ITS Connected Vehicle Program

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Research and Innovative Technology Administration
One Version of Connected Vehicles...
The Connected Vehicle Environment

- Uses wireless communications
  - Dedicated Short-Range Communications (DSRC) technology using FCC-dedicated spectrum that is essential for safety applications
  - Other communications types for non-safety applications
The Connected Vehicle Environment

- Uses wireless communications
  - Dedicated Short-Range Communications (DSRC) technology using FCC-dedicated spectrum that is essential for safety applications
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Crash Prevention
The Connected Vehicle Environment

**Improved Mobility**

- Uses wireless communications
  - Dedicated Short-Range Communications (DSRC) technology using FCC-dedicated spectrum that is essential for safety applications
  - Other communications types for non-safety applications
The Connected Vehicle Environment

- Uses wireless communications
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Environmental Sustainability
The Connected Vehicle Environment

Enabling Environment for New Services

- Uses wireless communications
  - Dedicated Short-Range Communications (DSRC) technology using FCC-dedicated spectrum that is essential for safety applications
  - Other communications types for non-safety applications
Moving from Crash Worthiness to Crash Prevention

- Greater situational awareness
  - Your vehicle can “see” nearby vehicles and knows roadway conditions you can’t see
  - Full 360 degree awareness
- Reduce or even eliminate crashes thru:
  - Driver Advisories
  - Driver Warnings
  - Vehicle Control

*Connected vehicles have the potential to address over 80% of vehicle crash scenarios involving unimpaired drivers*
Multimodal and Connected Environment

Drivers/Operators

Connectivity

Vehicles and Fleets

Infrastructure

Wireless Devices
## Connected Vehicle Safety Program
### Partners and Contractors

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### Associations/Standards Developers

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<td>Institute of Electrical and Electronics Engineers</td>
<td>American Public Transportation Association</td>
<td>Society of Automotive Engineers International</td>
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Key Program Objectives

- 2013 Decision on Vehicle Communications for Safety (light vehicles)
- 2014 Decision on Vehicle Communications for Safety (heavy vehicles)
- 2015 Infrastructure Implementation Guidance
2013 & 2014 Decisions → Based on Data!

- **Vehicle-to-Vehicle Research**
  - Interoperability among all vehicles
  - Evaluation of advanced applications
  - DVI effectiveness/acceptance
  - Benefits assessment

- **Safety Pilot**
  - User acceptance
  - Benefits data
  - Accelerate in-vehicle safety technology

- **Policy Elements**
  - Communications security
  - Device certification
  - Governance
  - Risk, liability, and intellectual property

- **Human Factors Research**
  - Driver-vehicle interface guidelines
  - Applies to integrated systems and to be extended to nomadic devices

- **Defined over-the-air interface standards**
  - Data, communications, performance
2015 Infrastructure Guidance

- Accelerate enabling technology
  - V2I Reference Implementation

- Applications development, test, and evaluation
  - Regional Pilots
  - Benefits assessment

- Infrastructure planning and policy
  - Policy Recommendations
Making Connected Vehicles a Reality

- Moving the technical research into real world implementations
- Defining the benefits and cost data
- Defining the necessary policy framework to support nationwide deployment
Still Working on Some Open Issues

It is a bit freaky with this wireless technology