



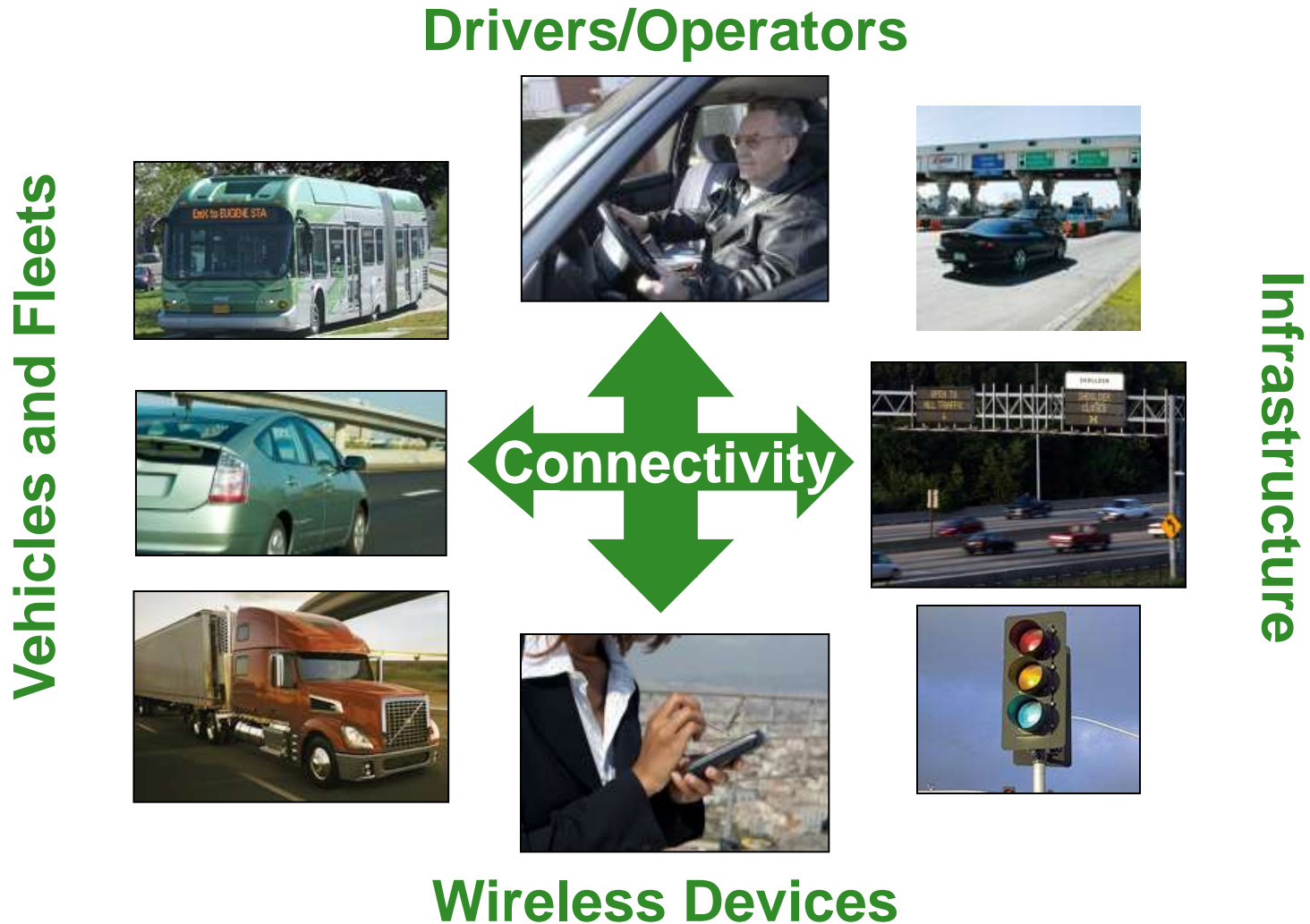
UNITED STATES
DEPARTMENT OF TRANSPORTATION

Connected Vehicle Safety Research & Safety Pilot

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ITS Research = Multimodal and Connected



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

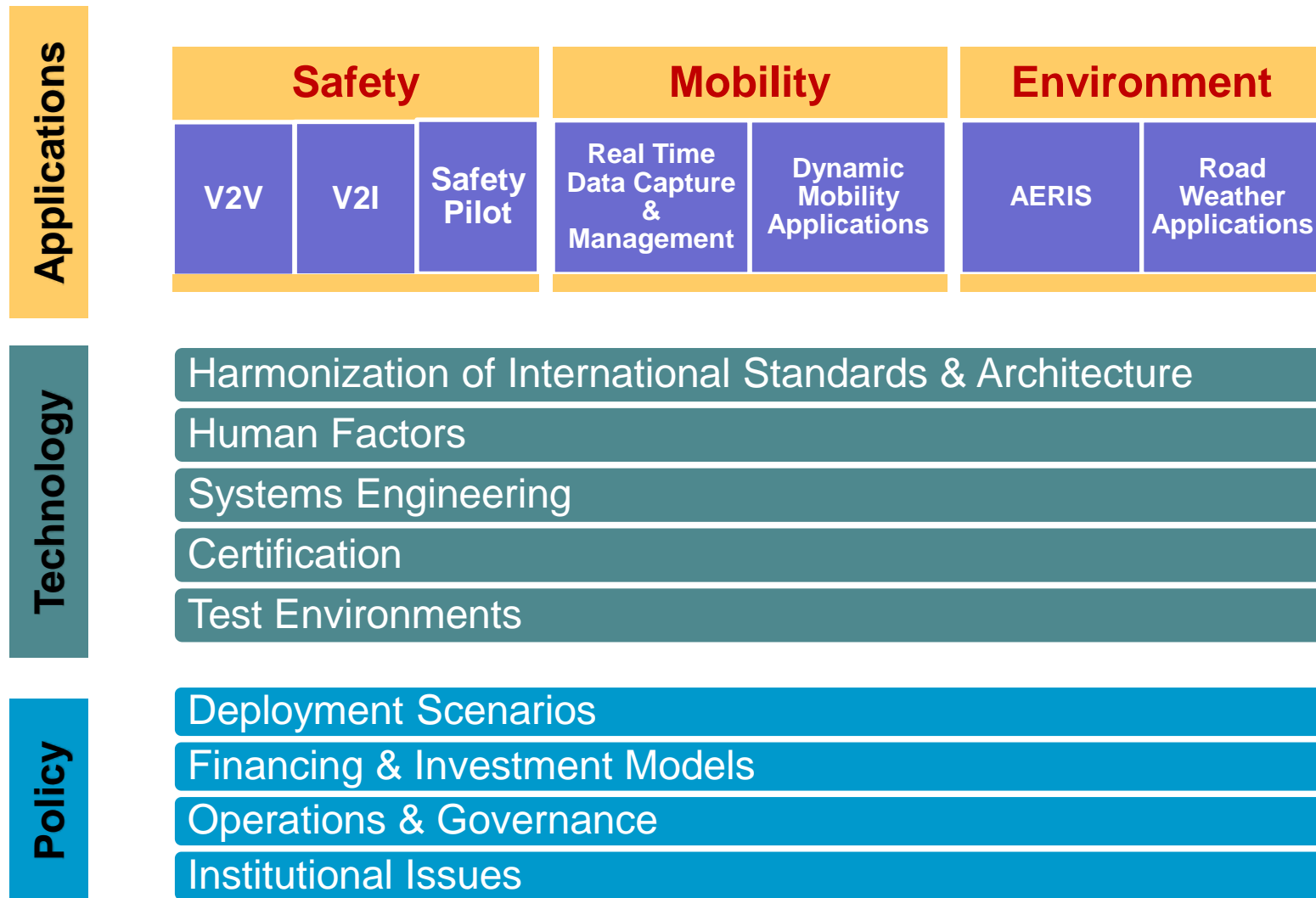


The Connected Vehicle Program (cont.)

- 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

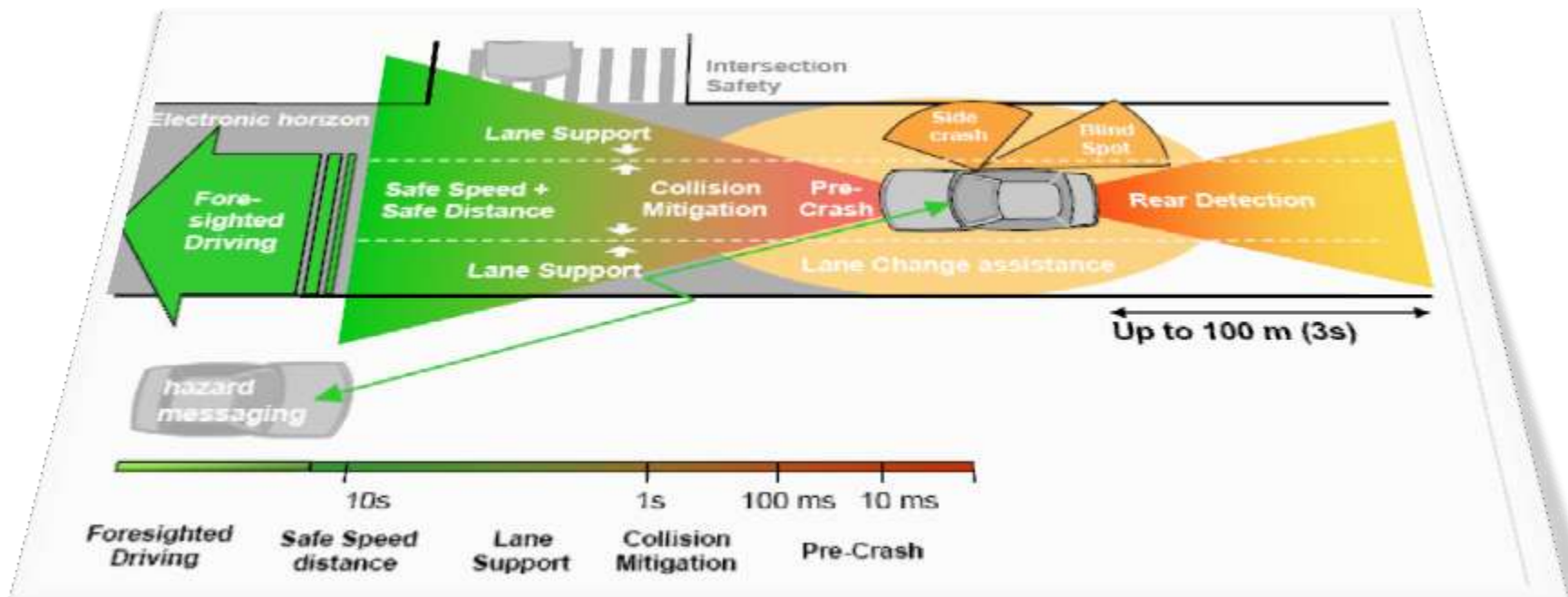
- Possible decision options include:
 - Rulemaking on minimum performance requirements for vehicle communications for safety on new vehicles
 - Inclusion in NHTSA's New Car Assessment Program to give car makers credit for voluntary inclusion of safety capability in new vehicles
 - More research required



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

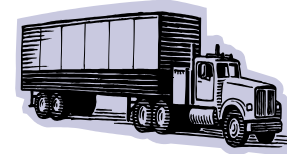


Model Deployment

- 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

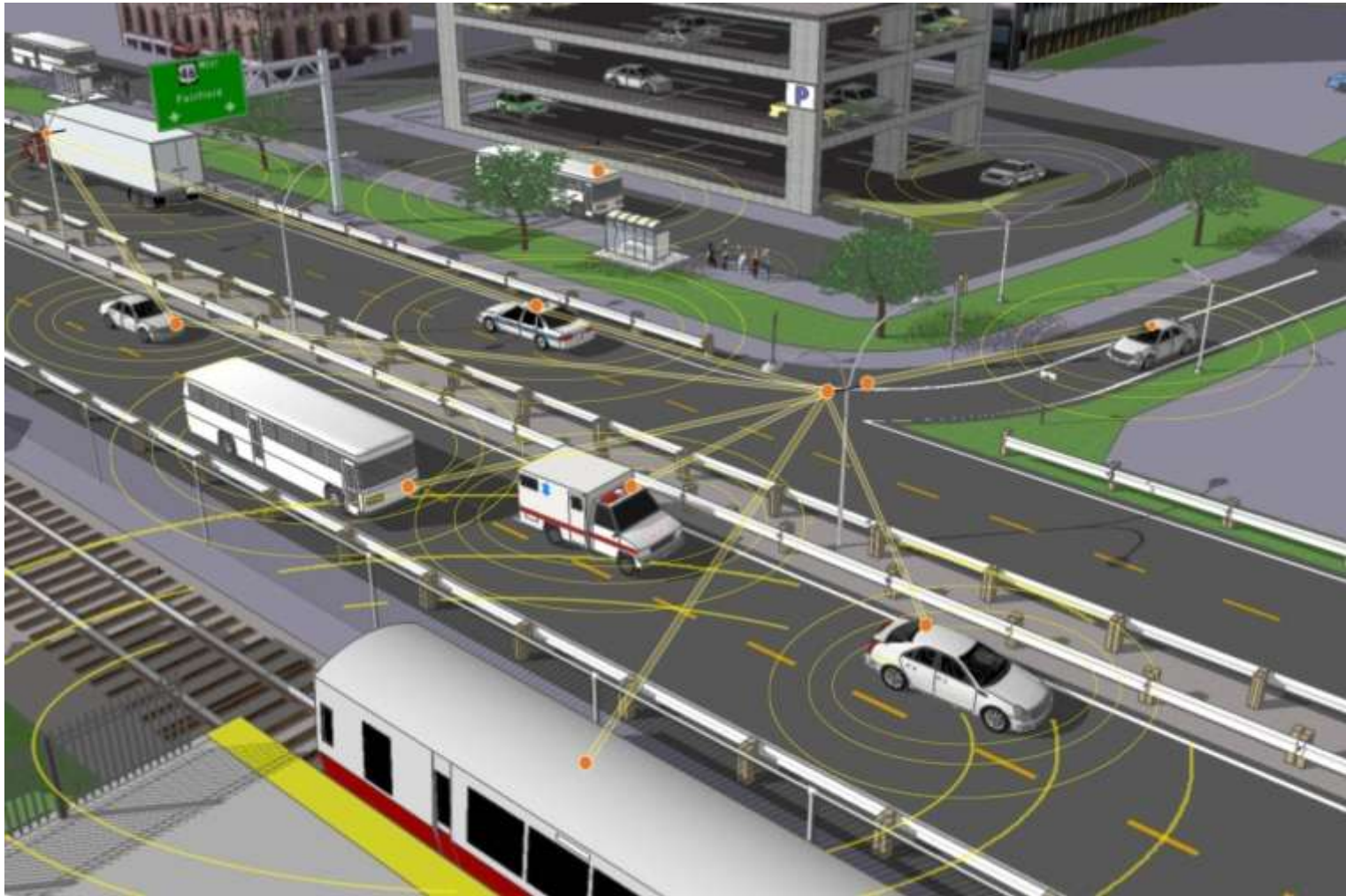


Deployment Scenarios for Security

- 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



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 NHFs 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>>](#)

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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Procurement Opportunities

As we implement the ITS Research Strategic Plan, open procurements may become available through a variety of solicitations. [More >>](#)

Public Meetings

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