INTELLIGENT MOBILITY:
SAFER. GREENER. SMARTER.
Interoperable Integration of Automation into the Highway Transportation System
• Panel Introduction
• Introduction to ITS Architecture and Standards
• National Dialogue on Highway Automation & FHWA Automation Initiatives
• Automation Integration Challenges from a Site Deployer Perspective
• Automation Integration Challenges from a Vehicle Industry Perspective
• “Architecture for Automation” Overview/Future Plans
• Questions/Open Discussion
A&S products support safe, secure, efficient, and interoperable deployments of ITS technologies:

- **ITS Reference Architectures** provide frameworks to guide planning and interoperable deployment of ITS and identify candidate interfaces for standardization.
- **ITS Voluntary Technical Standards** define interfaces within architectures to enable desired interoperability and support efficient implementation.  
  - A&S products are "**Essential utilities**" – Necessary but not sufficient to support large-scale deployment.
  - Looking forward, reference implementations for key services under consideration.
Panel Introduction

• Steve Sill, ITS Architecture and Standards Program Manager, ITS Joint Program Office, US DOT [Moderator]

• Mark Kopko, Special Advisor - Transformational Technology, Pennsylvania Department of Transportation

• Rob Brown, Director of Public Affairs, TuSimple

• Cliff Heise, Vice President Federal and Research Programs, Iteris, Inc.

• John Corbin, Connected Automated Vehicle Program Manager, FHWA Office of Operations, US DOT
Focusing the Discussion
Focusing Our Discussion

• Many well-articulated long-term visions
  • Greatly enhanced safety, mobility and system efficiency
• How to best achieve? Initial steps? Key considerations? Pitfalls?
• Stipulate for purpose of this discussion:
  • Automation will perform at least as well as humans
  • Deployments and participation will be voluntary
    • Not essential or required to allow operation of automation on highway system
  • Connectivity/cooperation can offer a benefit
Interoperability Over the Long Term

• The ability of two or more systems or components to exchange information and use the information that has been exchanged
  • IEEE Std. 610.12-1990

• In the automation and connectivity context
  • Interoperability among millions of participants
  • Requires very robust standards, interfaces, security ... and broad consensus

• Consider life cycle benefit-cost of entire system — note diversity
  • More than just absolute performance at a point in time
  • Need to support “orphaned” — but suitable — communications technologies
  • Benefits accrue from broad implementation

• Consensus is essential!
  • Continue and expand successful cooperation to date
  • Information exchanges via developers, standards organizations, outreach, ...
Starting Point for Discussion

• Initial rollout should focus on:
  • Few key information flows
  • Broad availability
    • Benefits accrue at square of penetration in many cases
    • Build support
  • Low risk, low cost
  • Seamless, reliable, consistent interoperability is essential

• Advanced and targeted services can follow
  • Must get the initial rollout “right” first
Top <5 Information Flows?

- Basic Safety Message
- Signal Phase and Timing
- Probe Data
- Operational & Regulatory Information
- What else?
Thank you!

Questions / Discussion?

Steve Sill, PE
ITS Architecture and Standards Program Manager
US DOT / ITS JPO
steve.sill@dot.gov

www.its.dot.gov
standards.its.dot.gov
www.arc-it.org
www.arc-it.org