

Overview of Current SAE International Connected / Cooperative Vehicle Communication Standards Activities:

SAE International wishes to participate in the ITS IWG including topics relating to vehicle to vehicle and vehicle to everything communications (V2V / V2X). SAE members and staff will contribute to the IWG with reference materials, access and copies to foundational documents and standards, and subject matter expertise drawn from committee members. SAE has an extensive library of vehicle to vehicle / vehicle to everything published standards, works in progress, and standards in roadmaps which focus on application-level communications standards that provide fundamental linkages throughout the ITS system including, but not limited to, the following topics:

- Center-to-Center (C2C) interfaces such as those between Transportation Management Centers (TMC).
- Center-to-Field (C2F) interfaces, for example, between a TMC and its associated field equipment (traffic monitoring, traffic control, environmental monitoring including weather and road condition monitoring, driver/vehicle operator information, security monitoring and lighting control).
- Center-to-Vehicle / Traveler interfaces such as between a TMC and the devices used by drivers, commercial vehicle operators, or travelers. This to include interfaces with motorists and travelers for exchange of traveler, emergency, and commercial vehicle operations information as well as interfaces between TMCs and fleet vehicles to support vehicle fleet management and environmental monitoring, including, but not limited to, weather and road conditions.
- Field-to-Field interfaces between field equipment, such as between wayside equipment and signal equipment at a highway rail intersection.
- Field-to-Vehicle interfaces that include wireless communication between vehicles on the road.
- Vehicle-to-Vehicle interfaces that include wireless communication between vehicles on the road.
- Vehicle-to-Infrastructure interfaces that include wireless communication between vehicles on the road and field equipment.

- Vehicle-to-Everything interfaces that include wireless communication between transportation elements and other devices such as, but not limited to, mobile phones, diagnostic devices, data collection, and wearable sensors.

(These include highly specific standards and interfaces for various modes and vocations such as, but not limited to, transit bus, school bus, signal priority for transit and emergency vehicles, roadway operations and maintenance, and 1st and subsequent responders)

- Vehicle Automation (for the purposes of the ITS IWG) includes Cooperative Driving Automation.
- Artificial Intelligence standards such as those emerging applications that assist or perform tasks in perception, decision-making, operation execution to improve the performance, efficiency, and safety of vehicles, protection of vulnerable road users and enhance the productivity and capacity of the infrastructure.
- Interoperability – Data Dictionaries, Message Sets, etc.
- Security – Cybersecurity of Cyber-Physical Systems (Vehicles, Infrastructure including Roadside Equipment (RSE) and TMCs).
- Privacy – Data Collection, Ownership, Retention, and Access, Location, and required Anonymity.
- Safety, Vehicle and System Performance – Testing, Validation, and Certification for Devices and fully integrated Vehicle Applications.
- On-Demand Transportation (also referred to as Demand Responsive Transportation (DRT), encompassing mobility services that dispatch vehicles to a rider’s specific location when that traveler requests a trip and routes that those vehicles from the passenger’s origin to the destination and for expedited delivery services.
- Mobility Platforms including integrated trip planners or mobility marketplace aggregators.
- Wayfinding and navigation tools including technology-based solutions for both indoor and outdoor operational design domains / environments.
- Curb access and management standards including developing common referencing standards for encoding information about curb use, allowing automatic integration of curb rules directly into third-party apps and algorithms by making regulatory intent available directly in machine-readable language, and enabling detailed knowledge of curb use rules and facilitating their monitoring.

- Public right of way and communication for outdoor/indoor navigation including methods to assess performance of navigable paths for outdoor/indoor wayfinding and the public right of way for travel by light transportation modes, rail modes, and for person with disabilities or others using mobility devices.

Submitted on behalf of SAE International on 8 January 2023 by:

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