



UNITED STATES
DEPARTMENT OF TRANSPORTATION

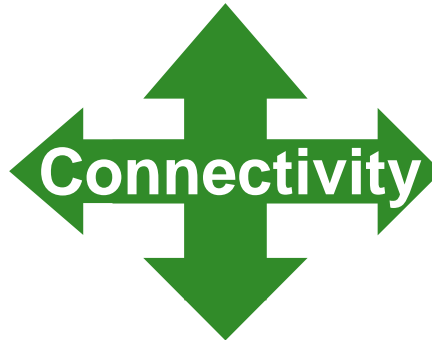
Connected Vehicle Safety Research & Safety Pilot

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Research and Innovative Technology Administration

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ITS Research = Multimodal and Connected

Drivers/Operators



Vehicles and Fleets

Infrastructure

Wireless Devices



The Connected Vehicle Program

- Vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) wireless communications for:
 - **Crash prevention**
 - **Improved mobility**
 - **Environmental sustainability**
- Connected vehicle capability addresses over 80% of unimpaired crash scenarios
- Encompasses autos, buses, and trucks
 - Partnership among RITA, NHTSA, FHWA, FMCSA, FTA, and FRA

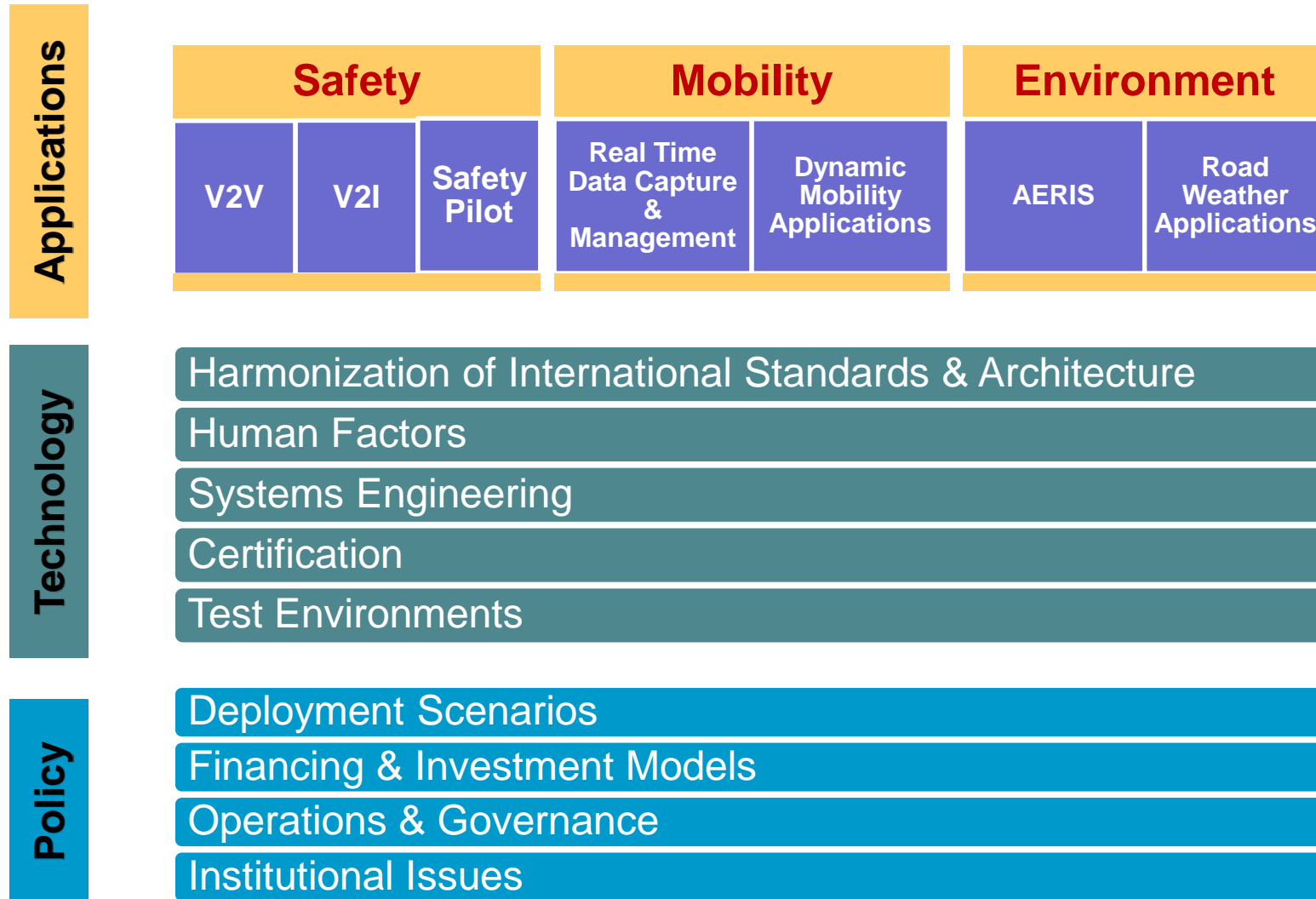


The Connected Vehicle Program (cont.)

- Uses wireless communications
 - Dedicated short-range communications (DSRC) technology using FCC-dedicated spectrum that is essential for safety applications
 - Other communications media for non-safety applications
- Research is maturing such that NHTSA has committed to an agency decision regarding whether the safety technology is sufficiently developed to support rulemaking



ITS Research Program Components



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



NHTSA Agency Decision

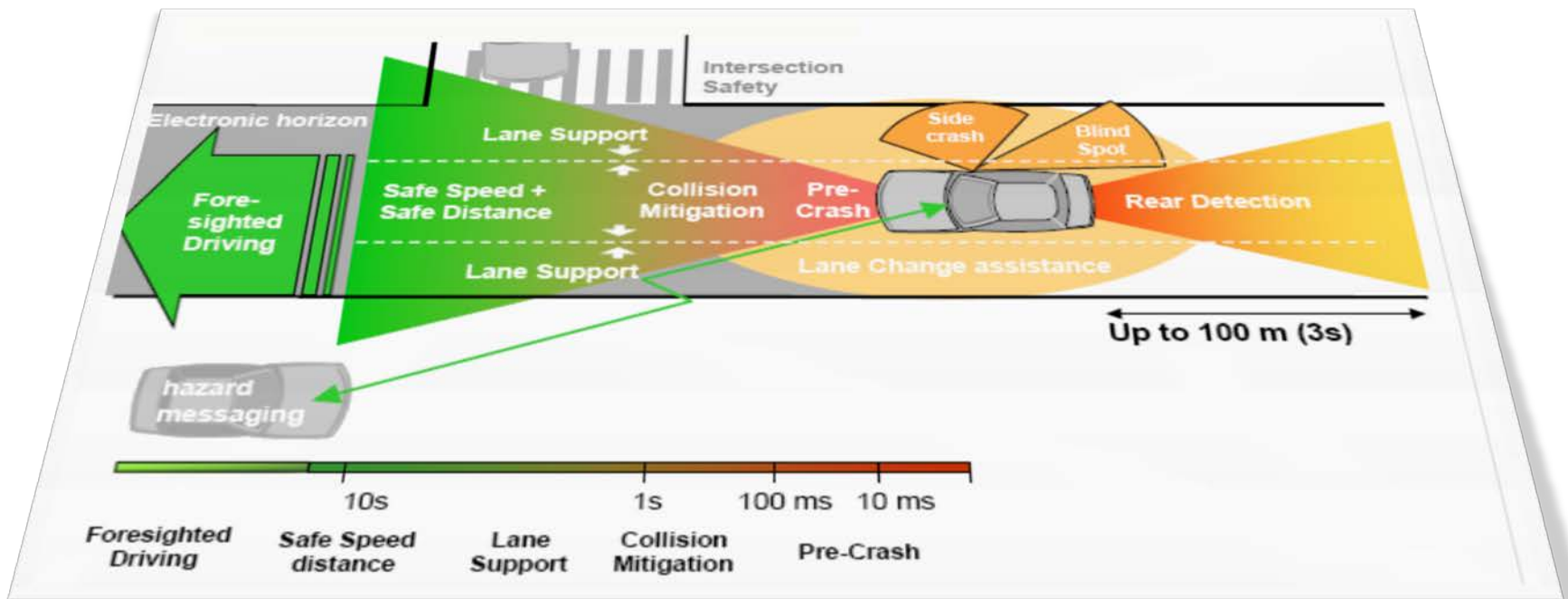
- Possible decision options include:
 - Rulemaking on minimum performance requirements for vehicle communications for safety on new vehicles
 - Inclusion in NHTSA's New Car Assessment Program to give car makers credit for voluntary inclusion of safety capability in new vehicles
 - More research required



The Vehicle That Doesn't Crash

Benefits of DSRC technology:

- Price
- False Alarms
 - Delayed Warnings
- Crash Scenarios



NHTSA Agency Decision (cont.)

- **Data will determine NHTSA's action for the 2013 decision point:**
 - Simulation and modeling efforts based upon previous field operational tests
 - Data collection from V2V test track testing
 - Empirical data obtained from Safety Pilot
 - Driver clinics (user acceptance)
 - Model deployment activities (safety effectiveness)
- **A key factor for the NHTSA decision will be the need for, and timing of, necessary infrastructure for communication security (still undefined)**



Safety Pilot Objectives

- Generate empirical data for supporting 2013 and 2014 decisions
- Show capability of V2V and V2I applications in a real-world operating environment using multiple vehicle types
- Determine driver acceptance of vehicle-based safety warning systems



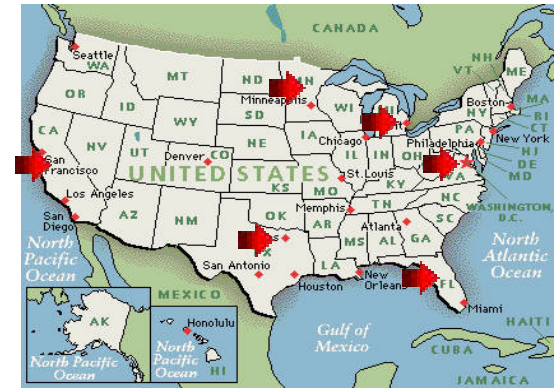
Safety Pilot Objectives (cont)

- Assess options for accelerating the safety benefits through aftermarket and retrofit safety devices
- Extend the performance testing of the DSRC technology
- Collect lots of data and make it available for industry-wide use
- Let others leverage the live operating environment



Safety Pilot Sites

- **Driver clinics**
 - Assess user acceptance



Six Driver Clinic Sites

- **Large-scale model deployment**
 - Obtain empirical safety data for estimating safety benefits



One Model Deployment Site



User Acceptance -- Driver Clinics

- 6 locations across the U.S. beginning in August 2011
- 100 drivers per location
- Experience crash warnings
 - Forward Crash Warning
 - Emergency Brake Light
 - Blind Spot Warning
 - Lane Change Warning
 - Intersection Assist
 - Do Not Pass Warning

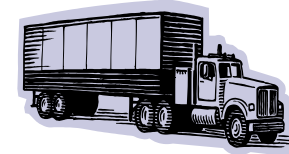


Model Deployment

- Major road test and real-world implementation taking place from 2011 thru 2013, involving:
 - Approximately 3,000 vehicles
 - Multiple vehicle types
 - Fully integrated systems and aftermarket devices
 - Roadside infrastructure
 - System-wide interoperability testing
- Also to test
 - Prototype security mechanisms
 - Device certification processes



Integrated Vehicles



Integrated Trucks



Aftermarket Devices



Basic Safety Devices



Roadside Infrastructure

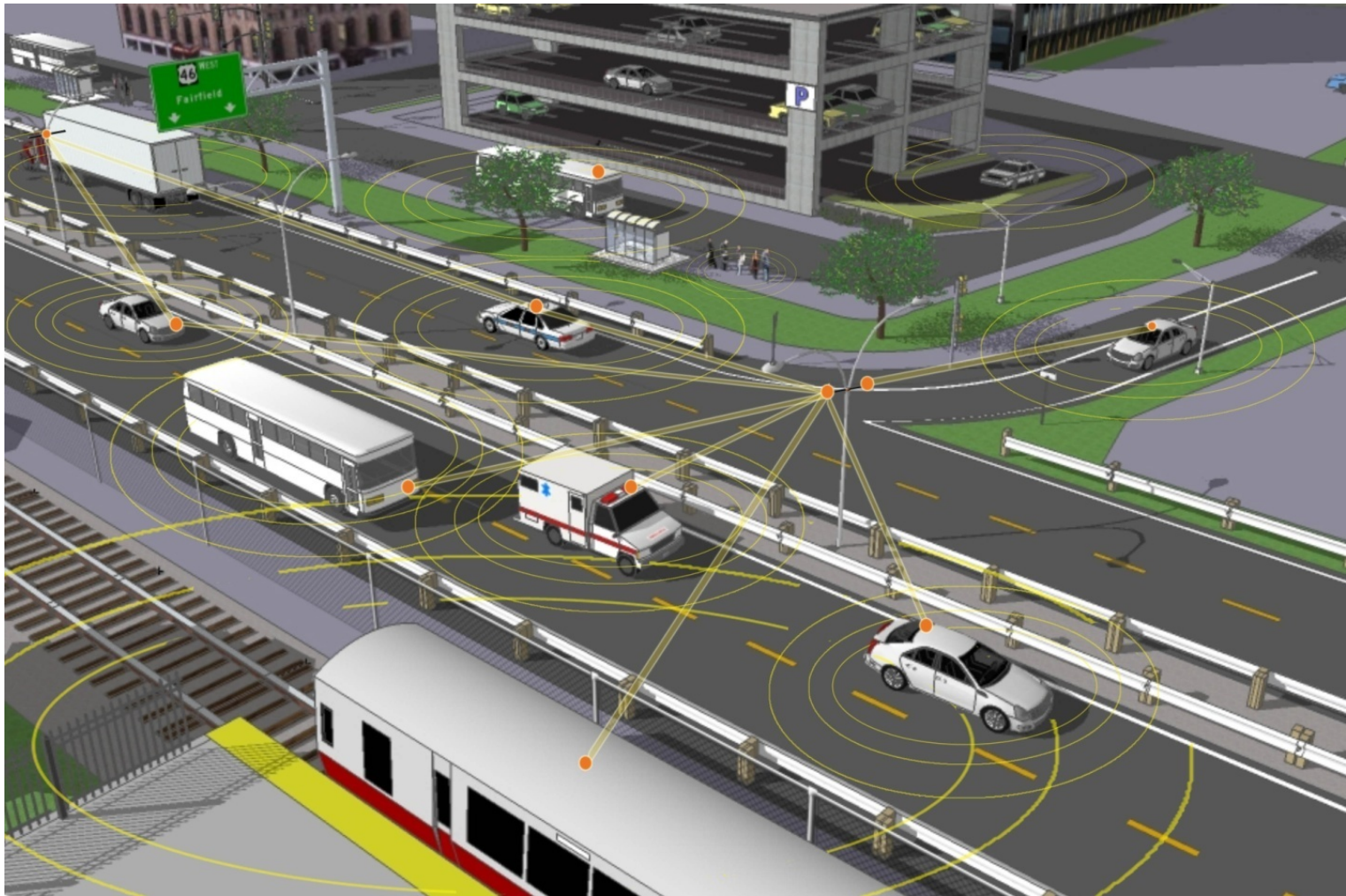


Deployment Scenarios for Security

- V2V Security Network Options:
 - DSRC for security: Estimated at 40,000 RSEs; not necessarily owned/operated by Federal/State/local governments
 - Cellular or WiFi: Infrastructure exists; must address privacy
 - No infrastructure: Currently being defined
- No easy option
- All require a sustainable funding stream and governance structure
- *All options being examined as part of model deployment*

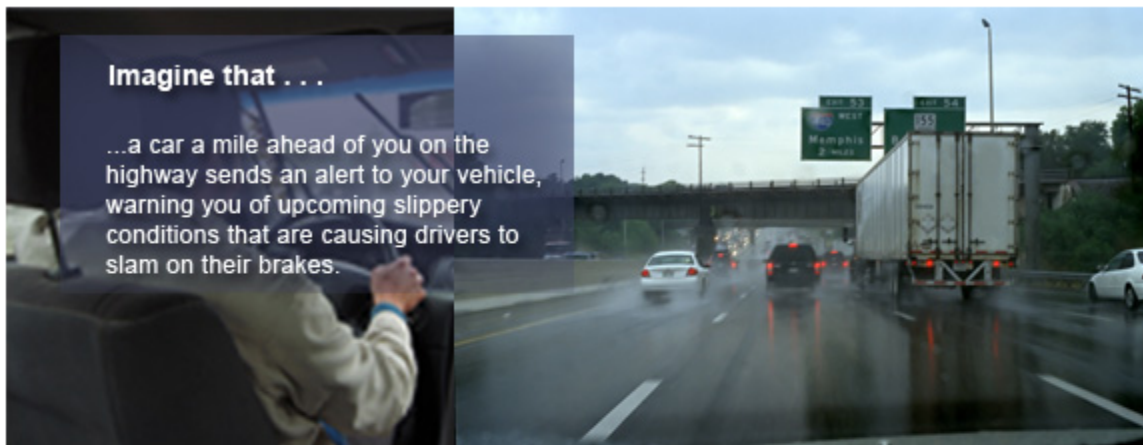


Connected Transportation



For More Information

www.its.dot.gov



1 2 3 4 5 6 >

U.S. DOT will host Free Public Meeting and Webinar for the Integrated Dynamic Transit Operations (IDTO)

The IDTO public meeting will bring stakeholders together as part of an interactive forum. [Read more...](#)

- ITS Architecture Made Easier Using Turbo Architecture: An Overview of NH's New Web-based Turbo Architecture Course 1/10/12
- U.S. DOT Announces Public Meeting for Two Connected Vehicle Concepts for Traffic Management 1/9/12
- Letter from the Director Congratulating ITS JPO Staff Award Winners 12/23/11

[More News>>](#)

Spotlight

Our Current Research

Applications Mode-Specific Cross-Cutting

- ▶ Vehicle-to-Vehicle Safety
- ▶ Vehicle-to-Infrastructure Safety
- ▶ Real-Time Data Capture
- ▶ Dynamic Mobility Applications
- ▶ Environment
- ▶ Road Weather

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Shelley J. Row, P.E., PTOE Director

ITS Joint Program Office

[Biography](#)



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