# Transportation Research Board Annual Meeting

# ITS: State of the Industry

January 11, 2016

**Kenneth Leonard**
Director, Intelligent Transportation System Joint Program Office
(ITS JPO)
U.S. Department of Transportation (USDOT)

# Presentation Overview

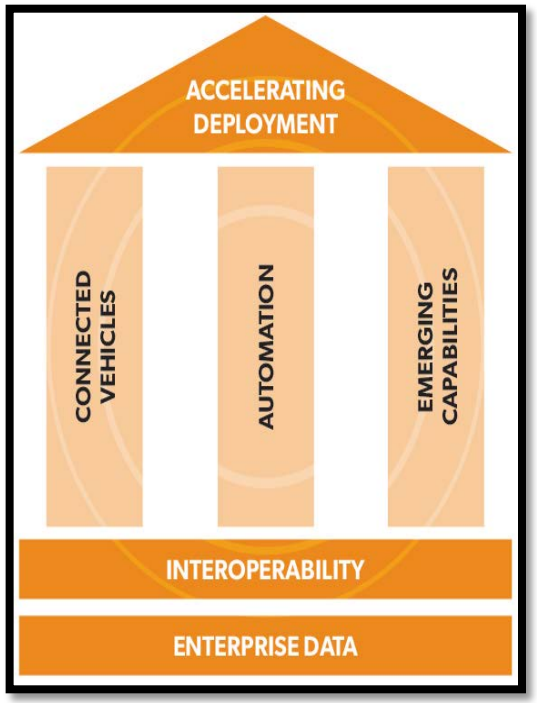
- Where We're Headed
- Executing the Plan
  - Connected Vehicle Pilots
  - NHTSA V2V Rule Making
  - FHWA V2I Guidance
  - Connected Vehicle Planning Guidance
  - Spectrum Sharing
  - Smart City Challenge
- Going Forward
  - Deployment Grants
  - Cybersecurity Research

# ITS Strategic Plan 2015-2019


**http://its.dot.gov/strategicplan/index.html**

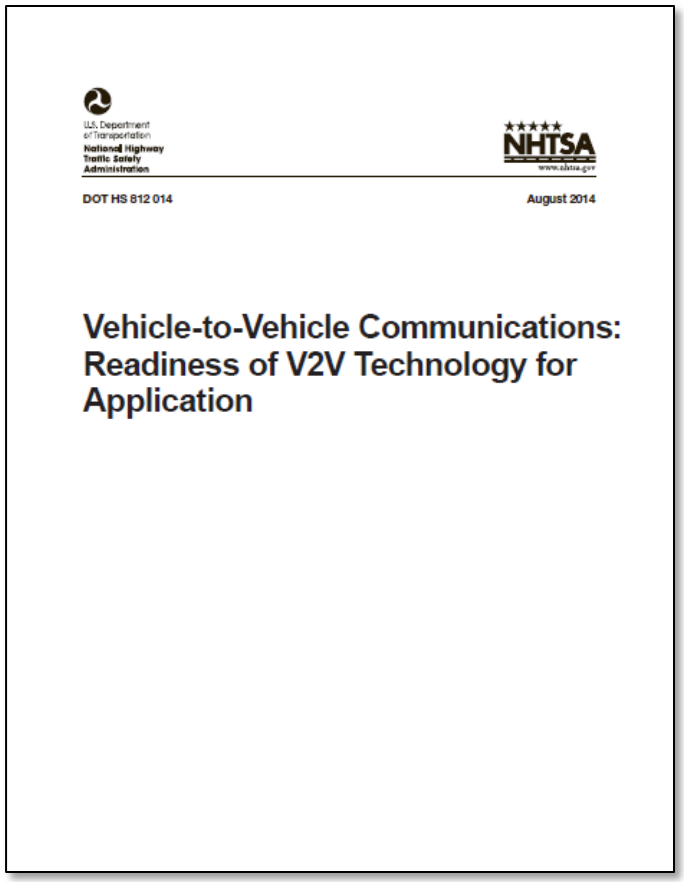
# Strategic Plan Program Categories

- **Connected Vehicles** focuses on adoption and deployment.
- **Automation research** focuses on automated road-vehicle systems that transfer some vehicle control from the driver to the vehicle.
- **Emerging Capabilities** focuses on future generations of transportation systems.
- **Enterprise Data** focuses on operational data capture from sensors, mobile devices, and vehicles, and applying data across all modes of transport.
- **Interoperability** emphasizes effective connectivity among devices and systems.
- **Accelerating Deployment** advances ITS work from adoption to wider scale deployment in coordination with multiple disciplines and stakeholders.



# NHTSA NPRM on V2V for Light Vehicles

- NHTSA has moved ahead of its public timetable to issue a rulemaking to require vehicle-to-vehicle (V2V) communication devices in new vehicles. The NPRM will be released this spring


U.S. Department of Transportation
National Highway Traffic Safety Administration

NHTSA

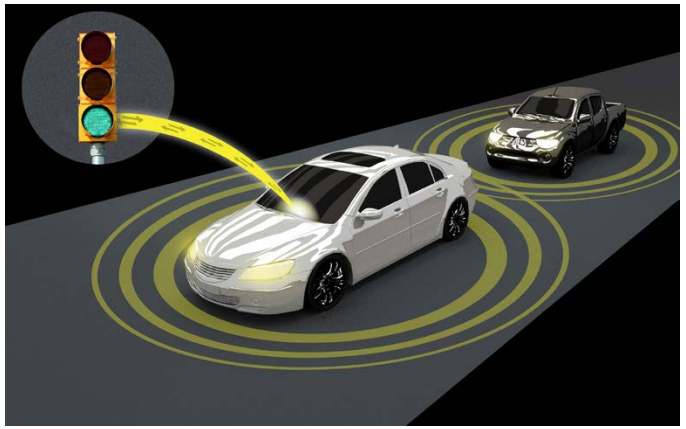
DOT HS 812 014

August 2014

Vehicle-to-Vehicle Communications: Readiness of V2V Technology for Application

# FHWA Guidance on V2I

- The FHWA is developing policy positions, guidance, guidelines, whitepapers, and practitioner tools to promote the smooth deployment of V2I technology by transportation system owners/ operators.



- The FHWA plans to issue initial guidance this spring. This initial guidance is intended to assist in planning for future investments and deployment of V2I systems.
  - The guidance does not impose any new requirements on local governments.
  - This work will be harmonized with related efforts by other USDOT modal agencies.
  - Subsequent guidance updates will also incorporate ITS research findings.

# Planning Guidance on Connected Vehicles

- How should connected vehicles be considered across range of planning activities?
- What changes are needed in techniques, tools, supporting data, organizational skills and expertise?
- What new stakeholders will be involved and how will role of existing stakeholders change?
- How will needs vary in different contexts?

# Connected Vehicle Pilot Deployment Program

## PROGRAM GOALS


## PILOT SITES




## •STAY CONNECTED

- Participate in Concept Development Phase Webinars for the three Pilot Sites (see website for exact dates and times)

| Feb 2016 | Mar 2016 | Apr 2016 | May 2016 | Jun 2016 | Jul 2016 | Aug 2016 |
|---|---|---|---|---|---|---|
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•Concept of Operations Webinars

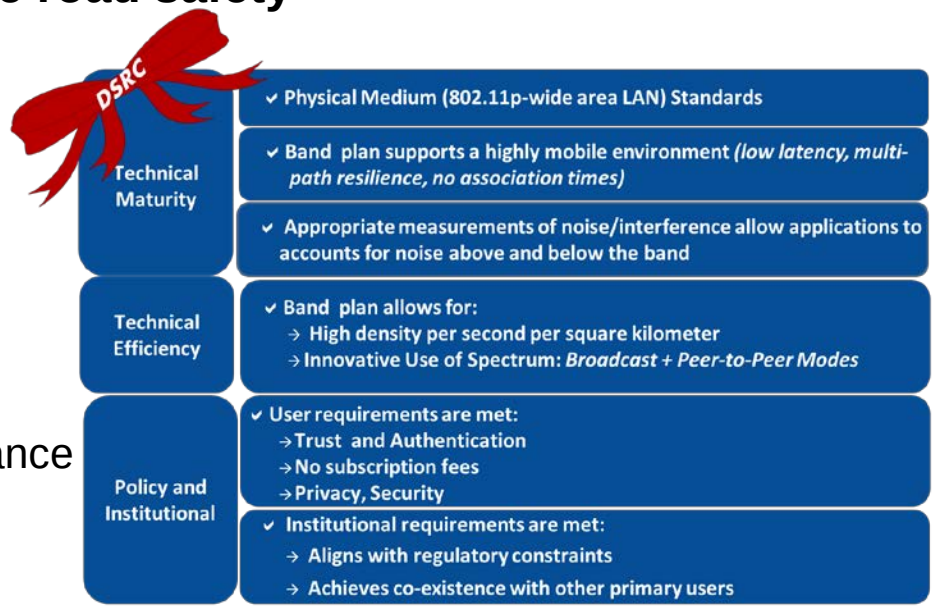
•Performance Measurement Webinars

•Comprehensive Deployment Plan Webinars

- Visit Program Website for Updates: http://www.its.dot.gov/pilots
- Contact: Kate Hartman, Program Manager, Kate.hartman@dot.gov

# Challenge Across ITS Portfolio: Spectrum Sharing

- **Enable successful adoption and use of DSRC technologies to dramatically increase road safety** (Maturity/Safety)
  - All technical and policy elements are in place → a "complete package"




- **Optimize band usage for Connected Vehicle operations** (Efficient Use)
  - Dedicated band is optimized for Connected vehicle technology performance
  - Efficient use of the band
  - Minimal interference

- **Well-planned evolution with innovation that does not disrupt ongoing operations** (Evolution)
  - Sharing
  - New communications media
  - Alternative band plans
  - Detection and Monitoring

# DSRC Test Plan

- The USDOT has accelerated testing necessary to ensure that V2V and vehicle-to-infrastructure transmissions are free from radio interference.
- The DOT test plan describes tests to characterize the existing radio frequency signal environment and identify the impacts to DSRC operations if unlicensed devices operate in the 5.9 GHz band. The DOT test plan's stated overarching goal is to assure "safe, reliable, and on demand access to 5850-5925 MHz spectrum for DSRC operation."

DSRC-Unlicensed Device Test plan

To characterize the existing radio frequency signal environment and identify the impacts to DSRC operations of unlicensed devices operating in the 5850-5925 MHz band and adjacent bands

Alan Chachich [Volpe Center]
Volker Fessmann [FHWA]
Jim Arnold [FHWA]
Dale Thompson [ITS JPO]
Walt Fehr [ITS JPO]
Steve Stasko [NHTSA]

Test Plan — August 2015 Version 3.5.3

Prepared for:
USDOT
Intelligent Transportation Systems – Joint Program Office
Washington, DC

## *Smart City*

**“A city that uses information and communications technology (ICT) to enhance its livability, workability, and sustainability.”**

*The Smart Cities Council*

*Source: Microsoft Clip Art (Bobby Mikul*

# Smart City Challenge

- The winner will be announced in June 2016
- Ideal Smart City Challenge attributes:
  - Mid-sized city with a population between approximately 200,000 and 850,000 people within city limits as of the 2010 Census
  - A population density typical of a mid-sized city using 2010 Census data
  - Represents a significant portion (more than 15%) of the overall population of its urban area using 2010 Census data
  - An established public transportation system
  - An environment that is conducive to demonstrating proposed strategies
  - Leadership and capacity to carry out the demonstration throughout the period of performance

# Going Forward – FAST Deployment Grants

- ITS Deploy, the ITS JPO will support and provide partial funding for FAST Act's *Advanced Transportation and Congestion Management Technology Deployment* grant program:
  - Provides grants to eligible entities to develop model deployment sites no later than 6 months after the date of enactment.
  - Funding for the program is set at $60 million with up to 2 million for program reporting, evaluation, and administrative costs each fiscal year from FY 2016 to FY 2020.
  - No more than 20 percent of the fiscal year award can be made to a single grant recipient.
- Will provide support for the Secretary's *Smart City* study of digital technologies and information technologies
- Will assist with *cybersecurity research* to help prevent hacking, spoofing, and disruption of connected and automated transportation vehicles

# Cybersecurity Research

- Research Approach
  - Building of a Cybersecurity Knowledge Base
  - Support of the development of industry standards, guidelines, and best practices
  - Development of minimum technical requirements
  - Cybersecurity rules, policies, and regulations
- NHTSA Electronic Systems Safety Research
  - Three main focus areas for the division:
    - Safe Reliability
    - Cybersecurity
    - Emerging Technologies (Automated Vehicles)

# Stay Connected

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