

TECHNICAL SPECIAL PROVISION

FOR

ITS Automatic Vehicle Identification System
(AVI):

Financial Project ID:
435443-1-52-01

The official record of this Technical Special Provision is the electronic file signed and sealed under Rule 61G 15-23.003, F.A.C.

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T660 ITS Automatic Vehicle Identification System (AVI)

T660-1 Description: Provide a Bluetooth AVI device that is powered by solar or traffic signal cabinet power supply. The device shall communicate via a cellular or ethernet connection with the Florida Department of Transportation (FDOT) servers.

T660-1.2 Materials: The device shall be Class 1 rated and shall operate on either a 120-240 VAC connection using a 12 VDC adapter, a 12 VDC battery, or a Power Over Ethernet connection.

T660-1.3 Construction Requirements: The location and type (solar or cabinet power supply) of AVI device shall be installed as shown in the contract documents.

T660-1.4 Operation, Configuration, and Management: The device network setting shall be user configurable. The system shall collect and report data continuously, 24 hours a day and 7 days a week. The device shall collect and archive all detections with a travel time of at least 30 seconds. The system shall record multiple hits as a Bluetooth device travels through the area of detection, not a single data entry per Bluetooth device unit. The data shall upload to the server automatically at least every 60 seconds, and the system shall have provisions for not losing data if upload fails. The device shall maintain a local cache of data with provisions for a minimum of two weeks' worth of data stored in non-volatile, user-replaceable storage. The device shall automatically set time each day and have a battery backed real-time clock source.

T660-1.4.1 Device Detection Range: The device shall detect at a minimum the area depicted in the plans. The device shall support RP-SMA omni-directional antennas for Bluetooth signal. The device shall be configured as a class 1 Bluetooth device via a web based interface. The device shall be capable of detecting up to at least a 300 foot range.

T660-1.5 Communications: The device shall use TCP/IP and or UDP/IP communications over 10/100-BaseTX Ethernet network, or GSM network with a data plan. The unit shall use Bluetooth Class 1 rated devices.

T660-2 Software Interface: The device drivers shall communicate with vendor specific protocols in order to relay information from the devices into the SunGuide system. The system shall have a probe based protocol that will allow the SunGuide system to efficiently process vendor specific data and diagnose issues with the field device.

T660-2.1 TCP/IP Interface: The device shall allow SunGuide to establish a TCP/IP connection to the device, in order to allow the system to easily identify connectivity issues with the device and the source of any data from a field device. The device shall allow SunGuide to remove the source device identification field from the data provided by the field device.

T660-2.2 Data Format: The data shall be provided in an XML format. All messages that the device sends or receives shall be fully documented and provided to FDOT. Each message shall be clearly delimited from another message, and any delimiters shall be documented.

T660-2.3 Data Message: Data messages shall be sent immediately upon the MAC address being received by the field Bluetooth device. The MAC address shall be unique to the vehicle device and shall be easily matched to the same vehicle device passing a different Bluetooth device. The timestamp shall be formatted in the same way across all field devices. Any additional information provided by the data message shall be well documented and include a definition of what data is being reported including the units of measurement or other necessary information needed by the data processing application to interpret and make decisions based on the data.

T660-2.4 Heartbeat Message: The device shall send a heartbeat message which consists of device status and any problems the device might be experiencing. This message shall be sent by the field device on a regular interval regardless of additional data messages being sent.

T660-2.5 Time Synchronization of Devices: The device shall have a timestamp consistent with other devices and the software interpreting the data. The device shall either support a request to set the time on the device or support a process that syncs to a configured NTP server.

T660-3 Method of Measurement: The quantity to be paid for shall be the Contract unit price for each component of an AVI detection system, furnished and installed, and will include furnishing, placement, testing of all materials and equipment, and for all tools, labor, equipment, hardware, operational software packages and firmware, supplies, support, personnel training, shop drawings, warranty documentation, and incidentals necessary to complete the work.

T660-4 Warranty: The AVI shall include a minimum three year warranty on furnished equipment, software for material, workmanship, design, and manufacturers defects. The Contractor shall not purchase the equipment prior to the issuance of Notice to Proceed. The Contractor shall assign to the Department the above manufacturer's or other seller's warranties that come with those products, material or supplies. Assignment of such warranties shall be effective on the date of Final Acceptance. To the extent that any of such warranties do not extend to subsequent purchasers or owners or such warranties contain a limitation on assignment, the Contractor agrees that the Contractor purchased the products, materials, and supplies, on behalf of the Department with the intent that the Department be the original end user of the product and intended recipient of any warranties. All documents associated with or describing any such warranties shall be delivered to the Department along with the other project final acceptance documents and shall be deemed to be a part of the required final acceptance documentation. Contractor shall not take any action or fail to act in any way which voids any such warranties.

T660-5 Basis of Payment: Price and payment will be full compensation for all work specified in this Technical Special Provision.

Payment will be made under:

Item No. 660-6-122 Vehicle Detection System – AVI, Bluetooth, F&I, Above Ground Equipment