



*UNITED STATES*  
**DEPARTMENT OF TRANSPORTATION**

# **ITS Program Update**

## **Moving Towards Implementation of Wireless Connectivity in Surface Transportation**

ITS World Congress  
October, 2011  
Orlando, Florida

# ITS Strategic Research Plan 2010-2014

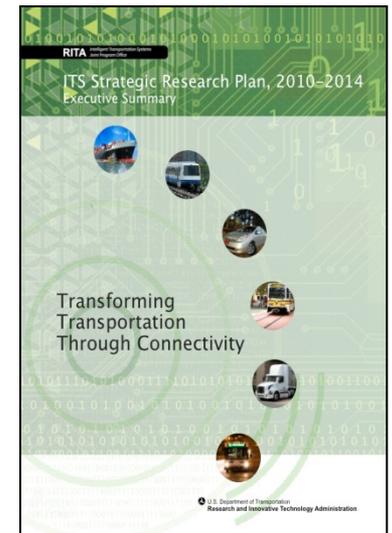
## A Truly Multimodal and Connected Effort

---

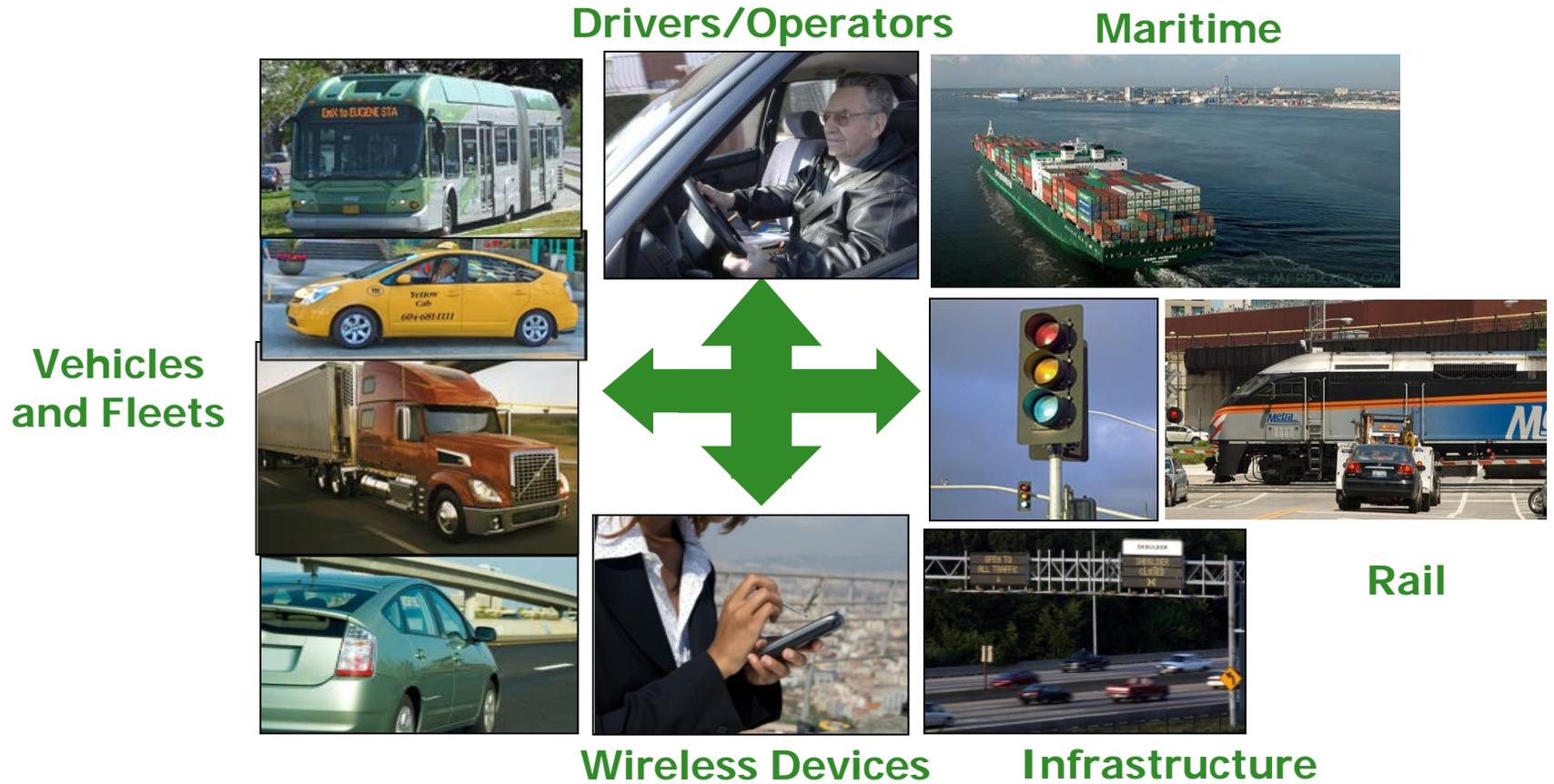
### Vision

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.

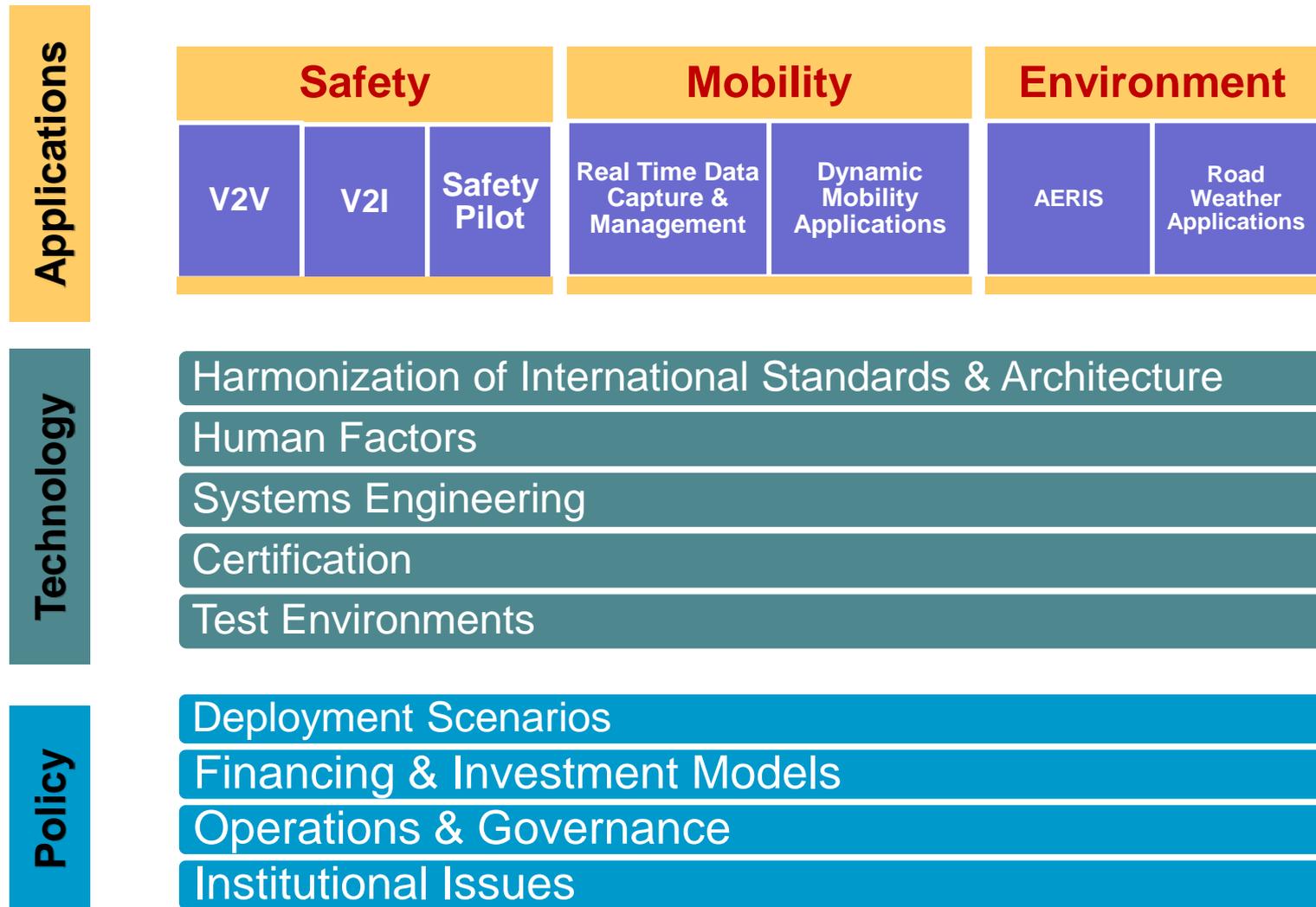
Plan developed with full participation by all surface transportation modal administrations as well as with significant interaction with multi-modal stakeholders.



# ITS Research = Multimodal and Connected

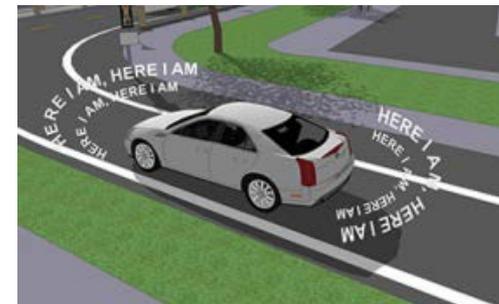


# ITS Research Program Components



# Progress - Step One – Accelerate V to V Safety

- Accelerate Benefits
  - Basic Safety Message Broadcast Devices (Vehicle Awareness Devices) – Working with 6 vendors (Autotalks, Cohda Wireless, Denso, DGE, ITRI, Savari Networks)
  - Aftermarket Safety Device, selected 4 suppliers (Cohda Wireless with Delphi, Cohda Wireless with Visteon, Denso International America, Inc., and Kapsch Trafficom Inc.)
- Working on Technical / Policy Tradeoffs for Security Network
- Working on DVI Guidelines



# Safety Policy Roadmap: Communications Security & Infrastructure

---

- **Objective:** Develop the institutional options in support of a technical communications security solution.
- **Next Steps/Milestones:**
  - **Develop Certificate Management Organizational/Operational Models:**
    - Options due in winter 2011
    - Prototype for Safety Pilot testing: June 2012
    - Test Results and Evaluation of Approach: Jan 2013
    - Final Report: July 2013
  - **Analyze Infrastructure Options:**
    - Requirements Definition: Fall 2011
    - Communications Options Analysis: Winter 2011/12
    - Business Models Analysis: Spring/Summer 2012
- **Progress/Accomplishments to Date:**
  - Analyzed technical approach and identified policy issues and trade-offs
  - Chose DSRC for Safety Pilot



# Deployment Scenarios

---

## **V2V Security Network**

- 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: Unlikely to meet our needs but worthy of consideration

## **No easy option**

**All require a sustainable funding stream & governance structure**

## **Under study**

**V2I Infrastructure** could be implemented for spot locations

- Intersections
- Curves



# Progress - Step Two - Demonstrate Safety

---

## Safety Pilot

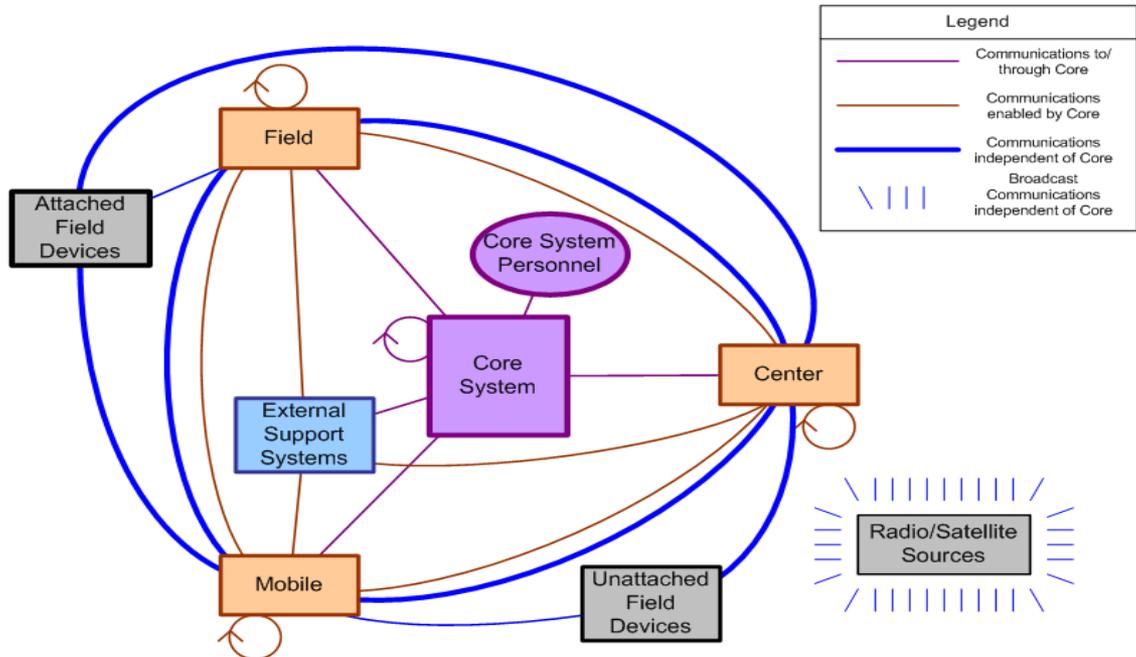
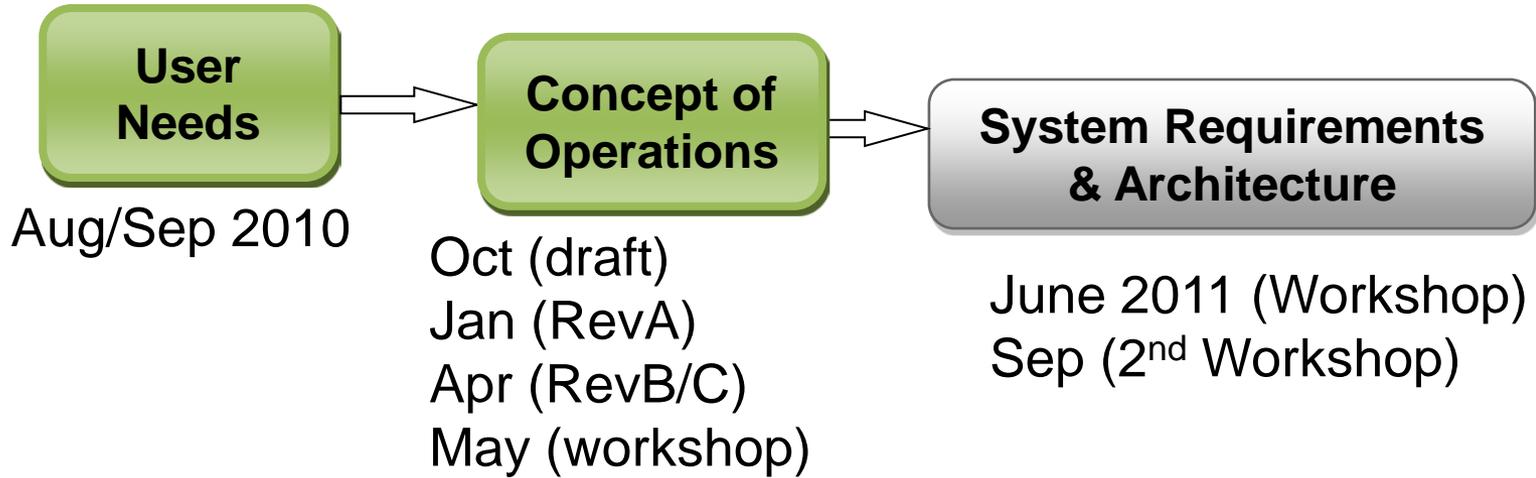
- Test Conductor Selected UMTRI and Ann Arbor site
- Road Side Equipment – selected 4 suppliers – (Cohda Wireless, ITRI, Kapsch, and Savari)
- Schedule 6 Driver Clinics



1. Aug'11 - Michigan International Speedway (MIS) - Brooklyn, MI
2. Sep'11 - Brainerd, MN (MnRoad)
3. Oct'11 - Orlando FL – Walt Disney World Speedway
4. Nov' 11 - Smart Road VTTI – Blacksburg, VA
5. Dec'11 – Dallas, TX – Texas Motor Speedway (Fort Worth)
6. Jan'11 – San Francisco - Alameda Naval Air Station



# Progress - Step Three – Define the System and Establish a Testing Environment

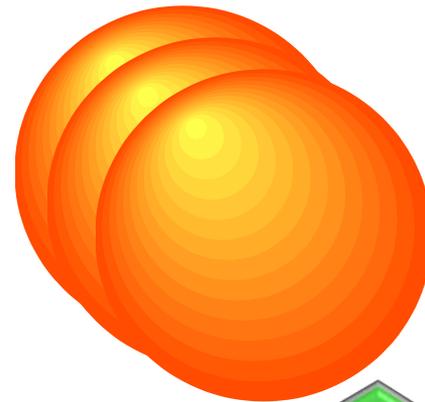


October 2011  
 Core System  
 Architecture is  
 Completed

connected vehicle environment

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

- V to I for Safety – Initiated the V2I Con Ops, Transit Con Ops, Smart Roadside Con Ops and a SPAT Con Ops
- Prototype the Data Environment of the Future Collecting Test Data Sets and Established Data Feeds to the Testbed
- Prototype, Field Test and Analyze Mobility Applications
  - Launched development of 6 DMA concept of operations and data requirements
- Defined 7 Transformative AERIS Applications



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



AERIS



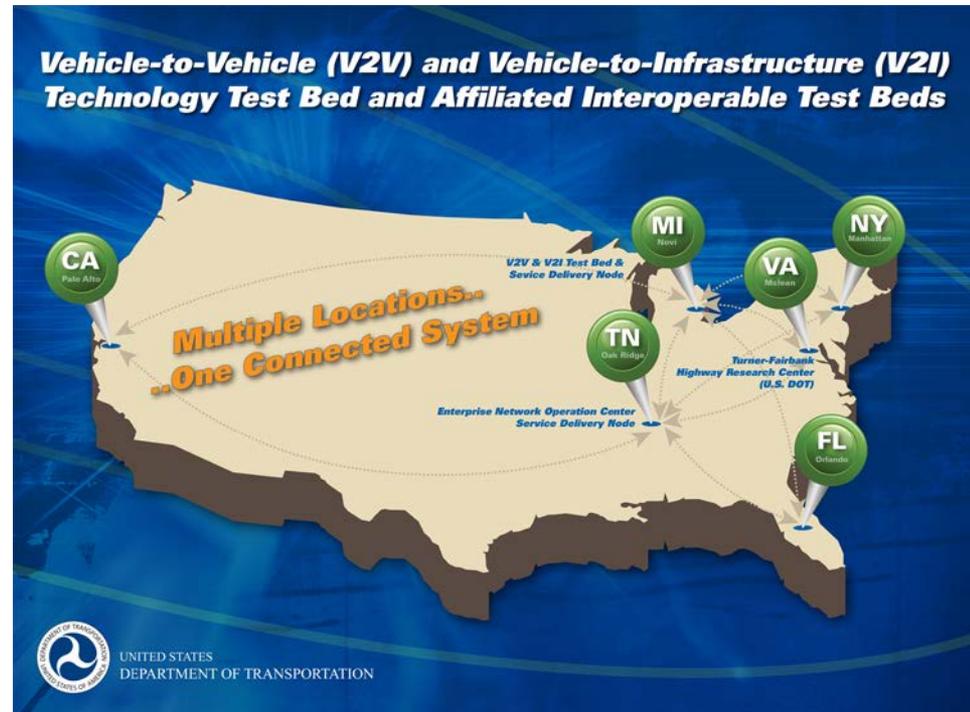
# Progress Step Five – Build a Reference Implementation

2011

- Testbed is Up and Running. Interoperable equipment in California, Florida, New York, Michigan, Virginia, and Network Operations in Tennessee

2012 to 2013

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



# Progress Step Six - Conduct Regional Pilots

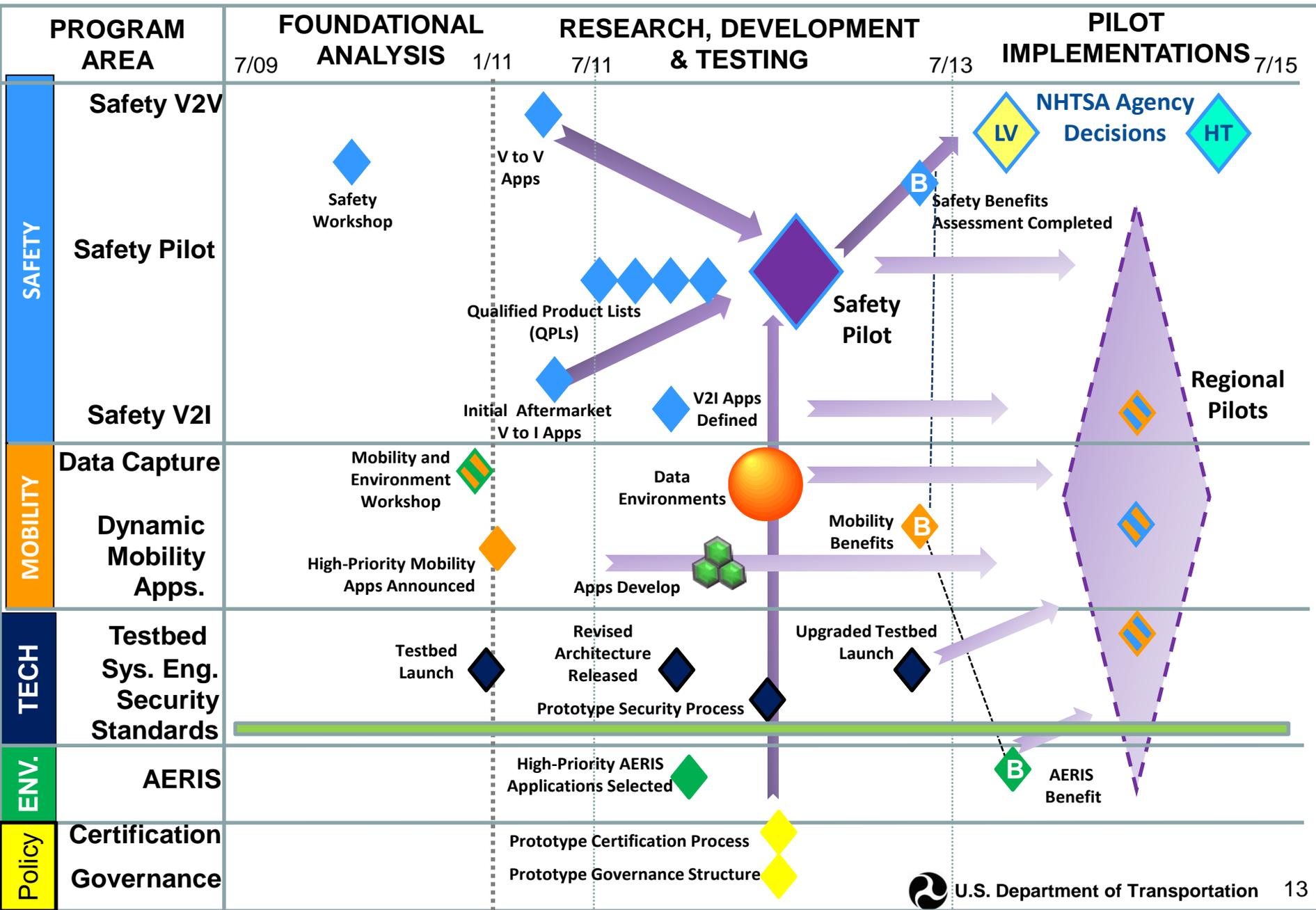
---

## Started Planning and Discussing the Theme with Stakeholders

- **Multiple Implementation Areas all using the Core System Architecture and Interoperable Equipment**
- 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
- Accelerates DSRC for Safety and Vehicle Awareness Device Use
- Leverages Available Wireless Communications for Mobility and Environment Applications
- Leverages Private Sector Investments



# Major Milestones



# Technology Opportunities

---

- DSRC for Safety – using in the Safety Pilot
- Security Network – DSRC or Cellular – Analyzing and Possibly Assessing in the Testbed
- Mobility Applications – DSRC or Other – Analyze as part of the Concept of Operations and test in the Application development phase in 2012 and 2013.
- V2I safety applications – DSRC and other for SPAT – Analyze as part of the Concept of Operations and test in the Application development phase



# For More Information

**RITA** U.S. Department of Transportation  
Research and Innovative Technology Administration

Intelligent Transportation Systems  
Joint Program Office

Updated September 28, 2011 3:37 PM

Imagine that . . .  
. . . transit and truck drivers receive regular updates, allowing them to stay on schedule -- and stay in business

**Real-Time Transit Data Demonstration Projects Awarded to Integrated Corridor Management Demonstration Sites**  
ICM is the management of the corridor as a system, rather than the traditional approach. [Read more...](#)

U.S. DOT Announces Free Public Meeting and Webinar to Discuss the EnableATIS Dynamic Mobility Application 9/28/11

Statement of Shelley Row, Director of the ITS JPO, on the Departure of RITA Administrator Peter Appel 9/27/11

U.S. Department of Transportation Announces Winner of the ITS Video Challenge 9/13/11  
[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

[More >>](#)

**Public Meetings** [View >>](#)

**SAFETYPILOT** [More>>](#)

**Stay Connected**

Facebook Twitter Email RSS

Share

[www.ITS.DOT.GOV](http://www.ITS.DOT.GOV)

Brian Cronin  
Team Leader, Research  
RITA, ITS Joint  
Program Office (JPO)  
[Brian.cronin@dot.gov](mailto:Brian.cronin@dot.gov)