



*UNITED STATES*  
**DEPARTMENT OF TRANSPORTATION**

# **Mobility Workshop 2012: Workshop Goals and Mobility Program Overview**

Research and Innovative Technology Administration, ITS Joint Program Office

Mobility Workshop 2012  
National Harbor, MD

May 24, 2012

# Overview

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- **Welcome**
  
- **Workshop:**
  - **Goals**
  - **Agenda**
  - **Materials**
  
- **Mobility Program Overview**
  - **Background**
  - **Roadmap**
  - **Recent Accomplishments**
  - **Near-Term Program Milestones**
  - **Role of the Basic Safety Message (BSM)**
  - **Opportunities to Participate**

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# Welcome

# Workshop Goals

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- INFORM stakeholders on schedule, projects, procurements and products
- CONFIRM stakeholder concurrence on Mobility Program direction
- MOTIVATE stakeholder utilization of program products, participation in upcoming procurements
- CAPTURE stakeholder feedback on targeted cross-cutting issues regarding application development, testing, and deployment



# This Morning: Program Background and Status

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- Our chance to update you on what is happening in the Mobility Program:
  - Accomplishments
  - Near term milestones
  
- Key Topics
  - Mobility Program Overview
  - Data Capture and Management Program
  - Dynamic Mobility Applications Program
  - DMA Application Bundle Concepts
  
- Detailed agenda provided in your participant booklet



# This Afternoon: Providing Feedback

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- Your chance to provide us with feedback on issues and program direction
  
- Mobility breakout exercises
  - Structured feedback sessions
  - Each breakout session:
    - Runs 2 hours 45 minutes - 1:30 PM to 4:15 PM
    - 15 minute break from 2:45 to 3:00 PM
  - Pick 1 session to attend from four topics
    - Near-Term Testing Concepts
    - Cross-cutting Data and Communications Needs
    - Implementing Open Data and Open Source Concepts in the RDE and OSADP
    - Bundle Deployment Feasibility: Assumptions, Impacts, and Risks
  
- Wrap-Up/Workshop Summary
  - You can hear about the breakouts that you did not participate in



# Participant Resource Materials

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- Everyone should have received a participant booklet:
  - Detailed agenda
  - Descriptions of the application bundles
- You will receive additional materials in the breakout sessions



# Attendees

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- Interest in this workshop reflects growing interest in the Mobility program
  - Too large a group for individual introductions, unstructured breakout exercise activities
  
- 80+ registered attendees:
  - Public sector
    - Federal, regional, state, and local agencies
    - Universities
  - Private sector firms in a wide range of interests
    - Technology vendors
    - System integrators
    - Consultants
    - Telecommunication companies
    - Auto manufacturers





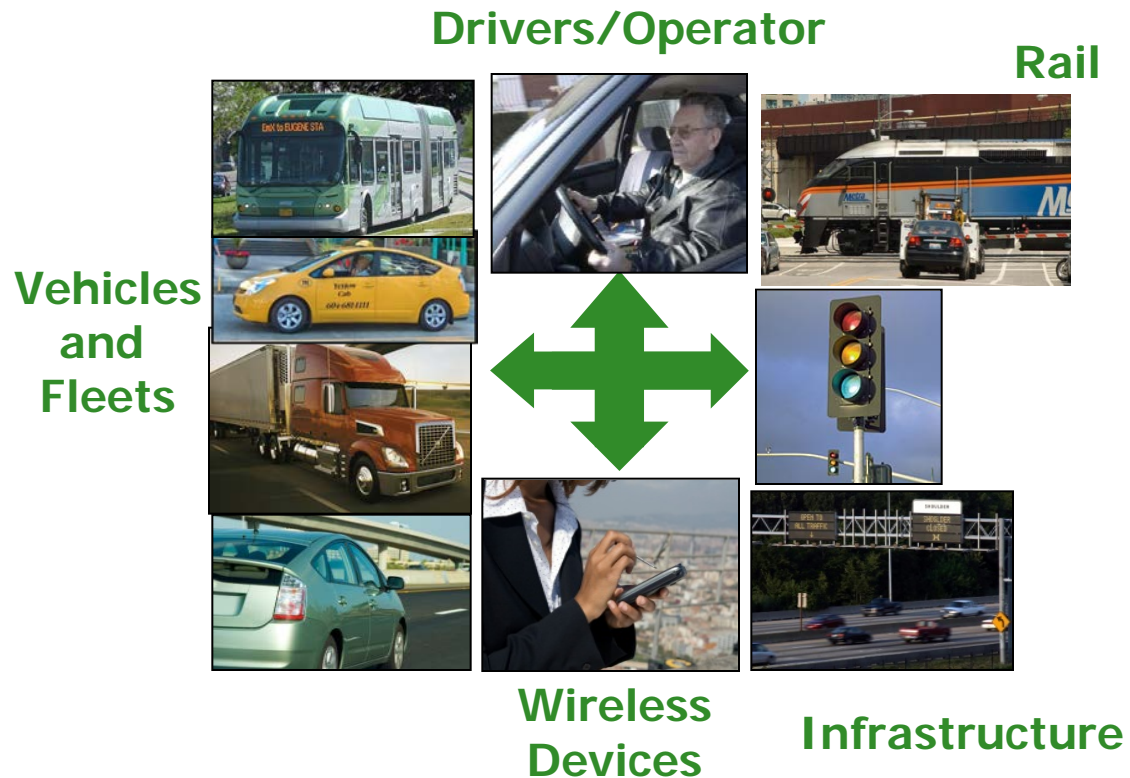
# ITS Research = Multimodal and Connected

To Improve Safety, Mobility  
and Environment

Research of technologies and  
applications that use  
wireless communications to  
provide connectivity:

- Among vehicles of all types
- Between vehicles and roadway infrastructure
- Among vehicles, infrastructure and wireless consumer devices

FCC Allocated Spectrum at 5.9 GHz  
for Transportation Safety  
(known as DSRC)



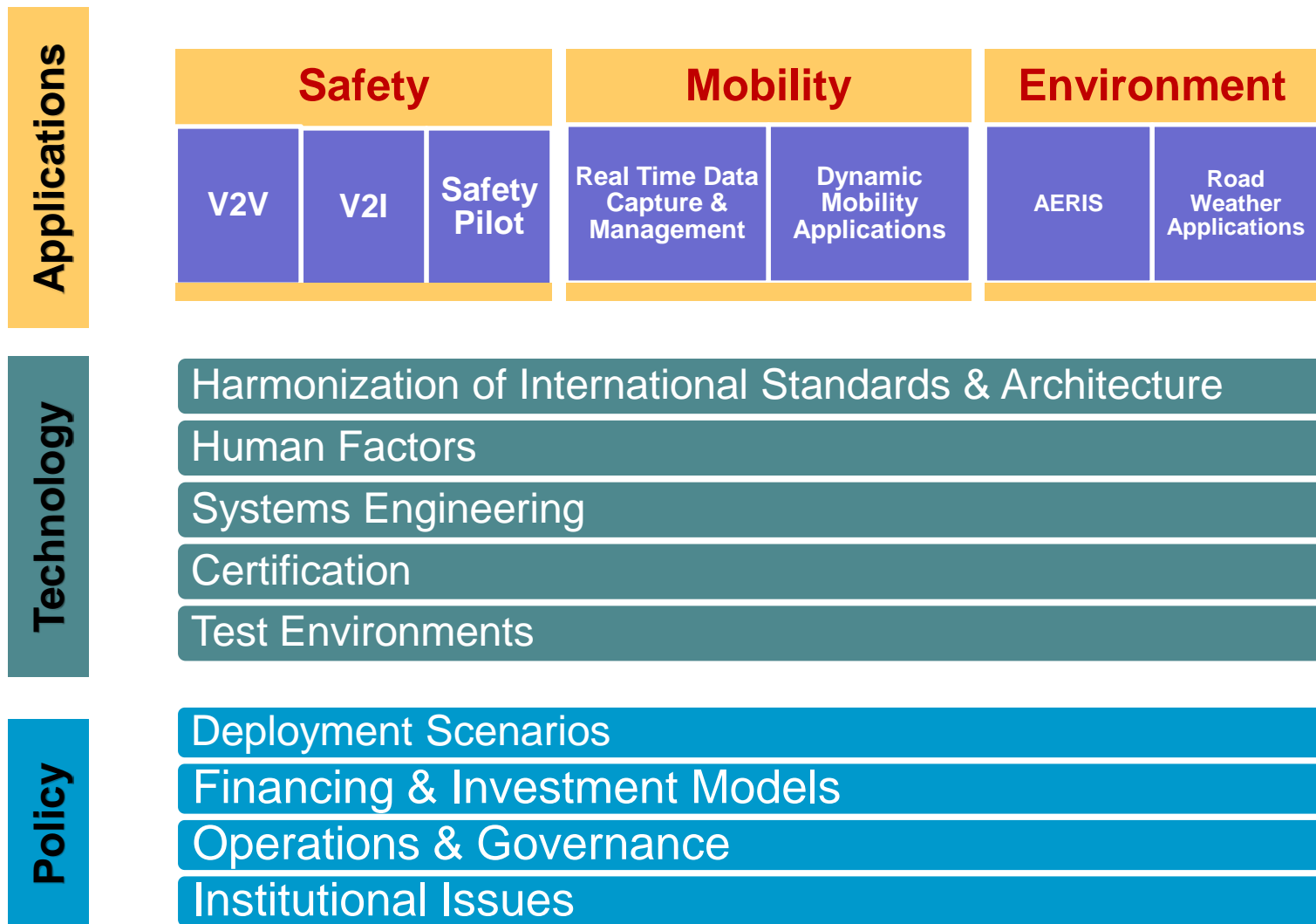
# Major Objectives

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- Move aggressively on vehicle to vehicle communications
  - Regulatory Decision on In-Vehicle Equipment by 2013
- Accelerate in-vehicle technology
  - Basic Safety Messaging
  - Aftermarket Safety Systems
  - Enables safety and active traffic management
- Accelerate infrastructure communications capability
  - Signal Phase and Timing (SPaT) as initial focus
  - Enables safety, mobility, and environmental applications
- Multi-modal pilot deployments for high-value applications
- Monitor and evaluate driver distraction issues
- Understand data and communications needs (DSRC/other) of transformative mobility applications – and the potential benefits of these applications



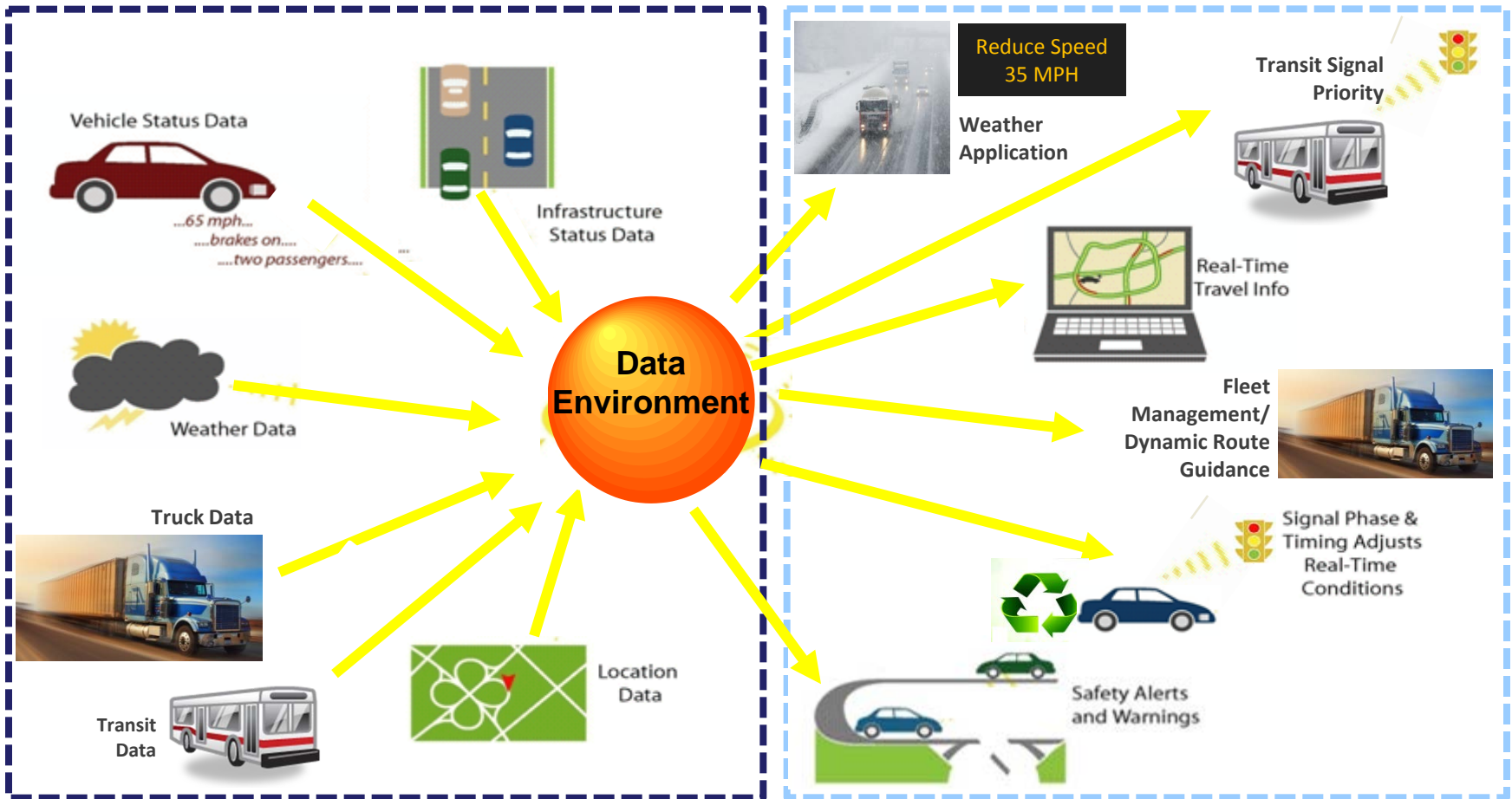
# ITS Research Program Components



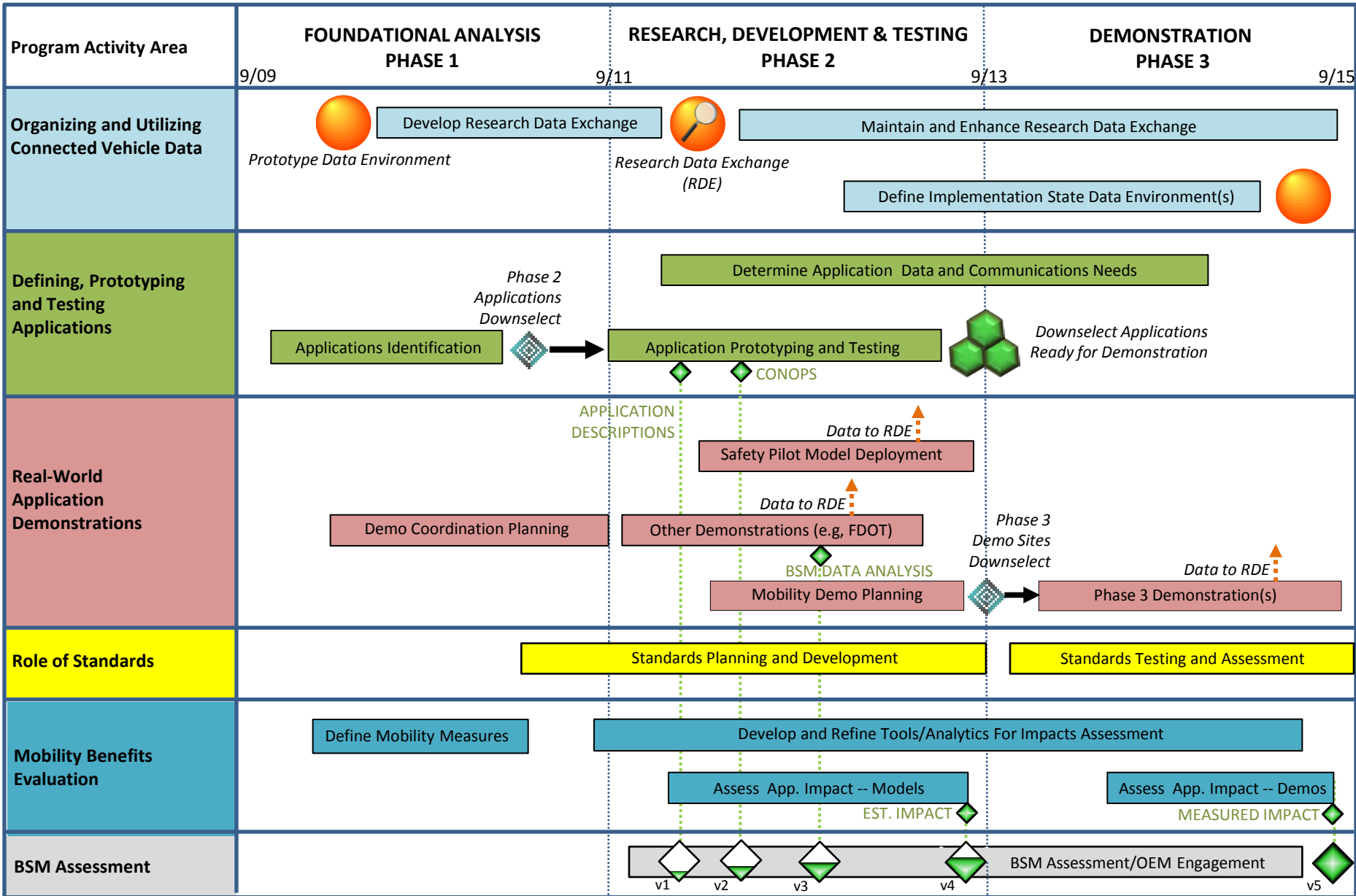
# Mobility Program

## Real-time Data Capture and Management

## Dynamic Mobility Applications



# Data Capture and Management and Dynamic Mobility Applications Programs: Integrated Roadmap



**LEGEND:**

- Data Feed
- Data Environment
- Research Data Exchange
- Mobility Applications
- Decision Point
- Key Activity Informing BSM Assessment
- BSM Assessment Papers (preliminary to final)
- RDE

# Mobility Program: Recent Accomplishments

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- **Organizing and Utilizing Connected Vehicle Data**
  - Prototype Research Data Exchange now live
- **Defining, Prototyping and Testing Applications**
  - Application Bundle Concepts of Operations/Operational Concepts
    - EnableATIS Operational Concept (completed)
    - INFLO, IDTO, FRATIS ConOps (completed)
- **Real-World Application Demonstrations**
  - Initiated coordination activity to obtain data from Safety Pilot Model Deployment
- **BSM Assessment**
  - Developed BSM Assessment (version 1) white paper
- **Mobility Benefits Evaluations**
  - Defined four key mobility measures
- **Stakeholder Engagement**
  - Summer webinar series 2011
  - Bundle workshops

# Mobility Program: Near Term Milestones

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- **Organizing and Utilizing Connected Vehicle Data**
  - Safety Pilot data
  - BSM demonstration data
  - RDE Update 1 – Late 2012
- **Defining, Prototyping and Testing Applications**
  - Prototype Open Source Portal goes live – Fall 2012
  - Complete Bundle ConOps (R.E.S.C.U.M.E and M-ISIG)
  - Develop Ph. 2 Integrated Research Plan – Summer 2012
    - Small Scale Field Tests
    - Simulation Studies
- **Real-World Application Demonstrations**
  - Safety Pilot Model Deployment
- **BSM Assessment**
  - BSM Assessment paper updates
- **Mobility Benefits Evaluations**
  - Refine tools and conduct application impact assessment



# Key Research Questions for the Mobility Program

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- What are the benefits of applications enabled by connected vehicle and connected traveler data?
- What testing is required to prepare applications for eventual demonstration and deployment?
- What are the cross-cutting data and communication needs among DMA bundles?
- What is the role of Basic Safety Message (BSM)?
- How do we successfully implement Open Data and Open Source concepts within the program?





# Basic Safety Message (BSM) Fundamentals

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- Connected V2V safety applications are built around the BSM, which has two parts
  - BSM Part 1:
    - Contains the core data elements (vehicle size, position, speed, heading acceleration, brake system status)
    - Transmitted approximately 10x per second
  - BSM Part 2:
    - Added to part 1 depending upon events (e.g., ABS activated)
    - Contains a variable set of data elements drawn from many optional data elements (availability by vehicle model varies)
    - Transmitted less frequently
  - No on-vehicle BSM storage of BSM data
  - The BSM is transmitted over DSRC (range ~1,000 meters)
- **The BSM is tailored for low latency, localized broadcast required by V2V safety applications**



# Mobility Programs: BSM Assessment Activity

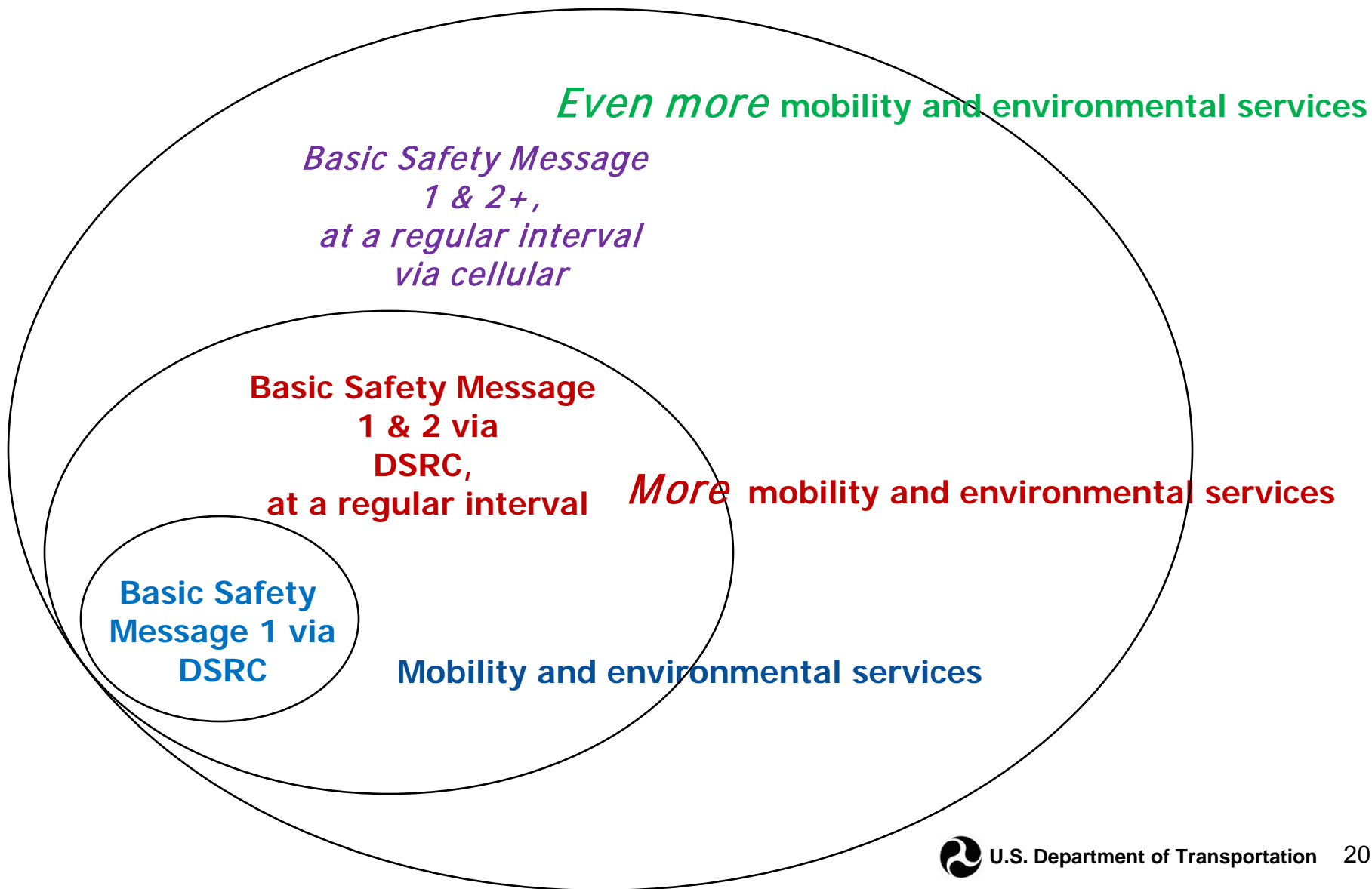
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- Assess the extent to which the BSM supports or enables mobility applications
  - To what degree is a DSRC-based BSM Part 1 message critical to realizing transformative benefits from mobility applications?
  - What key elements of BSM Part 2 or other vehicle-based data might be needed? Where and how often?
  - Can other messages tailored for cellular communication augment a DSRC-based BSM?
  - As we add data from mobile devices and fixed sensors, how much improvement do we see in application effectiveness?



# Data Question

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# Your feedback today

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- Participate in the breakout sessions to provide feedback on:
  - Prioritization of near-term test concepts
  - Mobility application data and communications needs
  - Governance and licensing approaches for data and source code released by the Mobility Program
  - Feasibility of bundle deployments in the next 10 years:
    - market penetrations of various forms of wirelessly-enabled vehicles and personal communication devices
    - performance measures and transformative targets
    - deployment risks by application bundle



# Other ways to get involved

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- Become a stakeholder
  - RDE Stakeholder Workshop: June 2012
  - DMA Bundle Workshops
  
- Respond to upcoming procurements
  - Bundle application prototyping and testing procurements
  - Evaluation tool enhancement and impacts assessment

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# Questions?