UNITED STATES
DEPARTMENT OF TRANSPORTATION

Moving Towards Implementation of Wireless Connectivity in Surface Transportation

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Research and Innovative Technology Administration

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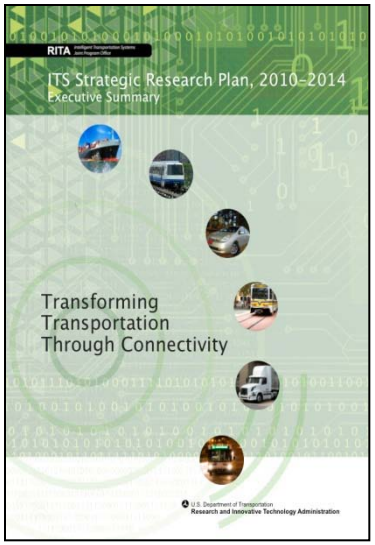
ITS Strategic Research Plan 2010-2014
A Truly Multimodal and Connected Effort

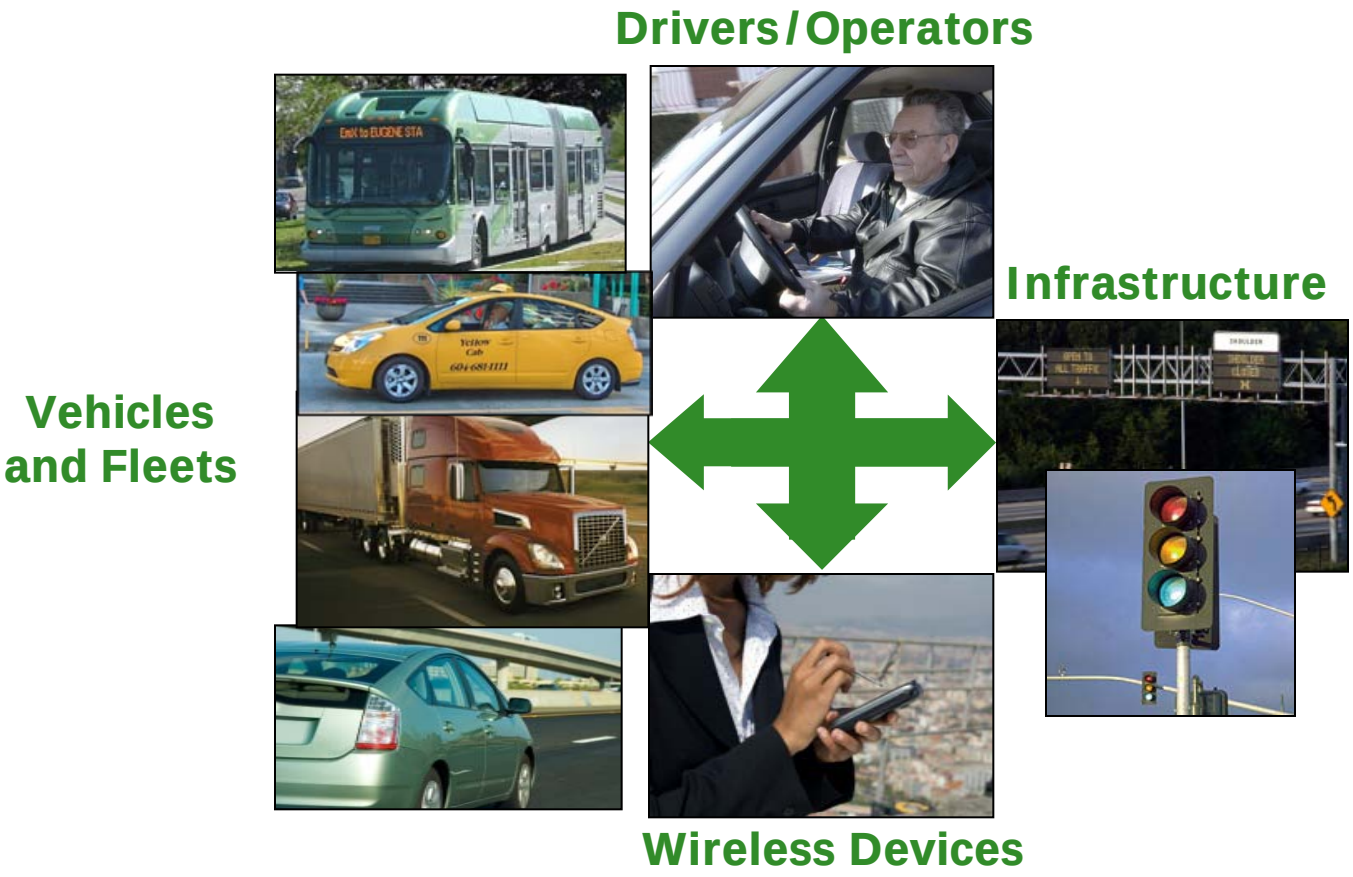
Vision

To research and facilitate a national, **multimodal surface transportation system** that features a connected transportation environment around **vehicles of all types**, the infrastructure, and portable devices to serve the public good by leveraging technology to maximize safety, mobility, and environmental performance.

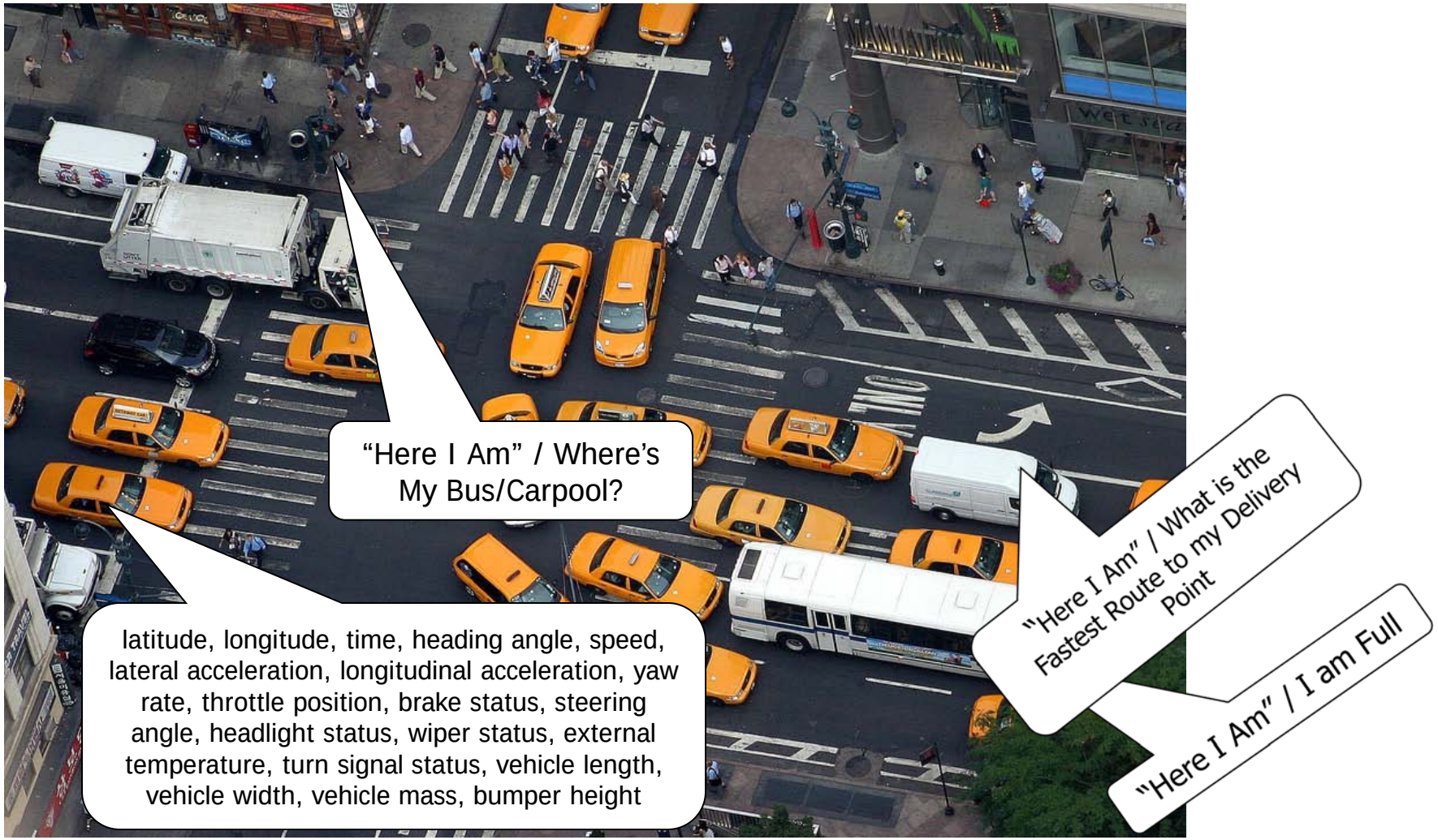
Plan developed with full participation by all surface transportation modal administrations as well as with significant interaction with multi-modal stakeholders.



ITS Research = Multimodal and Connected



A World With Connected Vehicles and Travelers



Opportunity for Transformational Safety: V2V and V2I

- **Greater awareness**
  - Vehicles can “see” nearby vehicles and know roadway conditions that are not visible
- **Reduce crashes through:**
  - Driver advisories
  - Driver warnings
  - Vehicle control

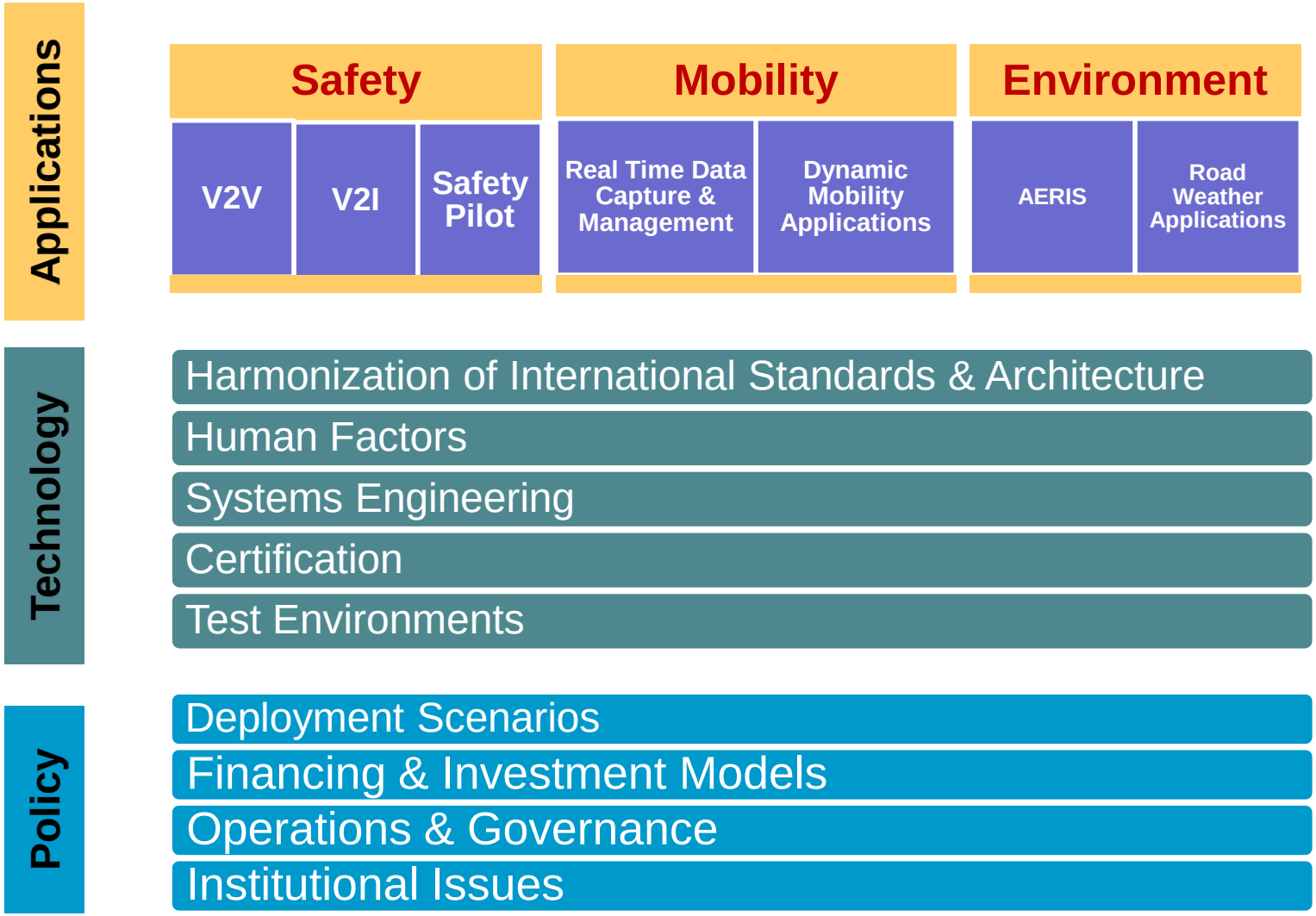
Work Zone Notification

Intersection Collision Avoidance

*V2V+V2I may have the potential to address 80% of the vehicle target crashes involving unimpaired drivers**

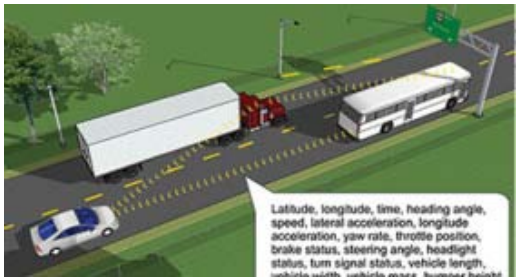
*National Highway Traffic Safety Administration, October 2010, DOT HS 811 381

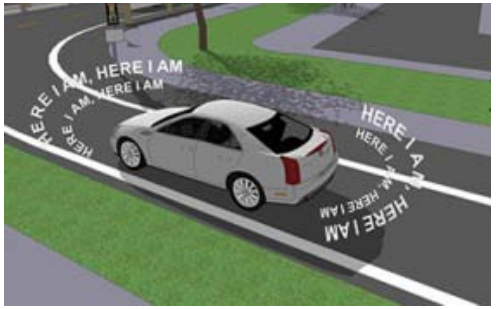
ITS Research Program Components



Step One – Accelerate V to V Safety

- Develop a Core Set of Applications
- Conduct Benefits Assessment
- Develop Driver Vehicle Interface Guidelines
- Define Globally Harmonized Standards
- Assess Security Issues
- Accelerate V to V DSRC Devices
  - Basic Safety Message Broadcast Devices (Here I am)
  - Aftermarket Safety Devices
- Prepare for 2013 NHTSA Agency Decision





Step Two - Demonstrate Safety

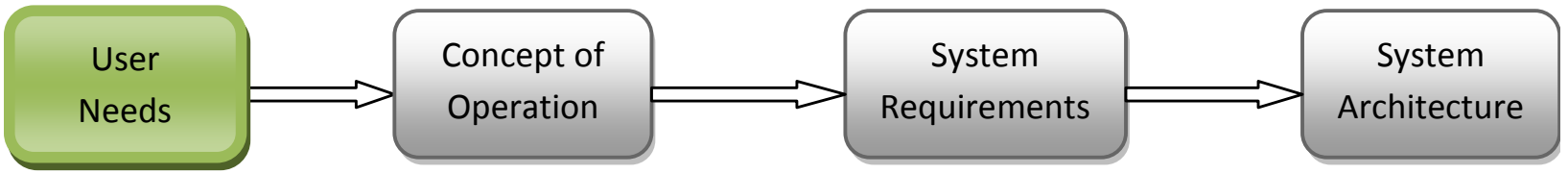
Safety Pilot

- Major road test and real world implementation taking place 2011 – 2013 involving:
  - Multiple vehicle types
  - Fully integrated systems and aftermarket devices
- Also to test
  - Prototype security mechanisms
  - Certification processes

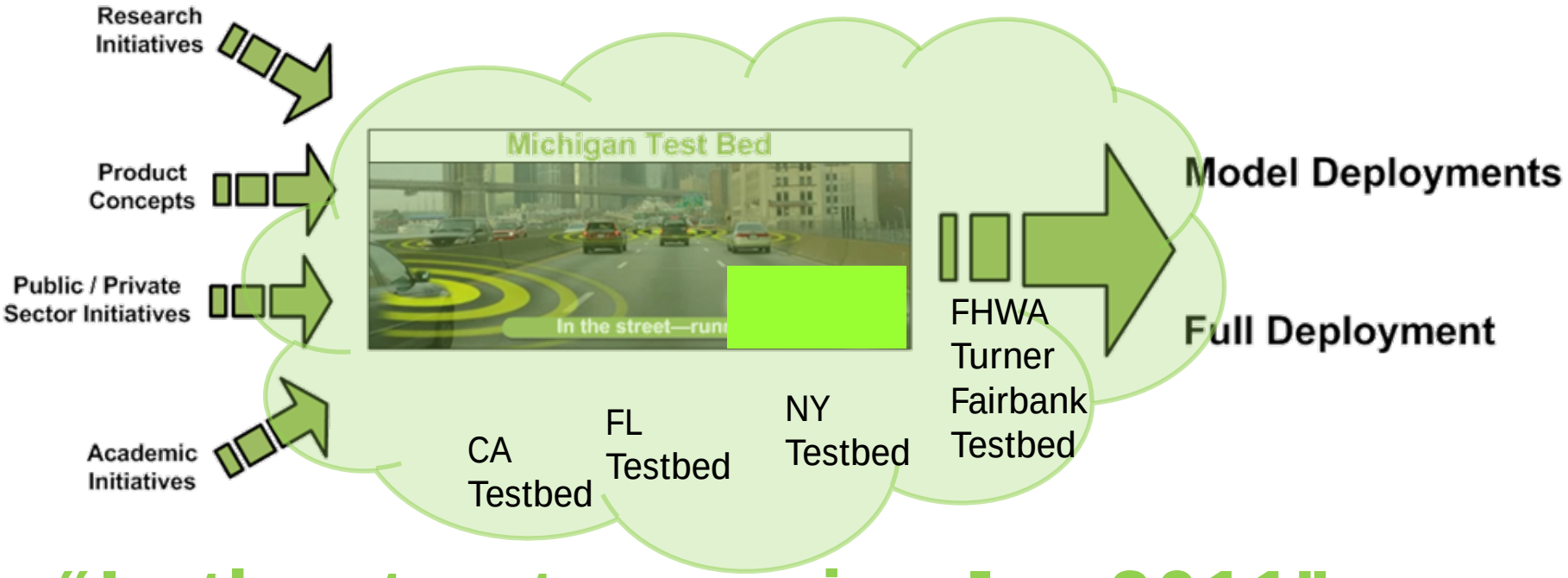
Safety Pilot continued

- Goals
  - Support V2V and V2I applications development and testing
  - Obtain benefits data to support NHTSA 2013 agency decision on V2V communications
  - Create public awareness & determine user acceptance
- Outcomes
  - Benefits and user acceptance data
  - Archived road network data for supporting mobility, environmental, and other industry research
  - Multiple supplier sources for devices and infrastructure (qualified product lists for “here I am”, roadside equipment and aftermarket safety)
  - Better understanding of the operational policy issues associated with the deployment of V2V and V2I

Step Three – Define the System and Establish a Testing Environment



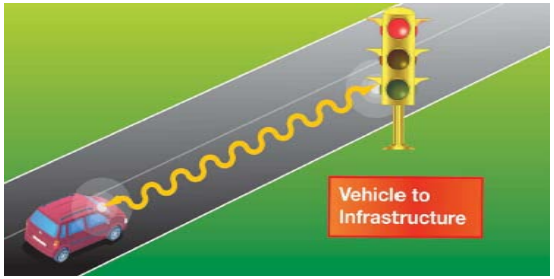
Aug./Sept. 2010 Oct. to Apr. 2011 Apr. to Aug 2011 Nov 2011



"In the street – running Jan 2011"

Step Four - Build V to I Safety, Mobility, and AERIS Data Environments and Applications

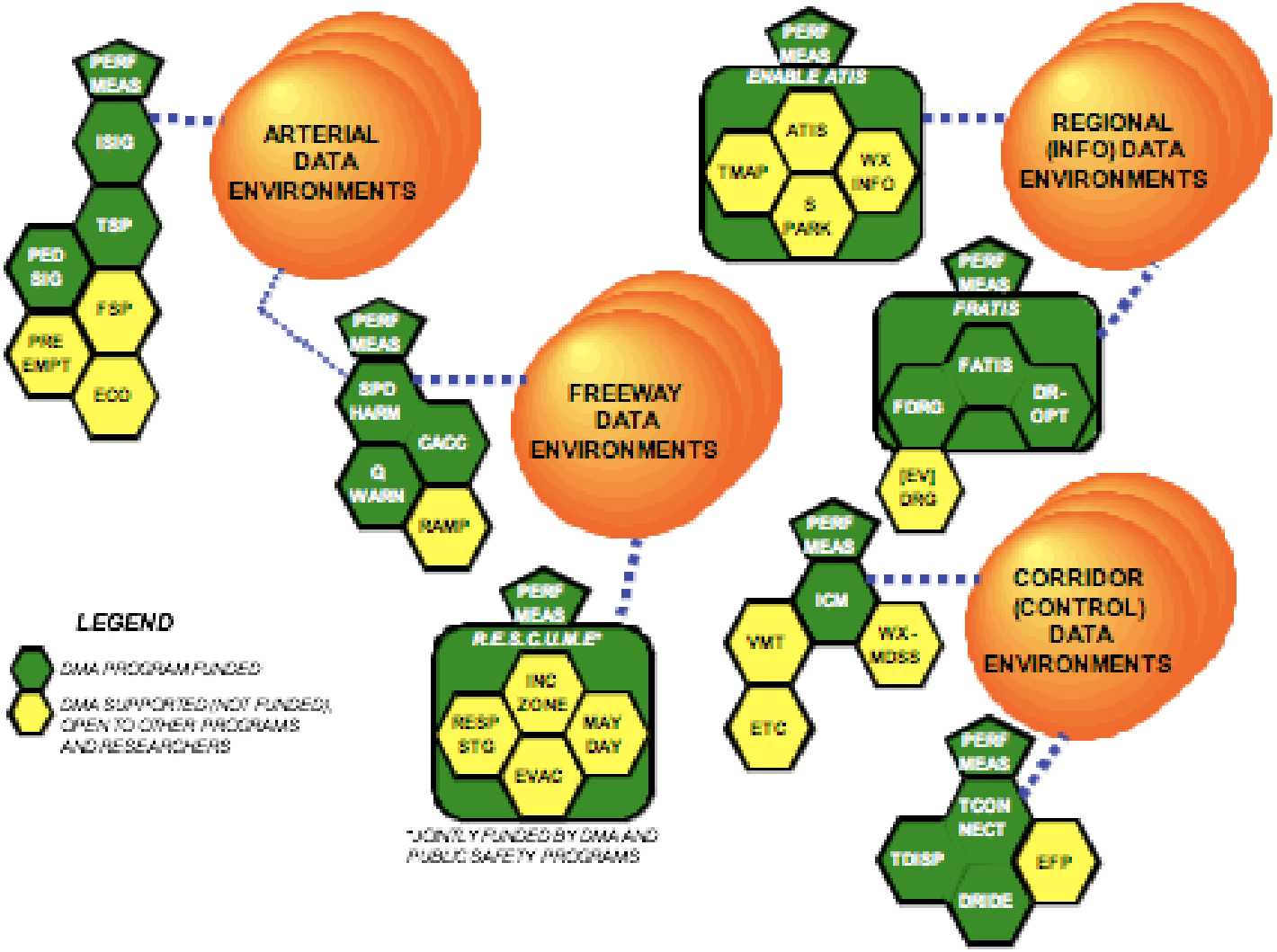
- V to I for Safety – Accelerate Signal Phase and Timing (SPAT) Based Applications, Smart Roadside, and Transit
- Prototype the Data Environment of the Future – All Vehicles as Probes and Open Data
- Prototype, Field Test and Analyze Mobility Applications
  - Use Open Source Software Approach to accelerate deployment
- Define and Test AERIS Applications



Signal Systems
Transit Management
Freight
R.E.S.C.U.E.M.E
ATIS
Speed Harmonization

AERIS

High Priority Mobility Applications



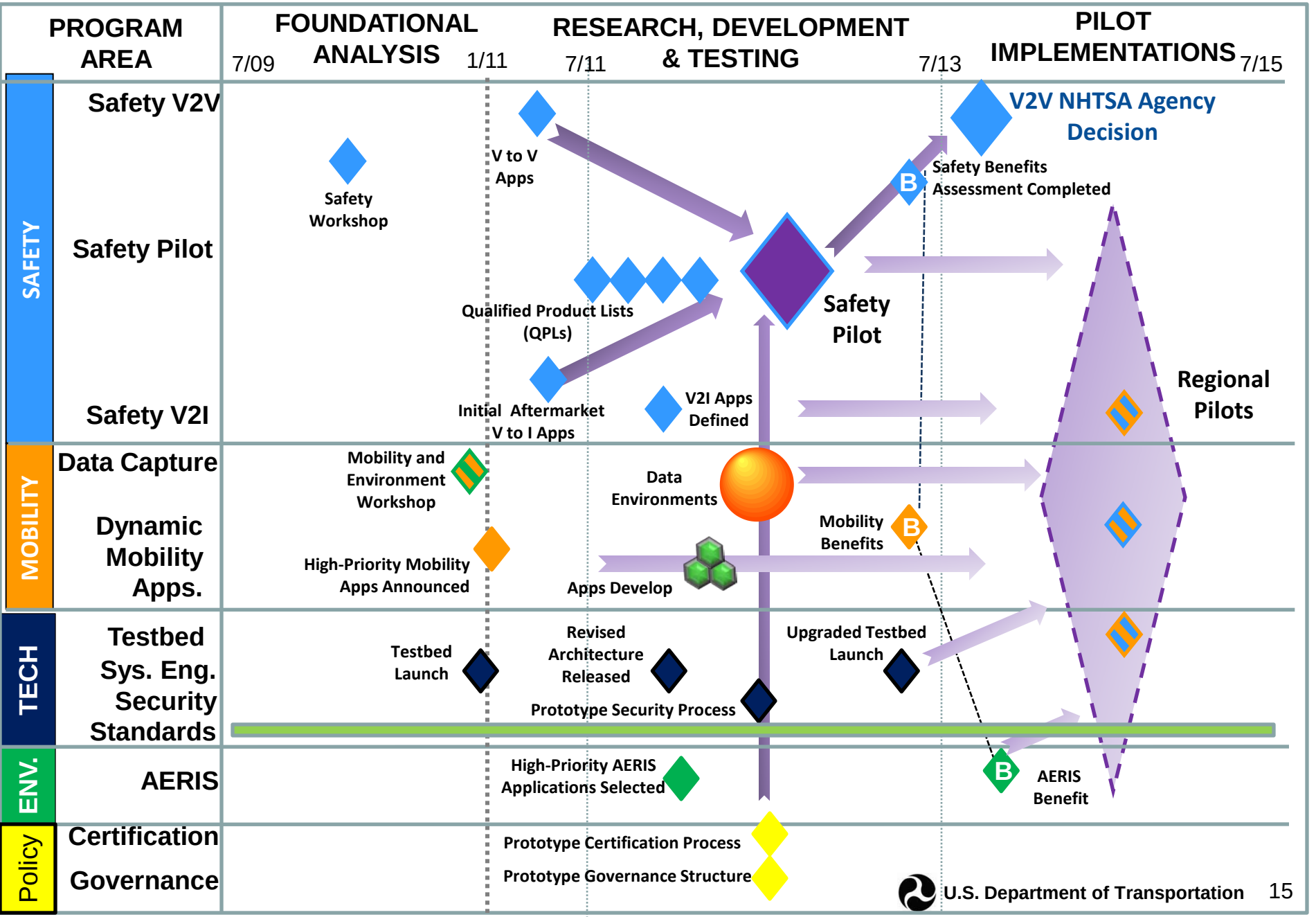
Step Five – Build a Reference Implementation

- Reflect the System Architecture
- Utilize Harmonized International Standards
- Implement a Certification Process
- Implement a Governance Process
- Implement a Security Process

Step Six - Conduct Regional Pilots

- Multiple Implementation Areas
- Opportunity to Pilot a variety of applications per area's need (Sites choose from a suite of field tested applications)
- Seeds Implementation
- Uses Lessons Learned from Safety Pilot
- Builds on a Stakeholder Defined Architecture
- Accelerates DSRC for Safety
- Leverages Available Wireless Communications for Mobility and Environment Applications
- Leverages Private Sector Investments Occurring Now

Major Milestones



ITS Professional Capacity Building

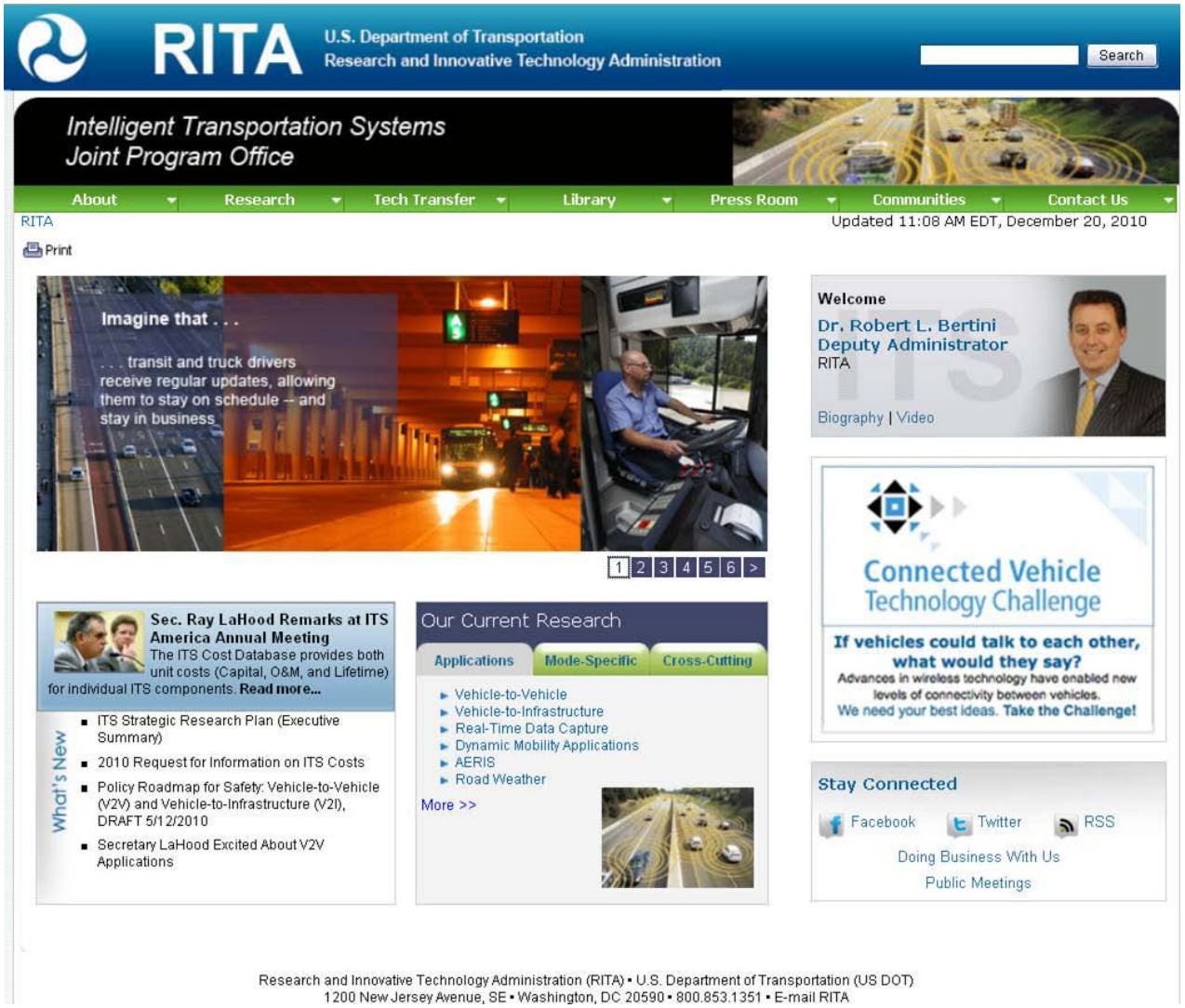
Reached 2,500 transportation professionals in 2010

- **Workforce Development a Priority for DOT**
- **PCB Strategic Plan Development**
  - http://itspcbplan.ideascale.com/
- **ITS Standards Training**
  - 18 Modules under development
- **Continuing Education**
  - T3s:Talking Transportation & Technology
  - Peer-to-Peer (P2P) Technical Assistance Program
  - Classroom based Training
  - Web based Training
- **Workshops and Presentations**
- **Embedding technology transfer in research process**

STANDARDS ITS TRAINING

CITE Training On-Line
Web-Based Transportation Courses

For More Information



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