UNITED STATES
DEPARTMENT OF TRANSPORTATION

Safety Pilot Test Conductor Solicitation

ITS Joint Bidders Conference
February 22, 2011
Washington, DC

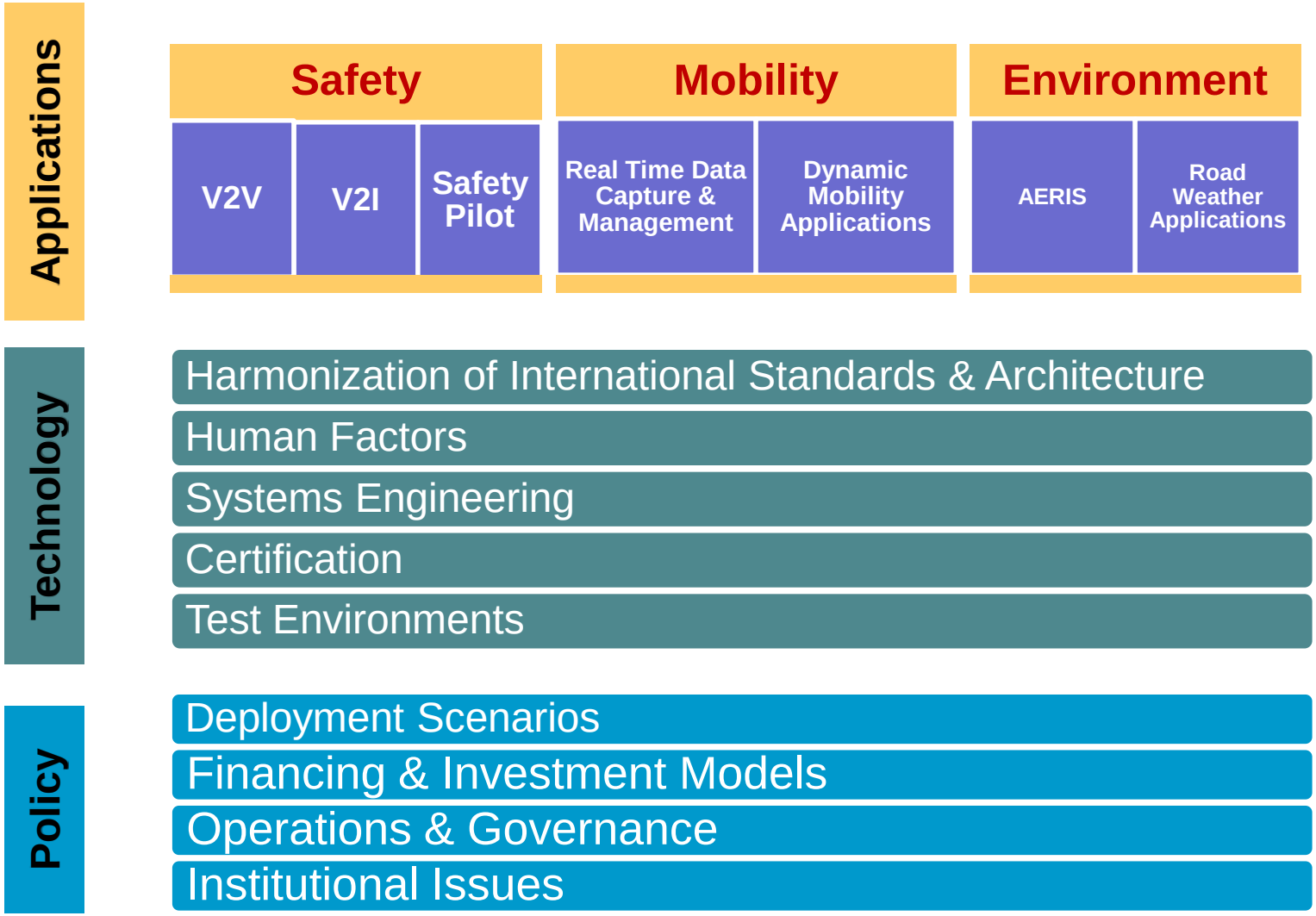
Today's Agenda

- 9:00 – 9:15 am Opening Remarks
- 9:15-12:00 pm Pilot Test Conductor RFP
- Break
- 1:00-2:30 pm Aftermarket Safety Devices RFA
- Break
- 3:00-4:30 pm Road Side Equipment RFQ

Safety Pilot Test Conduct Solicitation

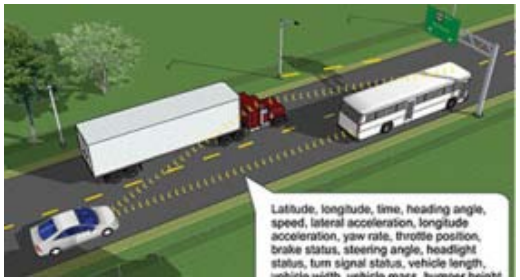
- Background
- Model Deployment Objectives
- Solicitation Scope
- Break
- Delineation of Work
- Other contractual elements
- Contact Information
- Q & A

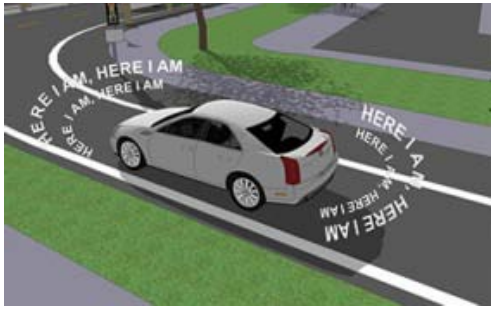
ITS Research Program Components



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 for light vehicles and 2014 decision for heavy vehicles





Step Two - Demonstrate Safety

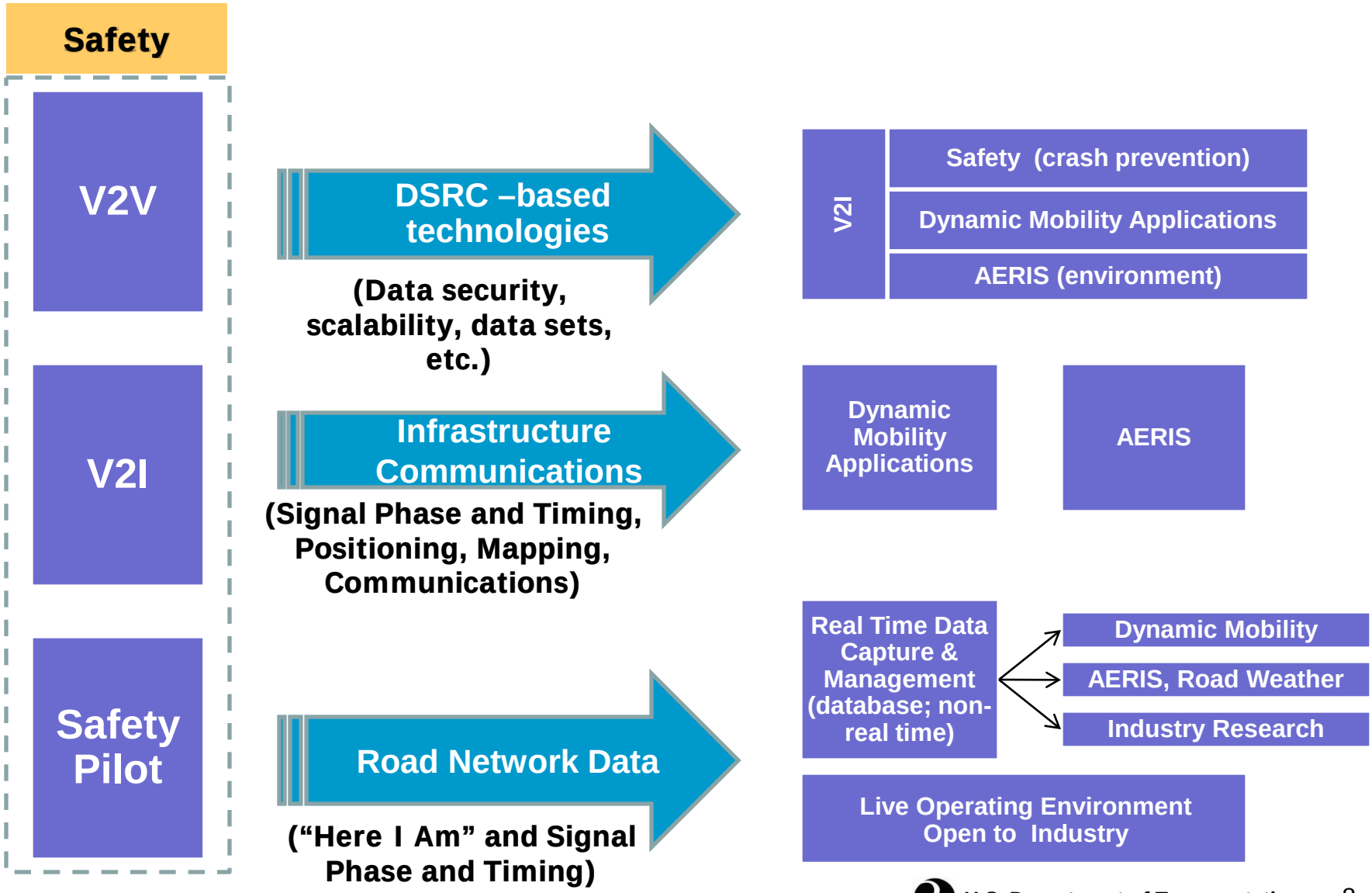
Safety Pilot

- 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

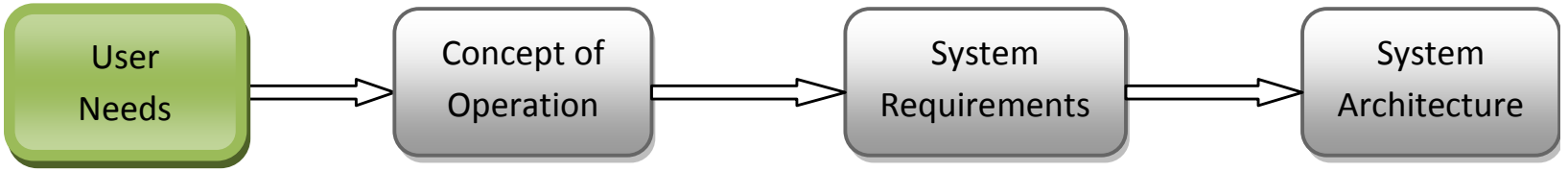
Safety Pilot continued

- Goals
  - Support real world V2V and V2I applications with a data rich environment
  - Establish benefits data in support of NHTSA 2013 Agency Decision on V2V Communications with Real World Field Data
  - Create Public Awareness & Determine User Acceptance
- Outcomes
  - Benefits and user acceptance data for supporting future federal actions
  - 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

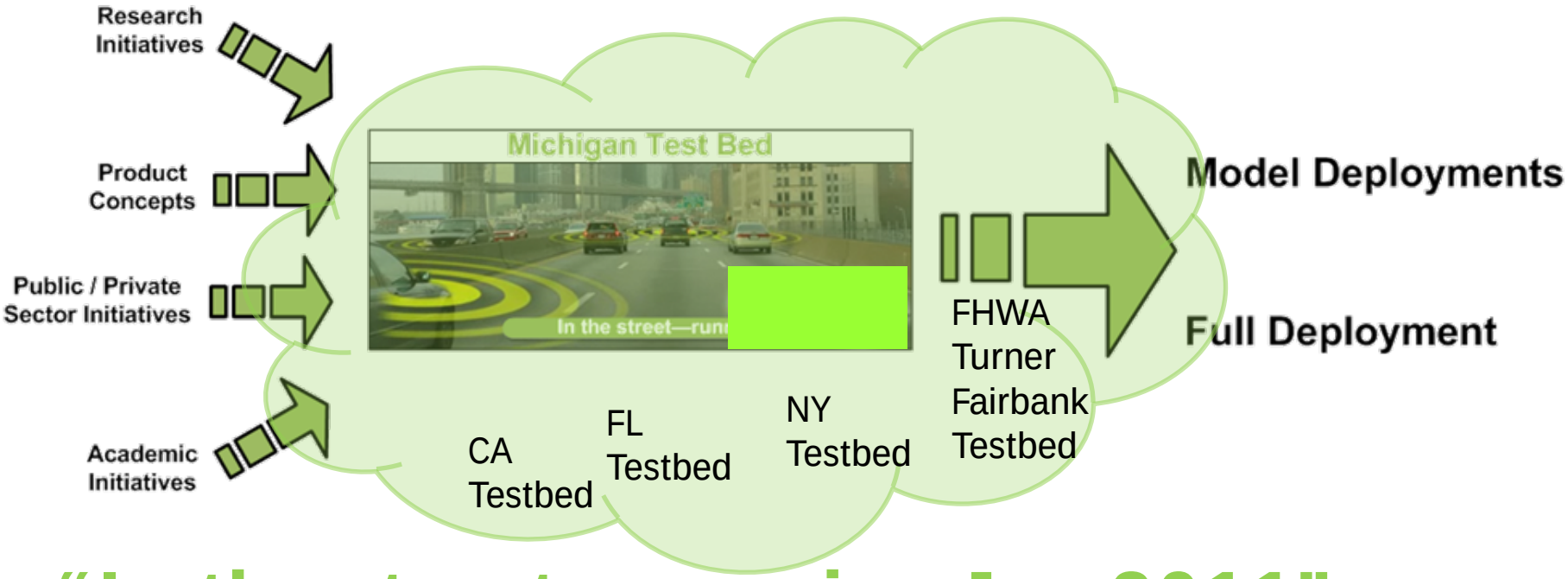
Safety Program Activities Provide Cross-cutting Support



Step Three – Define the System and Establish a Testing Environment



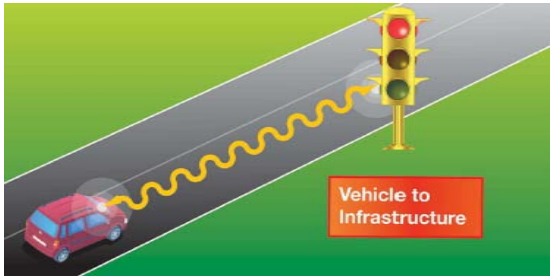
Aug./Sept. 2010 Oct. to Dec. 2010 Jan. to March 2011 Summer 2011



"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

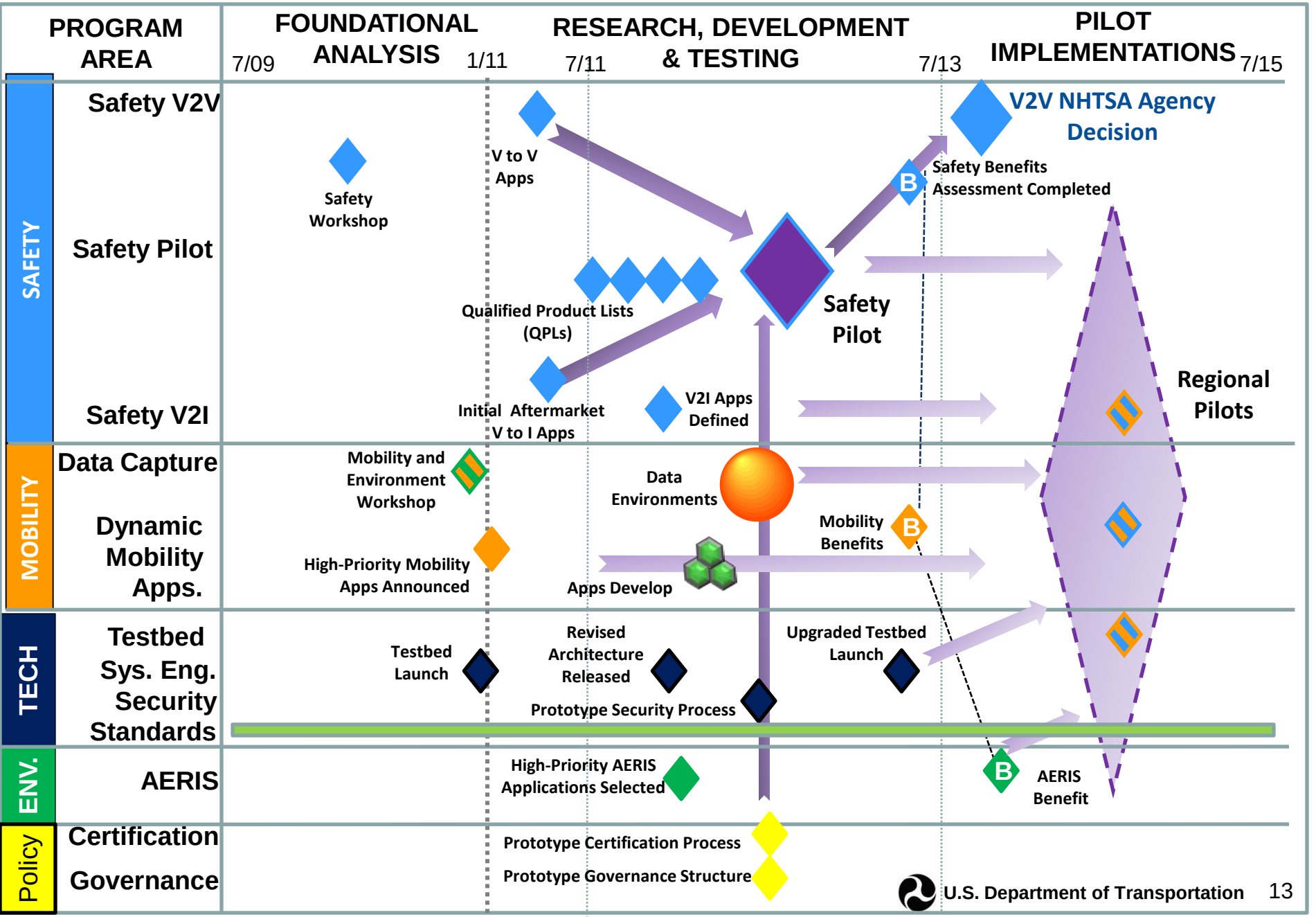
Step Five – Build a Reference Implementation

- 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

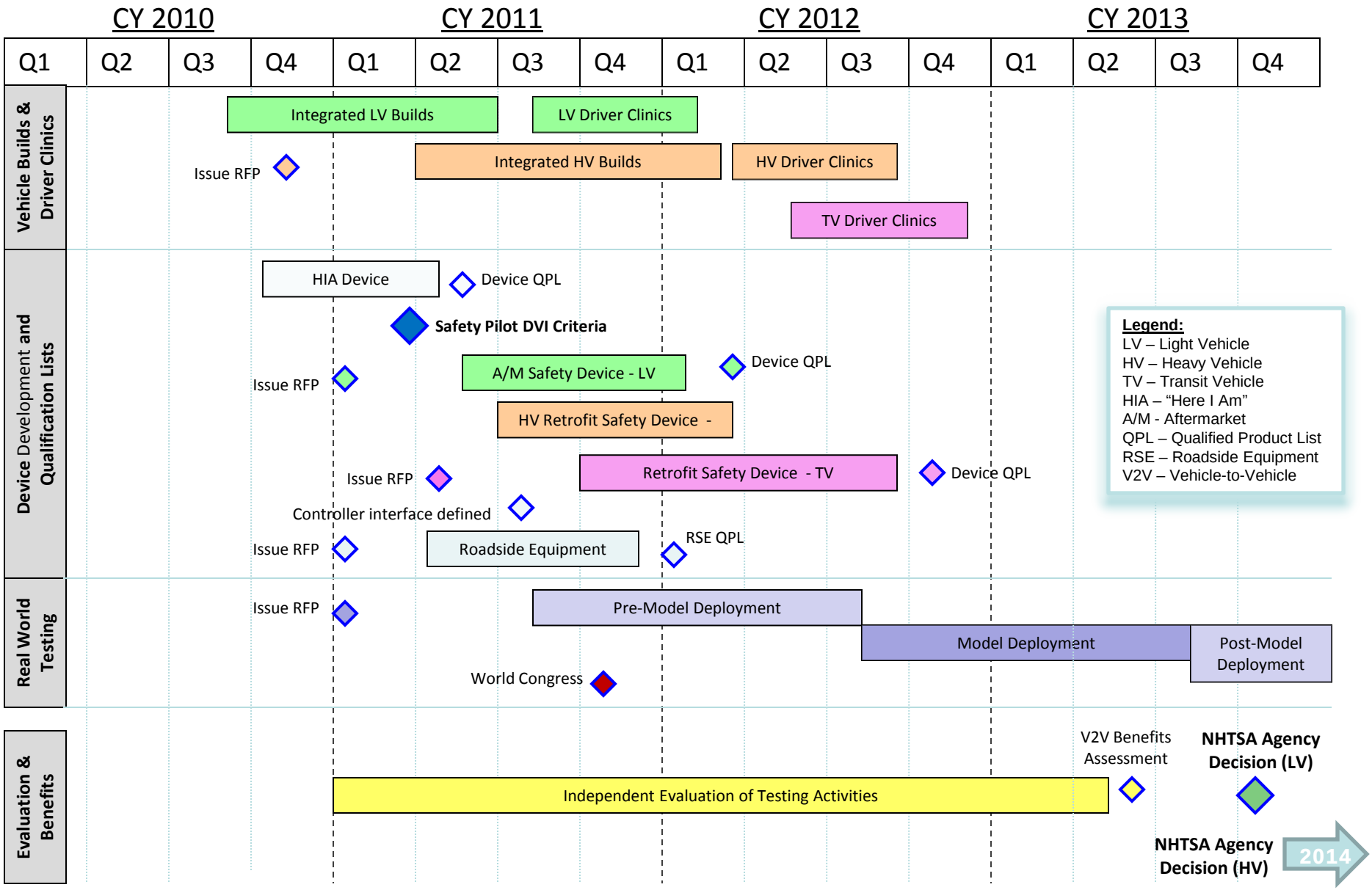
Major Milestones



Safety Pilot Program: Background

- Safety Pilot Model Deployment of V2V and V2I Safety Applications—Five Major Stages:
  - Device Development
  - Driver Clinics
  - Pre-Model Deployment Testing
  - Model Deployment
  - Post-Model Deployment Evaluation

ITS Safety Pilot Program Roadmap



Safety Pilot Model Deployment Test Conductor Solicitation

- Test Conductor role is to:
  - Establish the test site (vehicles, infrastructure, security, interoperability, etc.)
  - Perform as the test conductor and facilitator for the pre-model deployment and model deployment phases of the Safety Pilot Program, and
  - Develop and operate the Showcase activities
  - Provide data and support post model deployment surveys and focus groups

  - ***Note: this contract requires extensive coordination with other Safety Pilot program contractors***

Coordination with Other Organizations is Critical!

- **Crash Avoidance Metrics Partnership (CAMP)**
- **Heavy Vehicle Contractor (to-be-selected)**
- **Transit Vehicle Contractor (to-be-selected)**
- **Suppliers of HIA devices (Multiple Providers)**
- **Suppliers of Aftermarket Safety Devices (to-be-selected)**
- **Suppliers of RSE devices (to-be-selected)**
- **The Independent Evaluator (Volpe Center)**
- **Test Bed Contractor (SAIC)**
- **USDOT staff and support contractors**

…along with team partners and subcontractors.

Major Objectives of Model Deployment

1. Demonstrate V2V and V2I safety-related applications in a real-world environment using multiple vehicles (minimum: light & heavy vehicles and buses)
2. Collect data to project potential safety benefits of V2V applications
3. Assess options for accelerating the safety benefits through the use of HIA, aftermarket, and retrofit safety devices
4. Evaluate the scalability, security, and interoperability of devices using DSRC 5.9 GHz technology

Objectives (continued)

5. Test the use of Signal Phase and Timing (SPaT) messages in the V2I safety-related applications
6. Provide industry access to HIA and SPaT messaging in a live operation environment, for use by additional applications
7. Collect and store data (e.g., HIA messages, vehicle-based sensor data, SPaT messages) for later use by other researchers, including universities and private industry

Device Types

Device Types are:

- HIA Devices (all vehicle types)
  - Limited in capability, these devices only broadcast and do not receive messages
  - Broadcast a single type of message in the form of the *Basic Safety Message* (BSM) (SAE standard J2735, Dedicated Short Range Communications (DSRC) Message Set Dictionary)
  - Does not have a working human-machine interface (HMI)
- Aftermarket Safety Device (light vehicles)
  - A device safely installed in the vehicle such that it does not distract the driver, cannot void the vehicle's warranty, or cause harmful effects to the vehicle
  - The device provides working safety applications (continued)

Device Types

- Aftermarket Safety Device (continued)
  - Has a working Human Machine Interface (HMI)
  - Broadcasts and receives safety messages
  - Can process the content of received messages to provide warnings and/or alerts to the driver of the vehicle in which installed
- Retrofit Safety Device (kit) (truck and transit vehicles)
  - A device (kit) installed in vehicles after the manufacturing process by reps of the OEM or authorized service provider (retrofit)
  - Connects to proprietary data ports
  - Can provide highly accurate information from in-vehicle sensors
  - The retrofit device has a working HMI
  - Broadcasts and receives SAE J2735 messages, and
  - Can process messages received to provide warnings and/or alerts to the driver of the vehicle in which installed

Device Types

- Integrated (safety) Device
  - A device inserted into vehicles during vehicle production at an OEM's factory
  - Connect to proprietary data ports
  - Can provide highly accurate information from in-vehicle sensors
  - Has a working HMI
  - Broadcasts and receives SAE J2735 messages
  - Can process the content of received messages to provide warnings and/or alerts to the driver of the vehicle in which installed

- Note: only one type of device shall be inserted into any vehicle

Pre-Model Deployment and Testing Stage

Purpose:

- To ensure that all of the hardware and software components needed for Model Deployment are:
  - Installed properly
  - Operate according to their design specifications, and
  - Interoperate effectively

Three major phases:

1. Planning (for both remaining Safety Pilot stages)
2. Preparation and Installation of Required Components
3. Execution of the Pre-Model Deployment tests

Pre-Model Deployment and Testing Stage

1. Planning

- During the planning phase, the Test Conductor shall prepare:
  - Updated Model Deployment Site Plan (initially submitted with the Offeror's proposal) to reflect the planned locations for physical components
  - Safety/Threat Plan (in accordance with ISO 26262)
  - Experiment Plan (in conjunction with Independent Evaluator)
  - Logistics Plan (identifies how the logistical support will be provided)
  - System Interoperability Test Plan (to address the actual tests that the Test Conductor intends to execute during the Pre-Model Deployment Test)
  - Driver Training Plan (to address how the all of the volunteer drivers will be trained and the preparation of the training material)
  - Obtain the required approvals from appropriate Institutional Review Board for the use of human subjects in an experiment

Pre-Model Deployment and Testing Stage

2. Preparation & Installation of Required Components

- During this phase, the Test Conductor shall:
  - Acquire or develop all of the hardware and software components needed for the Model Deployment,
  - Install the components in the appropriate locations
  - Recruit all drivers participating in the Safety Pilot
- USDOT will provide to the Test Conductor as GFE:
  - Sixty integrated light vehicles (eight of these will be provided in time for use in the Pre-Model Deployment Tests)
  - Two-to-Three integrated heavy vehicles for use in the Model Deployment (one, if available, for use in the Pre-Model Deployment Tests)
  - Three retrofit device transit vehicles for use in Model Deployment

Pre-Model Deployment and Testing Stage

2. Preparation & Installation of Required Components

- For the Model Deployment, the Test Conductor shall:
  - Recruit 2,500-3,000 volunteer drivers of light vehicles (recruitment over 3,000 volunteers will not be subsidized by USDOT)
    - The preference is to recruit a combination of operators of light vehicle fleets and drivers who volunteer to drive their personal vehicles
    - The Test Conductor shall train the drivers
  - For the Model Deployment, CAMP will select 128 drivers from the identified pool
  - Arrange with one or more local truck fleet companies, the use of at least 58 medium and/or heavy duty vehicles
    - The preference is medium/heavy vehicles from fleets covering various vehicle configurations (e.g., class 8 tractor-trailers, class 8 straight trucks, various medium-duty configurations)
    - Note: an additional 2-3 heavy vehicles will be supplied by USDOT as integrated heavy vehicles.

Pre-Model Deployment and Testing Stage

2. Preparation & Installation of Required Components

- For the Model Deployment, the Test Conductor shall (continued):
  - Arrange with one or more transit agencies to provide at least 10 transit vehicles to be equipped with HIA devices
  - Equip each integrated light and heavy duty vehicle and each retrofitted heavy and transit vehicle with a data acquisition system
  - Provide 125 light vehicles: 110 with HIA devices, 15 with aftermarket safety devices; CAMP will provide 8 integrated vehicles
  - Arrange with at least one local traffic agency to upgrade or install 12 traffic signal controllers capable of transmitting SPaT data to an RSE,
  - Install 2 RSEs at each of 3 Curve Over-Speed locations; and 1 RSE at 5 Actuated Traffic Signal Controller

Pre-Model Deployment and Testing Stage

3. Execution of the Pre-Model Deployment Test

- The Test Conductor shall conduct all of the interoperability tests defined in the System Interoperability Test Plan, after:
  - Installation of the infrastructure components
  - Availability of the requisite number and types of vehicles, with trained drivers
- The Test Conductor shall analyze the results of these tests and determine whether any recommendations for modifications or enhancements to any hardware or software components are required before beginning the Model Deployment stage
- **Based on current interoperability activities by CAMP, additional modifications may be required for devices and infrastructure**
- With the approval of the COTR, Model Deployment Stage begins

Model Deployment Stage

- The Model Deployment stage shall exhibit operational capability and is not intended to be an engineering field test
- Some of the safety applications that will run on the vehicle fleet during this stage will be prototype applications
- All of the safety applications operating on integrated light vehicles are considered to be pre-production safety applications

Model Deployment Stage

The Model Deployment stage will begin when:

- The entire vehicle fleet is equipped and ready,
- All necessary drivers are trained,
- All of the infrastructure elements of the Model Deployment are in place (including the data storage system(s) needed to accumulate the necessary data), and
- The USDOT authorizes its onset
  - ***A jointly developed model deployment start checklist will be established***

Model Deployment Stage

Once underway, the Test Conductor shall ensure that:

- All elements are maintained and refreshed (upgraded) as necessary,
- Data are downloaded from vehicle and other equipment logs,
- Data are stored and subjected to the appropriate quality controls,
- The quality-controlled data are delivered to the Independent Evaluator and to designated Real-Time Data Capture and Management representatives at the Turner-Fairbank Highway Research Center

Post-Model Deployment Stage

At the completion of the Model Deployment, the Test Conductor shall:

- Decommission (remove) all equipment installed in all light vehicles volunteered for the Model Deployment and in all heavy and transit vehicles provided by local organizations (public or private) for use in the Model Deployment
- Dispose of the equipment used in the Model Deployment as directed by the USDOT

Post-Model Deployment Stage

At the completion of the Model Deployment, the Test Conductor shall:

- Prepare its final report on the Model Deployment stage, listing the lessons learned and recommendations for:
  - Enhancements or modifications to the RSE devices and certificate and security management systems
  - Enhancements or modifications to the descriptions and requirements for applications
  - Additions or modifications to standards
- Conduct focus groups and administer questionnaires to drivers using vehicles equipped with aftermarket safety devices

Delineation of Work

Task Area 1 – Program Management

- Extends over the entire period of performance
- Test Conductor shall prepare:
  - Program Management Plan (PMP) that describes all of the activities required to perform work described in tasks 2 through 8
  - A detailed Master Project Schedule containing a work breakdown structure (WBS) to three levels
  - Property Management Plan (as an appendix)
  - Configuration Management Plan (as an appendix)
  - Risk Management Plan (as an appendix)
  - System Interoperability Test Plan
  - Monthly Progress Reports

Delineation of Work

Task Area 2 – Safety Pilot Planning

- Subtask 2.1, Finalize Model Deployment Site Plan
- Subtask 2.2, Finalize Security Management Operating Concept
- Subtask 2.3, Develop Safety/Threat Plan and Experiment Plan
- Subtask 2.4, Address other Applications
- Subtask 2.5, Obtain Human Use Approval for Pre-Model Deployment and Model Deployment
- Subtask 2.6, Develop Driver Training Materials
- Subtask 2.7, Coordinate Logistic Support for Pre-Model Deployment and Model Deployment

Delineation of Work

Task Area 3 – Coordination and Preparation of Vehicle Fleets and Drivers

- Subtask 3.1, Coordinate Integrated Vehicle Fleet
- Subtask 3.2, Recruit Drivers of Safety Pilot Test Vehicles
- Subtask 3.3, Prepare HIA Device Vehicle Fleet
- Subtask 3.4, Prepare Aftermarket Safety Device Vehicle Fleet

Delineation of Work

Task Area 3 – Coordination and Preparation of Vehicle Fleets and Drivers

- Subtask 3.5, Train Vehicle Drivers
  - Subtask 3.5.1, Train Pre-Model Deployment Volunteer Drivers
  - Subtask 3.5.2, Train Model Deployment Volunteer Drivers
- Subtask 3.6, Incorporate Integrated Heavy Vehicles and Retrofit Kits
- Subtask 3.7, Incorporate Retrofit Device Transit Vehicles

Delineation of Work

Task Area 4 – Infrastructure Preparation

- Subtask 4.1, Purchase and Install Roadside Equipment
- Subtask 4.2, Implement Local Certificate Distribution System

Delineation of Work

Task Area 5 – Pre-Model Deployment Testing

- Subtask 5.1, Conduct Pre-Model Deployment Tests
- Subtask 5.2, Recommend Modifications to Safety Pilot Elements
- Subtask 5.3, Refresh Devices, Vehicles, and Infrastructure

Delineation of Work

Task Area 6 – Model Deployment

- Subtask 6.1, Maintain Devices, Vehicles, and Infrastructure
- Subtask 6.2, Introduce Other Applications
- Subtask 6.3, Collect, Store, Process, and Transfer Data

Delineation of Work

Task Area 7 – Model Deployment Closeout

- Subtask 7.1, Post-Safety Pilot Surveys and Focus Groups
- Subtask 7.2, Report on Safety Pilot Methodology and Experience
- Subtask 7.3, Decommission Model Deployment Equipment

Delineation of Work

Task Area 8 – Outreach and Showcase

- The Test Conductor shall:
  - Have a presence at the ITS World Congress 2011
  - Coordinate with the various organizations demonstrating products and programs
  - Present the program, plans, and operations concept
  - Have a graphical representation of the model deployment geographical area
  - Have a presence at all ITS America Annual Meetings for the duration of the contract period of performance
  - Develop and implement an outreach plan
  - Prepare a detailed showcase plan

Period of Performance

- Pre-Model Deployment Testing – 12 months
  - Preparation for System Interoperability (~7 months)
  - Execution of System Interoperability Tests (~3 months)
  - Development of Recommendations for Enhancements and Modifications to Safety Pilot Elements (~2 months)
- Model Deployment– 10-12 months
- Post Model Deployment Activities – 6 months

Fee & Cost Share

Profit/Fee: Since there is a cost-share requirement, in accordance with FAR 16.303, Offerors shall not propose any profit or fee.

Cost Share:

- Offerors are required to provide a cost share of at least 20 percent.
- Items being proposed for cost share are subject to approval by USDOT. Guidance regarding Subtasks 2.4 and 6.2 :
  - Subtask 2.4: The USDOT will consider, as cost share, costs associated with demonstrating applications to interested parties. Such cost may include the costs of any equipment (including RSEs) and/or vehicles needed to demonstrate the Offeror's applications as part of the Showcase (see Task 8).
- b. Subtask 6.2:
  - i. If the Test Conductor is supplying vehicles as part of this task, the cost of those vehicles (but not the cost of developing the applications nor the cost of devices within the vehicle on which the applications run) can be considered cost share for this contract.
  - ii. For the Test Conductor's own "other" applications, the cost of equipment acquisition and installation can be considered cost share for this contract.
- Cost share is not limited to Subtasks 2.4 and 6.2.
- Cost share may include labor (including driver's time), fringe benefits, indirect costs, overhead, other direct costs, travel, equipment, materials, and services provided by the prime contractor, subcontractors, or consultants, that are not being funded by another federal source (unless authorized by statute). All cost share is subject to USDOT approval.

Award Procedure

- This contract will be awarded using a two phase selection procedure.

- ***Phase I***

  In this phase the Government will evaluate an Offeror's capabilities based on the written proposal, using the criteria listed in section M of this RFP. Based on this evaluation, the Government intends establish a competitive range of capable Offerors.

- ***Phase II***

  Offerors that are included in the competitive range will be invited to conduct a site visit for USDOT representatives. The specifics of the site visit are described later in Section L. At the conclusion of the site visit, the Government may discuss with Offerors any technical or cost/business issues.

Evaluation Factors

- Factors are listed in descending order of importance:
  - Technical Approach
  - Management and Staffing Approach
  - Experience and Corporate Capabilities
- Cost
  - Evaluated for reasonableness, appropriateness, and acceptability
  - Cost will not be ranked/scored
  - Cost will be considered in establishing the competitive range
- Past Performance
  - Past Performance will not be ranked/scored
  - Past performance will be considered in establishing the competitive range

Contact Information

- Contact Information:
  - Contracting Officer, Daniel Confer – 202-366-0730, Daniel.Confer@dot.gov