AASHTO Connected Vehicle Infrastructure Deployment Analysis

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Overview

• Purpose of Deployment Plan
• Development Approach
• Deployment Scenarios 2011 – 2035
• AASHTO Strategies 2011 – 2014
Purpose

• Address Goals in 2009 Strategic Plan
  ▪ Commitment to advance deployment readiness
  ▪ Better understanding of deployment issues

• Identify a practical approach for infrastructure deployment

• Provide insights into the future of applications, vehicles and communications

• Identify a phased deployment strategy with regional deployments
Approach

• Description and benefits of selected applications

• Market assessment
  ▪ Vehicles-based technologies
  ▪ Communications infrastructure
  ▪ Aftermarket devices
  ▪ Consumer electronics
Approach contd.

- Survey of state activities
  - Actions demonstrate what is important
  - Potential locations for phased deployment
- DSRC assessment
  - What is current state of readiness?
  - What are the deployment issues?
Approach contd.

- Traffic signal controller assessment
  - Scale of upgrading nation’s controllers to DSRC operations
- Deployment scenarios 2010 – 2030
- AASHTO strategies
  - Emphasize next 5 years
Key Observations

• Deployments based on compelling evidence
• Benefits to agencies provide incentive to begin deployment
  ▪ Mobility, local safety, and operational performance; active safety in the future
• AASHTO leadership plays an important role
• 2013 NHTSA decision & 2020 “model year zero”
Scenarios 2011
Setting the Direction

• Define a “General Concept for Deployment”
  ▪ Deploy RSE for selected applications and users
    ❖ Agency operations with controlled fleets
    ❖ Commercial vehicle transactions
    ❖ Emergency vehicle pre-emption
    ❖ Safety applications at isolated intersections
  ▪ Support applications on aftermarket & consumer devices

• Goals
  ▪ Establish specific applications & desired outcomes
  ▪ Begin use of RSE’s and expand coverage
  ▪ Share results with AASHTO community & others
Scenarios 2012
Showing Success

- Continuing path from R&D to early deployment for successful applications
  - Michigan – probe data from test vehicle fleets
  - California – major corridor demonstrating “green wave” in Palo Alto
  - Minnesota – road fee data from public volunteers
  - I-95 Coalition – aftermarket device for commercial vehicle roadside inspection
  - Florida – ITSWC demonstrations
Scenarios 2012
Showing Success

• Develop a National DSRC Footprint Analysis
  ▪ Provide more specific direction for RSE infrastructure deployment
  ▪ Encourage coordination of regional, multi-state, and nationwide deployment
    ▫ Interstate corridors (early freight emphasis)
    ▫ Denser urban pockets for signal control & safety
  ▪ Support certificate management goals
Scenarios 2013 – 2014
Jumpstarting Deployment

• NHTSA agency decision
  ▪ Demand for DSRC infrastructure for V2V & V2I

• AASHTO
  ▪ Definitive plan for infrastructure
  ▪ Policy and funding statements
  ▪ Peer deployers‘ forum
  ▪ Best practices workshops
Scenarios 2015 – 2019

Expanding the Field

- Vehicles with DSRC safety devices emerge in 2019
- RSE expansion for early embedded vehicles
- Increasing collaboration with VIIC
  - Initial 5000 RSE for certificate management
- AASHTO “Green Book” to guide installations and operations
- Applications supporting agency operations maturing
  - AASHTO Application store for agency applications
Scenarios 2020 – 2024
Taking the Solutions to Market

• Manufacturer-equipped vehicles rise to 30%
• Widespread data communications services plus large national DSRC infrastructure
• Variety of connected vehicle applications available through the public and private sector
• Shift from acquiring data to using data for operational improvements
Scenarios 2025 – 2029
Growing to Meet Demand

- Vehicle fleet equipped with DSRC grows to 70%
- Agencies operating a large national infrastructure of DSRC equipment
- DSRC infrastructure explicit part of design, construction, operations
- Applications fully integrated into agency operations
- 2030 and beyond – Connected Vehicles everywhere
AASHTO Strategies 2011

- Information Exchange Program
  - Semi-annual workshops through SSOM
  - Technical briefings – papers, web calls
- Advice memoranda to U.S. DOT
- Initial procurement guidance
  - Leverage U.S. DOT qualified product list
- Explore appropriate forum for national issues with U.S. DOT and VIIC
AASHTO Strategies 2012

• Broaden awareness through education & outreach program
• Establish committee on national DSRC footprint requirements to prepare for initial deployments
  ▪ Engage U.S. DOT and VIIC in review
• Initiate policy on minimum infrastructure deployment levels by all members
• Begin development of formal Connected Vehicle Infrastructure Design Guidelines
AASHTO Strategies
2013 - 2014

• Adopt policy for minimum levels of deployment in each state
• To ensure deployment levels, AASHTO adopts a national funding strategy
• Creation of a Deployment Support program
  ▪ Peer Deployers program
  ▪ Formal education & outreach relationships with associations representing local agencies
AASHTO Strategies Beyond 2014

• Prepare for national build out with National DSRC Footprint Plan
  ▪ Reasonable to assume that the NHTSA regulatory decision will be combined with a national infrastructure decision

• Adopt formal design guides

• Policies on public–private investments for capital and operations
Additional Information

• Report to be published by U.S. DOT ITS JPO
• Contact Jim Wright (JimW@aashto.org)