all work necessary for proper installation and operation of the wireless magnetometer detectors shall be included in the cost of the wireless magnetometer detector.

The cost of cables, connectors, set-up and operating software, access boxes, rack mounted expansion cards, and all hardware necessary to complete the installation shall be included in the cost of the contact closure cards.

The cost of required mounting equipment, cables, connectors, and miscellaneous equipment necessary for proper installation and operation of the receiver processors shall be included in the cost of the receiver processors.

The cost of required mounting equipment, connectors, and miscellaneous equipment necessary for proper installation and operation of the wireless repeaters shall be included in the cost of the wireless repeaters.