



Symposium on Mileage-based User Fees

Nexus of Road User Fees and In-vehicle Technologies: Connected Vehicles

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Connected Vehicles - Background

- ▶ Ability of vehicles to communicate wirelessly with other vehicles and roadside equipment to support safety, mobility and environmental applications of interest to the public and private sectors
 - Vehicles include light, heavy and transit vehicles
 - Concept extends to compatible aftermarket devices brought into vehicles, and to pedestrians, cyclists and transit users carrying compatible devices

Core Technologies

- ▶ Wireless communications
 - Safety-related systems will likely be based on dedicated short range communications (DSRC)
 - Non-safety applications may be based on different types of wireless technology
- ▶ Onboard equipment (OBE) – in-vehicle systems or devices
- ▶ Roadside equipment (RSE) provides connectivity between vehicles and roadside systems or other network resources, or to support connected vehicle security management.

Current Activities

- ▶ Research on applications, technologies, policy and institutional issues, and implementation strategies
- ▶ Determination of the potential benefits and evaluation of driver acceptance of vehicle-based safety systems.
 - Provide factual evidence to support a 2013 NHTSA agency decision on potential rulemaking for DSRC in light vehicles
- ▶ Research on technical, policy and business issues associated with creating and operating Security Credential Management System entities

Convergence Opportunities

- ▶ Use of DSRC OBEs and RSEs as the infrastructure for MBUF collection and processing
 - RSE locations potentially serve as boundary-crossing points or as communications nodes to download accumulated mileage/fee information
- ▶ Studies underway to identify scale of RSE deployment
 - USDOT analysis of security credential management system needs
 - AASHTO footprint analysis for state and local DOT applications

Potential Challenges

- ▶ Location, distribution, and density of RSE networks deployed for the Connected Vehicle environment
- ▶ Conflict with Connected Vehicle principles of no PII and no trackability
- ▶ Cost implications of building out an RSE network optimized for MBUF needs