

Special Specification 6256

Automated Portable Smart Traffic Monitoring System



1. DESCRIPTION

Furnish, install, relocate, operate, service, and remove various components of an automated, quickly deployable, portable, real time Smart Traffic Monitoring System (STMS) meeting the requirements of this Item, and provide the maintenance of the complete system for the duration of the project or as directed.

Furnish an on-site System Coordinator. Provide qualified staff to maintain this system and who are locally available to service and maintain system components, move portable devices as necessary, and respond to emergency situations. Assume responsibility for directing placement of devices in the project area. The Contractor is to be accessible seven days a week and twenty-four hours a day while the system is deployed. Provide contact information for the system coordinator and others responsible for maintenance of the system before installing the system. Monitor the STMS throughout any period of deployment.

Furnish a system capable of providing advance traffic information to motorists when there is a slowing of traffic due to congestion resulting from lane reductions or other conditions. The condition-responsive notification to the motorist occurs with the use of Portable Changeable Message Signs (PCMS) activated through real-time traffic data collected downstream of the PCMS location. This equipment must be a packaged system that operates as a stand-alone STMS meeting this specification. Conditions might exist that require multiple deployments of this system at a given time. The Department reserves the right to terminate this item at any time if it determines this STMS is not performing in accordance with this specification or the Contractor has met the responsibilities identified in this specification.

Provide an STMS that consists of the following field equipment: portable / battery (solar optional) powered non-invasive vehicle detection devices and solar/battery powered PCMS's. Provide a system capable of withstanding inclement weather conditions and can continue to provide adequate solar and battery power. The system must calculate and notify drivers via PCMS's of the traffic delay conditions ahead. The message dialog is to be approved by the Engineer before use. The number and location of detection, and message trailers are defined in the plans and as directed by the Engineer.

The decision to deploy or relocate field equipment is made by the Engineer and instrumented through the System Coordinator. The decision for equipment removal is made by the inspector after work is complete.

Provide a detector capable of collecting traffic speed data. The processed data is used to remotely control PCMS's to display user-definable, Engineer-approved, and locally stored messages. The message trigger state thresholds are user configurable. The STMS will provide the means to transmit the processed speed data to an external host and in accordance to the communication scheme and data format as defined in the plans.

Provide PCMS of the line matrix type, at a minimum, in accordance with the Item, "Portable Changeable Message Sign" and any required provision, with the additional capability of supporting communications via modem/radio/CDMA/GPRS, remote message and flashing-beacon control.

2. MATERIALS

Provide material that complies with the requirements of this Item and the details shown on the plans. Provide materials that meet the manufacturer's specifications and recommendations. Maintain an adequate inventory of parts to support maintenance and repair of the STMS.

Provide Department-approved PCMS to convey real-time traffic condition information to motorists. Provide PCMS that comply with the Special Specification, "Portable Changeable Message Sign" and any required provision, the 2011 TMUTCD, and incorporate an approved portable trailer. Ensure each PCMS battery backup has adequate capacity to allow continuous operation for a minimum 14 days during periods of darkness and inclement weather.

3. CONSTRUCTION

Provide equipment, tools, supplies, materials, and labor to make the system operational. Assume all communication costs including cellular telephone service, FCC licensing, wireless data networks, satellite and internet subscription charges, solar system support, and battery charging and maintenance. In addition to these requirements, assume responsibility for equipment damaged due to crashes, vandalism, adverse weather, etc. that may occur during the contract period.

The STMS operates continuously when deployed on the project. The system is in a constant "data collection" mode. STMS Technical Support must be available for the entire period of every operation.

In the event communication is lost between any field equipment, provide a means and staff to manually program a PCMS message. If communication is lost for more than 10 consecutive minutes, ensure the system reverts to a fail-safe ROAD/WORK/AHEAD message displayed on the PCMS until communication is restored.

System Operator local control functions and remote management operations must be password protected.

Provide STMS capable of acquiring traffic information and selecting messages automatically without operator intervention after system initialization. The maximum allowable lag time between changes in threshold ranges and the posting of the appropriate PCMS message(s) is 60 seconds. The system operation and accuracy must not be appreciably degraded by inclement weather or degraded visibility conditions including precipitation, fog, ice, frost, darkness, excessive dust, and road debris.

Provide a system capable of storing ad-hoc messages created by the System Coordinator and logging this action when overriding any default or automatic advisory message.

Provide a STMS communication system that incorporates an error detection/correction mechanism to insure the integrity of traffic conditions data and motorist information messages. Automatically perform any required configuration of the STMS communication system during system initialization.

Pre-deployment system acceptance is based on the successful performance demonstration of STMS for a 5-day continuous period in accordance with this specification and as set forth in the plans. Comply with FCC and Department specifications. Supply a medical statement as to the safety of the detection unit to the general public, when required.

4. MEASUREMENT

This Item will be measured by the calendar day, including Saturday and Sunday, for the detection units and portable changeable message signs of the configuration system types shown on the plans, required for the handling of traffic through the work areas on the project. Only PCMS units set up on the work area and made operational before the calendar day will be considered measurable.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and as provided under "Measurement" will be paid for at the unit bid price for "Automated Portable Smart Traffic Monitoring System," of the type specified. This price is full compensation for the use of the equipment, including labor to set-up, furnish, operate, relocate, and remove sign units, replacement parts, maintenance, related consumables, software, programming, and for incidentals necessary to complete the work.