ITS Program Update
Moving Towards Implementation of Wireless Connectivity in Surface Transportation
Focus on Trucks

Kate Hartman
US Department of Transportation – ITS Joint Program Office
Connected Vehicle Truck Safety Meeting
Chicago, IL
August 4, 2011
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

Drivers/Operators | Maritime

Vehicles and Fleets

Wireless Devices | Infrastructure

Rail
ITS Research Program Components

**Applications**
- Safety
  - V2V
  - V2I
  - Safety Pilot
- Mobility
  - Real Time Data Capture & Management
  - Dynamic Mobility Applications
- Environment
  - AERIS
  - Road Weather Applications

**Technology**
- Harmonization of International Standards & Architecture
- Human Factors
- Systems Engineering
- Certification
- Test Environments

**Policy**
- Deployment Scenarios
- Financing & Investment Models
- Operations & Governance
- Institutional Issues
Progress - Step One – Accelerate V to V Safety

- Accelerate Benefits
  - Basic Safety Message Broadcast Devices (Here I am) – Working with 6 vendors (Autotalks, Cohda Wireless, Denso, DGE, ITRI, Savari Networks) (Need a new name for “Here I Am”, any thoughts?)
  - ASD – selected 4 suppliers
  - RSE – selected 4 suppliers
- Working on Technical / Policy Tradeoffs for Security
- Working on DVI Guidelines
Progress - Step Two - Demonstrate Safety

Safety Pilot

• Test Conductor Procurement is Under Way

• Schedule 6 Light Vehicle Driver Clinics

1. Aug’11 - Michigan International Speedway (MIS) - Brooklyn, MI
2. Sep’11 - Minneapolis, MN (MnRoad)
3. Oct’11 - Orlando FL - Richard Petty Driving Experience
4. Nov’11 - Smart Road VTTI - Blacksburg, VA for DAC and Washington DC for the demo (RFK or FedEx field)
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

User Needs → Concept of Operation → System Requirements → System Architecture


Open Workshops
- June 2011 (DC)
- Sep (San Jose, CA)

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

- **V to I for Safety** – Working on V to I Con Ops, Transit Con Ops, Smart Roadside Con Ops and on a SPAT Con Ops

- **MOBILITY – DCM**-Prototype the Data Environment of the Future – Preparing for an Open Data Manager Contract

- **MOBILITY – DMA**-Prototype, Field Test and Analyze Mobility Applications
  - 6 concept of operations and data requirements recently awarded

- **AERIS** - Define 7 Transformative Applications

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**MOBILITY BUNDLES**
- Signal Systems
- Transit Management
- Freight
- R.E.S.C.U.M.E.
- AnableATIS
- Speed Harmonization
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
Progress Step Six - Conduct Regional Pilots

Begun Discussing the Theme with Stakeholders

- 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

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<th>PROGRAM AREA</th>
<th>FOUNDATIONAL ANALYSIS</th>
<th>RESEARCH, DEVELOPMENT &amp; TESTING</th>
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- Safety Workshop
- V to V Apps Defined
- Qualified Product Lists (QPLs)
- Initial V to I Apps
- V2I Apps Defined
- Data Environments
- Mobility Benefits
- AERIS Benefit
- High-Priority AERIS Applications Selected
- Prototype Certification Process
- Prototype Security Process
- Prototype Governance Structure
- NHTSA Agency Decisions
- HT
- Regional Pilots
- MOBILITY SAFETY
USDOT Commercial Vehicle (CV) ITS Research Plan for Wireless Connectivity – Final 7-27-11

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- SRI Contract Award - 11/02/2010
- SRI Apps Assessment
- SRI ConOps - 9/20/2011
- SRI Req Analysis
- SRI Arch & Design
- Develop & Test Prototype
- CV FOT Planning
- Buildup
- CV FOT

- Smart Roadside Deployment Guidelines and Specifications
- Wireless Roadside Inspection
- Electronic Screening at International Borders Model Deployment Initiative
- Universal Truck Identification
- Bridge Hit SBIR

- DVI Needs Specification
- Safety Pilot DVI Criteria
- CV DVI Guidelines
- CV V2V Safety Workshop
- CV DVI Guidelines
- CV V2V Safety Workshop

- Integrated CV Builds
- CV Driver Clinics
- CV Retrofit Safety Device
- Performance Testing
- Final Performance Specifications & Test Procedures
- Estimate CV Safety Benefits

- Objective Test Procedures
- Interoperability Testing
- 2011 World Congress
- Post-Model Deployment
- Independent Evaluation of Testing Activities

- BSM Transmission Device
- Pre-Model Deployment
- Model Deployment
- V2V Benefits Assessment
- NHTSA Agency Decision (LV)

- FRATIS Applications Development and Readiness Testing
- FRATIS Operational Testing
- FRATIS (Freight Advanced Traveler Information System) ConOps Development

- CV Standards Message Definition & Participation
- CV Policy

- SRI ConOps
- SRI Requirements & Architecture - 1/19/2012
- NHTSA Agency Decision (CV)
- Interoperability Testing
- Estimate CV Safety Benefits

- Track 1: Smart Roadside
- Track 2: Related Research
- Track 3: Vehicle to Vehicle Safety
- Track 4: CV Interoperability Issues
- Track 5: Safety Pilot
- Track 6: Mobility
- Track 7: Safety Pilot

- Regional Pilots
- NHTSA Agency Decision (CV)
- Interoperability Testing
- Estimate CV Safety Benefits

- CV DVI Guidelines
- CV V2V Safety Workshop
- CV DVI Guidelines
- CV V2V Safety Workshop

- BSM Transmission Device
- Pre-Model Deployment
- Model Deployment
- V2V Benefits Assessment
- NHTSA Agency Decision (LV)
ITS Connected Vehicle - Truck Focus

Connected Commercial Safety Applications Development Project

• Awarded to Battelle, project team comprised of
  • Mercedes Benz Research and Development North America (MBRDNA)
  • Daimler Trucks North America (DTNA) Advanced Research NAFTA
  • University of Michigan Transportation Research Institute (UMTRI)
  • DENSO INTERNATIONAL North America Research Laboratory (NARL)
  • Meritor WABCO

• Period of Performance – May 2011 through June 2014

• Integrate and test truck safety applications, participate in Safety Pilot, and hold truck driver clinics
ITS Connected Vehicle - Truck Focus

• **Smart Roadside Initiative**
• Awarded to SAIC, project team comprised of:
  • North Dakota State’s Upper Great Plains Transportation Institute (UGPTI)
  • American Transportation Research Institute (ATRI)
  • Delcan Corporation
  • Commercial Vehicle Safety Alliance (CVSA)

• Period of Performance  November 2010 – December 2013

• Project is identifying and integrating successful deployments of truck-specific roadside technology, developing a Concept of Operations, and testing prototype(s) of Smart Roadside Applications.
ITS Connected Vehicle - Truck Focus

• Commercial Vehicle Retrofit Safety Device (RSD) – OPEN PROCURMENT
  • Will create RSDs for testing and participation in Safety Pilot

• Dynamic Mobility – Freight Advanced Traveler Information (FRATIS) – OPEN PROCURMENT
  • Part of Connected Vehicle Mobility Program
  • Con Ops development
ITS Connected Vehicle - Truck Focus

• Trucking Industry Mobility and Technology Coalition (TIMTC)

  • Partnership between US DOT (all modes) and Truck Stakeholders led by ATRI in partnership with CVSA and AASHTO

  • Annual business meeting at ATA’s Management Conference and Expo – Oct 17-18 – Grapevine, TX

  • For more information:
    www.freightmobility.org