Florida Department of Transportation

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JARED W. PERDUE, P.E.
SECRETARY

August 8, 2024

Cathy Kendall
Director, Office of Technical Services
Federal Highway Administration
3500 Financial Plaza, Suite 400
Tallahassee, Florida 32312

Re: State Specifications Office
Section: 660
Proposed Specification: **6600202 Vehicle Detection System**

Dear Ms. Kendall:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by Ronald Meyer to differentiate functional capabilities of certain vehicle detection systems on APL and update warranty language for consistency with other sections.

Please review and transmit your comments, if any, within two weeks (10 business days). Comments should be sent via email daniel.strickland@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at (850) 414-4130.

Sincerely,

Signature on File

Daniel Strickland, P.E.
State Specifications Engineer

DS/jb
Attachment
cc: Florida Transportation Builders' Assoc.
State Construction Engineer

VEHICLE DETECTION SYSTEM
(REV ~~6-20~~8-~~8~~-24)

SUBARTICLE 660-2.2 is deleted and the following substituted:

660-2.2 Classification of Types: Vehicle detection and data collection systems are classified by the type of function they perform ~~and~~, ~~and~~ the type of technology that they employ, and where they are used for detection.

660-2.2.1 Functional Types: Provide the functional type detailed in the Plans.

660-2.2.1.1 Vehicle Presence Detection Systems: Vehicle presence detection systems produce a corresponding output any time that a vehicle occupies the physical or virtual area of the detector.

660-2.2.1.1.1 Stop Line Detectors: Stop line detectors are designed to detect vehicles at or near the stop line at intersections.

660-2.2.1.1.2 Advance Detectors: Advance detectors are designed to detect vehicles at variable distances upstream of an intersection stop bar.

660-2.2.1.2 Traffic Data Detection Systems: Traffic data detection systems provide presence, volume, occupancy, and speed data for the lanes they are configured to monitor.

660-2.2.1.3 Probe Data Detection Systems: Probe data detection systems provide speed data and travel times for a road segment. Probe data detectors use automatic vehicle identification (AVI) technologies to establish a unique identifier for each vehicle they detect. This identifier is then transmitted to a central site where it can be matched to past or future detections of the same vehicle at different detector locations.

660-2.2.1.4 Wrong Way Vehicle Detection Systems: Wrong way vehicle detection systems produce an alarm output when a vehicle is detected traveling in the wrong direction and may consist of more than one detection zone and may use any of the technology types. For both mainline and ramp installations, the detection system must monitor all lanes for one direction, including shoulders. The wrong way detection system must not interfere with other vehicle presence or traffic data detection systems.

660-2.2.2 Technology Types: Provide the detection technology type detailed in the Plans. Detection technology types include inductive loop, video, thermal, microwave, wireless magnetometer, ~~and~~ AVI, and Light Detection and Ranging (LiDAR) systems.

660-2.2.2.1 Inductive Loop: An inductive loop detection system uses a minimum of one inductive loop and loop detector. The system operates by energizing and monitoring wire embedded in the road surface to detect vehicle presence and provide an output to traffic controllers or other devices that can generate volume, occupancy, and speed data (detection output).

660-2.2.2.1.1 Loop Wire: Use No. 12 AWG or No. 14 AWG stranded copper wire with Type XHHW cross-linked polyethylene insulation and an additional outer sleeve composed of polyvinylchloride or polyethylene insulation that meets the requirements of International Municipal Signal Association (IMSA) 51-7.

660-2.2.2.1.2 Shielded Lead-in Cable: Use No. 14 AWG two conductor, stranded copper wire with shield and polyethylene insulation, meeting the requirements for IMSA 50-2.

660-2.2.2.1.3 Splicing Material: Butt-end connectors may be used for splicing the loop wire to the lead-in cable. Butt-end connectors must be non-insulated. Use resin-core solder for soldered splices. Splicing tape must be self-fusing silicone rubber. Ensure insulated tubing used to cover splice is heat-shrinkable, cross-linked polyethylene with a silicon sealant inside the tubing and an insulation rating of at least 600 V.

660-2.2.2.2 Video: A video vehicle detection system (VVDS) uses one or more cameras recommended by the manufacturer or an integrated thermal sensor and video analytics hardware and software to detect vehicle presence, provides a detection output, or generates volume, occupancy, and speed data.

660-2.2.2.3 Microwave: A microwave vehicle detection system (MVDS) transmits, receives, and analyzes a FCC-certified, low-power microwave radar signal to detect vehicle presence, provide a detection output, or generate volume, occupancy, and speed data.

660-2.2.2.4 Wireless Magnetometer: A wireless magnetometer detection system (WMDS) uses one or more battery-powered wireless sensors embedded in the road surface, which communicates data by radio to a roadside receiver. Wireless magnetometer systems detect vehicle presence and provide a detection output to traffic controllers or other devices that can generate volume, occupancy, and speed data.

660-2.2.2.5 Automatic Vehicle Identification (AVI): An AVI detection system uses one or more different methods to collect information that can be used to establish a unique identifier for each vehicle detected and the time and location that the vehicle was detected. AVI detection systems collect data using radio-frequency identification (RFID), optical character recognition, magnetic signature analysis, laser profiling, Bluetooth®, or other methods to establish vehicle identifier, time, and location.

660-2.2.2.6 Light Detection and Ranging (LiDAR): A ~~light detection and ranging (~~LiDAR~~)~~ detection system uses one or more LiDAR sensors and perception hardware and software to detect vehicle presence, provide a detection output, or generate volume, occupancy, and speed data.

ARTICLE 660-5 is deleted and the following substituted:

660-5 Warranty.

Ensure that the detection system has a manufacturer's warranty covering defects for a minimum of 1 year from the date of final acceptance ~~by the Engineer in accordance with 5-11 and Section 608~~.

Ensure the warranty includes providing replacements, within 10 calendar days of notification, for defective parts and equipment during the warranty period at no cost to the Department or the maintaining agency.

VEHICLE DETECTION SYSTEM
(REV 8-8-24)

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