

## **Specifications for a Tire Pressure Screening Anomaly System**

### **PURPOSE**

The specifications outlined in this document establishes the type, capabilities, performance, verification, documentation, training, and warranty of a Tire Pressure Screening Anomaly System (TPSAS). The purpose of the TPSAS will be used for the purpose of detecting underinflated, over inflated, and flat tires to ensure commercial motor vehicles are adhering to Federal and state law as determined by the State of Tennessee and the Federal Motor Carrier Safety Regulation established in 49 CFR §393.75, Tires. The Tire Pressure Screening Anomaly System will be installed in Giles County (Mile Marker 5, Interstate 65 North, Ardmore, TN 38449) and Greene County (Mile Marker 21, Interstate 81 South, Mosheim TN, 37818), at the scale facility inspection site. This system shall be of an in-ground configuration and will include all components to include but not limited to electrical, site work, and installation.

The tire pressure screening anomaly system described in this specification shall be installed at the appropriate location of the entrance ramp for optimal performance.

Note: The following specifications as called out in this document must be met by the tire pressure screening anomaly system being offered by respondent (Offeror) in order for the Offeror's submission to be considered under this solicitation.

### **ACRONYMS AND DEFINITIONS**

CMV	Commercial Motor Vehicle
Offeror	Respondent to Solicitation
TPSAS	Tire Pressure Screening Anomaly System
TDOSHS	Tennessee Department of Safety and Homeland Security

### **SPECIFICATIONS**

- 1.1 These specifications present the minimum requirements and details of a sensor system that can detect moving vehicles with underinflated, over inflated, and/or flat tires.
- 1.2 The system must be able to detect underinflated, over inflated, and flat tires of commercial vehicles at or up to highway speeds in steady state traffic flows. The intent is for the Tire Pressure Screening Anomaly System detection sensors to be installed as part of mainline or weigh station deceleration ramp in WIM locations where trucks are being weight screened for confirmation and enforcement activities. The system must operate in a speed range of 20 - 75mph in steady traffic flows.
- 1.3 The Tire Pressure Screening Anomaly System shall be operational in environmental conditions typical of North America, including temperatures of -40°F to +140°F, including rain, and snow conditions.
- 1.4 The sensor system and all components shall be UL approved for wet locations.

- 1.5 The Tire Pressure Screening Anomaly System shall be able to detect wide based tires, single tires, dual tires, and identify tires that are underinflated or flat. The system shall detect and identify 85% of tires that are underinflated by 50% of tire rating and detect and identify 90% of tires that are flat or missing.
- 1.6 The Tire Pressure Screening Anomaly System detection sensors must be able to be installed in existing highway pavements without the need for special concrete slabs or site preparation. The sensors shall be of a size that will afford installation in the existing pavement without overly distressing or reducing the life of the existing pavement. Installation of sensors shall be accomplished by installing the sensors in a prepared cut in the existing pavement and gluing sensors into the cut with a vendor supplied adhesive grout. Installation of sensors shall take no more than 4 hours per lane with a standard sensor/loop installation team and equipment. No Interstate lanes shall be closed during installation as installation will be on the entrance ramp only.
- 1.7 Tire Pressure Screening Anomaly System should utilize detection sensors that are currently in use as either axle or weigh sensors in the current market. Sensors shall be replaceable and not of a proprietary or single source. All equipment must be open interface and nonproprietary. The Tire Pressure Screening Anomaly system must be interfaced with one of the existing systems at each site to avoid creating a standalone system. Any cost for integration will be at the expense of the Offeror.
- 1.8 The Tire Pressure Screening Anomaly System will add the tire type, underinflated and flat tire flags and vehicle classification record that will include date, time, vehicle speed, underinflated and missing/flat tire location on the vehicle, and other information typically supplied with the system.
- 1.9 The necessary hardware and software will be standard with the Tire Pressure Screening Anomaly System. The processing components of the system shall generate a data output that is non-proprietary and can act as a stand-alone data stream to feed third party screening systems. Under no circumstances will a proprietary interface or data stream be accepted by the State.
- 1.10 The Tire Pressure Screening Anomaly System will be required to have its own cradle point modem that will allow the Offeror to monitor the system remotely. The offeror will be responsible for internet connectivity.

## **TESTING**

- 2.1 The Tire Pressure Screening Anomaly System shall be tested for accuracy at the time of installation and startup.
- 2.2 Once the Tire Pressure Screening Anomaly System passes the installation and startup testing phase, the Tire Pressure Screening Anomaly System shall be tested **quarterly** for the first year to ensure all criteria and accuracy reporting is consistent with the outlined specification percentages for detecting and identifying underinflated flat or missing tires.

- 2.3 Test to ensure the Tire Pressure Screening Anomaly System data is integrated into the current screening systems so the suspect vehicles are sorted to weigh station or static scale for confirmation.
- 2.4 The company shall provide the Tennessee Department of Safety and Homeland Security an outline detailing the acceptance testing procedure for the Tire Pressure Screening Anomaly System and all documentation regarding the system being accurate with the percentages listed in the outline.

## **TRAINING**

- 1.1 The company shall provide training, at no cost to the State, at least twice within three months of installation to Motor Carrier Inspector Specialists on the Tire Pressure Screening Anomaly System. At a minimum, the training shall educate and train Motor Carrier Inspector Specialists on how the system operates, the technology that incorporates within the system, and how to interrupt the data that comes from the system.

## **WARRANTY**

- 1.1 The company shall include an exclusive, full warranty on all parts, labor, onsite repair, and telephone support. The warranty shall cover the complete Tire Pressure Screening Anomaly System and peripherals (e.g., hardware and software). The warranty period shall be one year from the date of the completion after the first initial training of Motor Carrier Inspector Specialists and any other Tennessee Department of Safety personnel.
- 1.2 No third-party warranties will be accepted on system components or peripherals.
- 1.3 The warrantee shall be able to respond to the site within 24 hours to address system issues and complete necessary repairs

