Photo Source: USDOT

CONNECTED VEHICLE PILOT DEPLOYMENT PROGRAM

LIMIT 35 SAFETY

MOBILITY

ENVIRONMENT

The U.S. Department of Transportation's (USDOT's) connected vehicle research program is a multimodal initiative to enable safe, interoperable, networked wireless communications among vehicles, infrastructure, and personal communications devices. The USDOT and others are researching connected vehicles because of the potentially transformative capabilities of the technology to make surface transportation safer, smarter, and greener. Federal connected vehicle research has produced a considerable body of work to support pilot deployments, including concepts of operations and prototyping for more than two dozen applications. Concurrent federal research efforts are developing critical cross-cutting technologies and other enabling capabilities required to integrate and deploy applications.

Based on the successful results of the connected vehicle research program, and the recent decision by the National Highway Traffic Safety Administration to pursue vehicle-to-vehicle communications safety technology for light vehicles, the USDOT is pursuing a robust Connected Vehicle Pilot Deployment Program. This program will serve as a mechanism to expedite the implementation of connected vehicle technology. The pilots will be initial deployments of connected vehicle technology in real-world settings with the aim of delivering near-term safety, mobility, and environmental benefits to the public.

Vision

The Connected Vehicle Pilot Deployment Program seeks to spur innovation among early adopters of connected vehicle application concepts, using best available and emerging technologies. The pilot deployments are expected to integrate connected vehicle research concepts into practical and effective elements, enhancing existing operational capabilities. The intent of these pilot deployments is to encourage partnerships of multiple stakeholders (e.g., private companies, states, transit agencies, commercial vehicle operators, and freight shippers) to deploy applications using data captured from multiple sources (e.g., vehicles, mobile devices, and infrastructure) across all elements of the surface transportation system (i.e., transit, freeway, arterial, parking facilities, and tollways) to support improved system performance and enhanced performance-based management.

The pilot deployments will support an impact assessment and evaluation effort that will inform a broader cost-benefit assessment of connected vehicle concepts and technologies. Pilot deployments offer an opportunity for stakeholders and partners to develop operational systems that exist well beyond the life of the program.

SAMPLE APPLICATIONS

Please visit the Connected Vehicle Pilot Deployment Program website for a complete list of connected vehicle applications.

Mobility

- Speed Harmonization and Queue Warning
- Multi-Modal Intelligent Traffic Signal System
- Dynamic Transit Operations
- Freight Traveler Information Systems
- Response, Emergency Staging, Communications, Uniform Management, and Evacuation
- EnableATIS

Environment

- Eco-Approach and Departure at Signalized Intersections
- Eco-Traffic Signal Timing
- Eco-Speed Harmonization

Vehicle-to-Infrastructure Safety:

- Red Light Violation Warning
- Curve Speed Warning
- Stop Sign Gap Assist
- Reduced Speed/Work Zone Warning
- Smart Roadside

Vehicle-to-Vehicle Safety

- Emergency Electronic Brake Lights
- Forward Collision Warning
- Intersection Movement Assist

Agency Operations

- Probe-based Pavement Maintenance
- Probe-enabled Traffic Monitoring
- Vehicle Classification-based Traffic Studies

Road Weather

- Enhanced Maintenance Decisions Support System
- Vehicle Data Translator
- Weather Responsive Traffic Information

U.S. Department of Transportation

Proposed Program Schedule

The Connected Vehicle Pilot Deployment Program envisions a procurement action for multiple pilot deployments with an initial wave starting in calendar year 2015 (See Table 1). Before an initial wave of pilot deployments are selected, the Intelligent Transportation Systems Joint Program Office (ITS JPO) will host a series of outreach activities including workshops, meeting briefings, and webinars. Please check the ITS JPO and Connected Vehicle Pilot Deployment Program websites for upcoming outreach activities.

TABLE 1 Proposed Connected Vehicle Pilot Deployment Schedule

Schedule Item	Date
Regional Pre-Deployment Workshop/ Webinar Series	Summer–Fall 2014
Solicitation for Wave 1 Pilot Deployment Concepts	Early 2015
Wave 1 Pilot Deployments Award(s)	September 2015
Solicitation for Wave 2 Pilot Deployment Concepts	Early 2017
Wave 2 Pilot Deployments Award(s)	September 2017
Pilot Deployments Complete	September 2020

Focus of Pilot Deployments

The pilot deployments should address the following research questions:

- Can connected applications be successfully deployed as a part of operational practice, leveraging vehicles and mobile devices (in the vehicle or outside of the vehicle) both as data sources and application platforms?

- Can system productivity, environmental impact, traveler mobility, and transportation safety be measured and enhanced in innovative and meaningful ways by combining existing and emerging mobile data sources (e.g., by using vehicles and mobile devices as data sources)?

- To what extent can connected vehicle technologies and data be used to support real-time, performance-based management of roadways, transit systems, and freight carriers?

- What are the institutional, legal, and technical issues that may help or hinder the use of connected vehicle technologies?

- What wireless and other communications media can be combined to make large-scale data capture and mobility applications cost effective?

- How can diverse data sources be efficiently integrated and used?

- Can customer satisfaction with demonstrated applications be measured?

- Are state and local agencies prepared to implement and maintain connected vehicle technologies?

- How effective is a security credential management system in enabling connected vehicle communications?

How to Get Involved

This is an opportunity for your community to be on the cutting edge of new technology. But start planning now, because there will be a limited time to submit proposals.

The following are some key resources to help you prepare for the Connected Vehicle Pilot Deployment Program:

- Learn more about the program:

  — Review briefing materials presented at recent workshops and public meetings on the Connected Vehicle Pilot Deployment Program

  — Visit the program's website: www.its.dot.gov/pilots

  — Contact the USDOT with questions

- Form partnerships and identify needs, such as:

  — Create partnerships with transit agencies, neighboring jurisdictions, traveler information service providers, private sector device and equipment manufacturers, local trucking firms, state and local roadway operators, and advocacy groups (among other potential stakeholders)

  — Identify the highest-priority needs across the community partners (mobility, safety, and environmental)

- Assess connected vehicle technologies and applications:

  — Match community needs to connected vehicle applications

  — Consider the potential benefit of an integrated deployment of two or more applications in your community

  — Create a pilot deployment concept that community stakeholders support in preparation for the first wave of deployment solicitations in early 2015. Use of the Connected Vehicle Reference Implementation Architecture (CVRIA) to construct project architectures is encouraged. Please visit www.iteris.com/CVRIA/ for tools and information.

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