Connected Vehicle Program

Moving Towards Implementation of Wireless Connectivity in Surface Transportation

Dale Thompson
RWM Stakeholder Meeting
September 2011
Albuquerque, NM
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 – 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 - Demonstrate Safety

Safety Pilot

• Test Conductor – UMTRI (Ann Arbor, MI)
• Schedule 6 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 - Define the System and Establish a Testing Environment


Open Workshops
June 2011 (DC)
Sep (San Jose, CA)
Connected Vehicles & Road Weather
Connected Vehicles & Weather – Vision

- Obtain a thorough picture of current weather and road conditions by including mobile sources
  - Higher resolution observations that spatially augment fixed sensors
  - Take advantage of existing standards and on-board sensors

- Improve weather-related decision support tools to mitigate safety and mobility impacts of weather
  - Based on ability to better detect and forecast road weather and pavement conditions
Identify and explore a range of mobile platforms as a source of robust data

Develop algorithms and processing capabilities to translate the mobile data into useable weather and road condition observations
  - Is the probe data of sufficient quality?
  - What are the minimum # of samples and minimum sampling period per road segment to get valid obs?
  - What QC algorithms are needed?
  - What are the best ways to package/disseminate the obs?

Incorporate these observations into effective mgmt. systems and decision support tools (e.g., MDSS, weather-responsive traffic management strategies)
  - What is gained by utilizing mobile observations?
  - What are the resultant data and communications requirements?
Work Completed to Date

- Noblis conducted two analyses along the Dulles Toll Road (2006)
  - Exploratory look at mobile observing

- National Center for Atmospheric Research (NCAR) was tasked to develop the Vehicle Data Translator (VDT)
  - Feasibility study (2007)
  - VDT Ver1.0 completed in July, 2009
  - VDT Ver2.0 completed in July, 2010
  - VDT Ver3.0 development underway

- Development Test Environment in Detroit
  - Source of most of the probe data for the VDT development
  - New work will use data from State DOTs, NCAR
For More Information

www.ITS.DOT.GOV

Dale Thompson
Data Capture & Weather Program Manager
RITA, ITS Joint Program Office (JPO)
Dale.Thompson@dot.gov