
Special Specification 6067

Radar Vehicle Sensing Device



1. DESCRIPTION

Remove existing RVSD. Transport, install and test Department furnished RVSD, as shown on the plans, as detailed in the special specification, and as directed.

Maintain the integrity of the existing systems consisting of but not limited to conduits, junction boxes, overhead supports, mounting brackets, and cables contiguous to the section of work area. If any of the existing systems are damaged during the work, the Contractor will be required to repair or replace the damaged system(s) at his/her own expense. The replacement or repair method must be approved by the Engineer, prior to implementation. Maintaining the integrity of the existing systems during the work shall be subsidiary to this special specification.

2. MATERIALS

The Department will furnish the radar vehicle sensing devices. Provide all materials not supplied by the Department necessary for the RVSD installation. All materials provided by the Contractor must be new. Assume responsibility for all materials furnished by the Department.

The RVSD will be stored by the Department for pick up at TxDOT Traffic Management Section, 2501 SW Loop 820, Fort Worth, Texas, 76133

3. WORK METHODS

Maintain safe construction practices during removal. Prevent damage to the existing RVSD components and to the RVSD supplied by the Department. Replace any component that is damaged or lost during transportation or installation at the Contractor's expense.

Disconnect existing RVSD from sensor cable and remove RVSD from mounting bracket. Transport removed RVSD to the TxDOT's Traffic Management Maintenance Section, 2501, Southwest Loop 820, Fort Worth, Texas 76133.

Install the RVSD and all accessories according to manufacturer's recommendations to achieve the specified accuracy and reliability. Install all materials and provide support, calibration and test equipment, to ensure an operating and functional system.

Proper placement and orientation of the RVSD are critical to the overall performance and accuracy of the system and must conform to the manufacturer's published requirements for the system provided. Install the RVSD units as shown on the plans. Confirm equipment placement with the Engineer before installing any equipment.

4. TESTING

- 4.1. Verify that the existing RVSD is fully operational prior to removal of the equipment. Once removed, the equipment becomes the responsibility of the Contractor until relieved by the State.

4.2. Performance testing after installation: Verify volume accuracy by comparing manual counts to the RVSD detections, for a minimum of 50 vehicles per lane. Verify radar vehicle sensor alignment to minimize occlusion prior to manual counts. Record the number of missed vehicles and false detections. Calculate errors by dividing the difference between missed and false detections by the total number of vehicles. To ensure low variability in performance, missed and false detections must not exceed 15%. Provide such performance analysis for the following environments:

- Free flowing traffic (speeds greater than 45 MPH)
- Congested traffic (speeds from 15 to 40 MPH)
- All lanes simultaneously.

If sensor needs recalibration, calibrate sensor and retest volume accuracy as described above.

Verify speed accuracy with laser speed gun. Record speeds for a minimum of 10 vehicles per lane. Average speeds recorded and compare with the speed shown in the RVSD interval data window to verify compliance of $\pm 15\%$ accuracy. If speed adjustment is required, only the lane that has been adjusted will be required to be re-tested.

Representatives of the Contractor and the State shall be present during the verification prior to removal and during the testing after installation. Both representatives shall sign the test report as to the equipment passing the performance test.

5. EXPERIENCE REQUIREMENTS

The Contractor or subcontractor involved in the installation and testing of the RVSD must, as a minimum, meet the following experience requirements:

- Two years continuous existence offering services in the installation of RVSD systems.
- Two installed RVSDs where systems have been in continuously satisfactory operation for at least 1 year. Submit as proof, photographs or other supporting documents, and the names, addresses and telephone numbers of the operating personnel of the business or agency owning the system who can be contacted by the Department regarding the system.

Provide necessary documentation of contractor or subcontractor qualifications pursuant to contract award.

6. MEASUREMENT

This item will be measured as each radar vehicle sensing device removed, transported, installed, made fully operational, and tested.

7. PAYMENT

The work performed and supplies furnished in accordance with this Item and measured as provided under Measurement” will be paid for at the unit price bid for “Remove and Replace RVSD.” This price is full compensation for removing, installing, testing, transporting, and for all manipulations, materials, labor, tools, equipment, and incidentals.