

August 4, 2020

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATION
DEPARTMENT OF ADMINISTRATION

DIVISION OF PURCHASES BID NO. 7606828

RHODE ISLAND DEPARTMENT OF TRANSPORTATION

RHODE ISLAND CONTRACT NO.2020-CT-034

FEDERAL-AID PROJECT NO. FAP Nos: STPG-8888(244)

STC Improvements 2020

Towns of Narragansett, North Kingstown, North Providence, and Westerly. Counties of Providence and Washington.

CITY/TOWN OF Narragansett, North Kingstown, North Providence, Westerly

COUNTY OF WASHINGTON, PROVIDENCE

NOTICE TO PROSPECTIVE BIDDERS

ADDENDUM NO. 2 Prospective bidders and all concerned are hereby notified of the following changes in the Plans, Specifications, Proposal and Distribution of Quantities for this contract. These changes shall be incorporated in the Plans, Specifications, Proposal and Distribution of Quantities, and shall become an integral part of the Contract Documents.

A. Specification Change/Addition

1. Item T12.9902

Delete Pages JS-70 through JS-75 in their entirety and replace them with Pages JS-70 (R-1) through JS-75 (R-1) attached to this Addendum No. 2. Specification for Item T12.9902 has been revised.



RI Department of Transportation

Manager, Division of Project Management

ADDENDUM NO. 2

ATTACHMENTS

CODE T12.9902
INTERSECTION WIDE 360 DEGREE VIDEO DETECTION SYSTEM

DESCRIPTION: This item of work shall conform to the applicable sections of the Rhode Island Standard Specifications with the following additions.

The Contractor shall furnish and install vehicle detection systems that detect vehicles on a roadway by processing images sent from a sensor to an interface board with detector outputs that can be received by the traffic signal controller. These traffic sensors shall be installed at the locations shown on the Plans and in accordance with these specifications.

MATERIALS: The detection system shall be non-intrusive (i.e. above ground) and shall consist of mounting brackets, traffic sensor and detection module. The detection system also, at a minimum, shall be able to collect and store volume and speed of vehicles and bicycles; provide stop bar detection; and be NEMA TS 2 compatible. No additional hardware, software items and/or subscription fees/costs shall be needed/allowed to satisfy the requirements as defined in these specifications. Components of the detection system shall all be the same as to make and model with the following additions or approved equivalent.

A. Hardware:

a. *Camera*

- i. Shall provide 360 degrees of visibility from the point of installation.
- ii. Shall be powered via Power over Ethernet (PoE) and be IEEE802.3af compliant.
- iii. Shall support configuration in both spherical “fisheye” configuration, and rectangular “quad view”.
- iv. Shall support at least 5 megapixel (MP) capture.
- v. Shall provide MJPEG image compression.
- vi. Shall have a video resolution of 2560 X 1920 pixels
- vii. Contractor shall supply 1 camera (and any additional cameras if required to provide a functioning vehicle detection system) as indicated on the Plans

b. *Camera Mount*

- i. Shall include all mounting hardware with device.
- ii. Mounting fixture shall be constructed of weatherproof painted aluminum.
- iii. Mounting hardware shall be fully assembled to camera and ready to attach to pole or extension arm.
- iv. Mounting hardware shall support vertical pole installation, horizontal pole installation, or attachment via a 1 ¼” threaded fitting.
- v. Mounting fixture (including camera, 40ft cable) shall not exceed 9.4” diameter x 7.95”, and 5.6 lbs in weight.
- vi. Shall include 40 feet of shielded ethernet cable for connection to PoE power source and internet access.
- vii. Shall include two-way ethernet coupler rated to IP68 for connection to cabinet ethernet cable

c. *SDLC Controller Interface*

- i. Shall provide all necessary cabling to connect to a cabinet’s existing Port 1/SDLC bus.

- ii. Shall support reading terminal and facility input & outputs at a frequency of at least 10 times per second.
- iii. Shall support reading channel state at a frequency of at least 10 times per second.
- iv. Shall support acquisition of Malfunction Management Unit (MMU) fault status including conflict, red failure, and clearance failure.
- v. Shall support reading information from all detectors wired into the cabinet supporting up to 1 ms resolution between detection events.
- vi. Shall detect failure of a detector in either always high, or always low, mode.

Video Processing Unit

- i. Shall support processing of a minimum of two simultaneous feeds from Camera units.
- ii. Shall display status of detection channels
- iii. Shall include a USB 2.0 device port.
- iv. Shall include 2 x 10/100/1000 Ethernet ports.
- v. Shall support PoE on two of the above ports.
- vi. Shall include onboard processing capabilities to perform video- based vehicle detection and generation of traffic analytics.
- vii. Shall support all requirements found in 2.2.1.6 SDLC Controller Interface
- viii. Shall provide the capability to act as one or more SDLC detector racks and support generating detections on up to 64 channels

B. Video Detection:

a. Configuration

- i. Shall support local configuration of detection zones and system settings via manufacturer software.
- ii. Shall allow for configuration at the roadside, by a laptop computer connected via ethernet to the Video Processing Unit and Software.
- iii. Shall support the configuration of entries, exits, and turning movements for additional traffic analytics.
- iv. Shall support maintaining multiple detection zone configurations that can be remotely selected and enabled at any time using software.
- v. All configuration files shall be stored locally at the traffic control cabinet.
- vi. Installer shall follow all manufacturer written instructions/recommendations and requirements related to the install. Installer shall also submit a list of personnel that will be involved in the installation and provide certification that the technician has received factory approved/authorized training.

b. Detection

- i. Shall support a minimum of 100 unique video detection zones.
- ii. Shall support both rectangular and irregular polygon shaped zones. Zones shall be configured 1:1 per lane for stop line detection.
- iii. Shall support real-time detection of vehicles, cyclists, and pedestrians in configurable detection zones per camera.

- iv. Shall support identification of unacceptable video feed, including interrupted video signal.
 - v. Shall support directional detection zones to reduce false detections from objects traveling in other directions.
 - vi. Shall support the tracking of vehicles and pedestrians for video analytics applications
- C. Installation and Training - The manufacturer of the vehicle detection system, or their representative, shall design sensor layout, placement and lens size, and supervise the installation and testing of the equipment. A factory certified representative from the supplier shall be on-site for a minimum of one (1) day.
- D. The Contractor shall provide up to sixteen (16) hours of personnel training in the use of the vehicle detection system and software. The training may be required to be broken into two (2) separate groups at the discretion of RIDOT. The Contractor is to coordinate with the RIDOT as to the exact location and time of the training. It is the responsibility of the Contractor to provide training manuals, class notes, and other instructional materials for up to fourteen (14) attendees at the training session, which includes two (2) attendees from VHB (project consultant/designer). No training shall begin unless and until the final inspection process indicates, in the opinion of the Engineer, that the vehicle detection system is sufficiently complete and operational such that training would be useful at the time.
- E. The manufacturer shall provide three (3) complete sets of maintenance manuals for the installed equipment. These manuals shall have complete set-up, maintenance and troubleshooting procedures presented in an organized format. The three sets shall be delivered to the RIDOT.
- F. Warranty, Maintenance and Support - The traffic sensor shall be warranted by its supplier for a minimum of one (1) year. The vehicle detection system shall be warranted by its supplier for a minimum of one (1) year. The warranties for both the traffic sensor and vehicle detection system shall be completely transferrable from the Contractor to the RIDOT. During the warranty period, the supplier shall provide technical support by telephone during normal business hours and request for support by telephone shall be answered by factory certified personnel within one (1) hour.
- During the warranty period, certified personnel from the supplier shall be on site within seventy-two (72) hours if required.
- G. The Contractor shall supply and install extension brackets to support proposed vehicle detection sensors as shown on the plans.
- H. Access hole(s) shall be provided in the connection to allow wires to pass from the mast arms/span poles and vehicle detection sensors to the extension brackets. The sides of all holes in the connections shall be deburred to prevent the wires from chaffing and outdoor rated rubber grommets shall be used where feasible.
- I. The extension bracket length and attachment heights shall be verified by the Contractor based on existing grade at the site, the location of overhead utility cables and traffic appurtenance mounting heights. Acceptance of extension brackets will be contingent upon review and approval of shop drawings submitted by the Contractor. The Contractor shall be responsible for selecting the proper length of bracket and achieving the proper orientation of the extension brackets and may be required to field adjust the location of the extension brackets in the presence of the Engineer to properly align vehicle detection sensors and for strategic placement of any blind spot created by the extension bracket.

- J. Video detection shall consist of an IP based camera assembly and a digital video detection system. Analog cameras with separate video encoders shall not be allowed.
- K. No additional hardware, software items and/or subscription fees/costs shall be needed/allowed to satisfy the requirements as defined in this specification.

CONSTRUCTION METHODS: Intersection Wide 360 Degree Video Detection System shall be installed in accordance with the Plans. All components of the Intersection Wide 360 Degree Video Detection System shall be installed in accordance with the manufacturer's recommendations. The locations of the video detection zones shown on the plans are approximate. Final size and locations of the video detection zones shall be positioned in the field and tested in cooperation with the Engineer to ensure that detection zones are established to cover the approach width and that the detection system is functioning to the satisfaction of the Engineer.

METHOD OF MEASUREMENT: This item will not be measured for payment.

BASIS OF PAYMENT: No separate payment will be made for this item. Costs for this item shall be included in the bid price for Item Codes 999.9901 – INSTALLATION OF TRAFFIC SIGNAL SYSTEM NO. 1A and 999.9902 – INSTALLATION OF TRAFFIC SIGNAL SYSTEM NO. 1B as listed in the Proposal.

THIS PAGE INTENTIONALLY LEFT BLANK

THIS PAGE INTENTIONALLY LEFT BLANK