Driverless Cars in 2022: 
A Follow-On Session 
To the Driverless Car Summit

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The Transportation Problem

Safety
- 32,788 highway deaths in 2010
- 6,000,000 crashes/year

Mobility
- 4,200,000,000 hours of travel delay
- $80,000,000,000 cost of urban congestion

Environment
- 2,900,000,000 gallons wasted fuel

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But, A Big Problem is……

The Driver!

- Causes over 90% of crashes
- Has very poor awareness of traffic:
  - Near – Surrounding cars, trucks, buses
  - Mid – A mile down the road
  - Far - Regional
The Role of the US Department of Transportation

- Develop policies and programs that contribute to transportation that is:
  - Safe
  - Fast
  - Efficient
  - Convenient
Automation: The use of electronic or mechanical devices to replace human labor
Recent Discussion Framework*

* Adapted from Shladover, UC PATH (Presentation at TRB Automation Workshop, July 25-26, 2012)
Challenges to Deployment of Automation*

- Public Policy
- Driver-Vehicle Interaction
- Information Architecture and Operational Concepts
- Technology Needs and Constraints
- Transition and Deployment Strategies
- Legal, Liability, and Risk
- Vehicle Safety and Security

* From TRB Workshop, July 25-26, 2012
**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
Events Since Driverless Car Summit

- FHWA Exploratory Advanced Research Workshop (July 24, 2012): “Early Automation Deployment Opportunities in Managed Lane Operations”
- Transportation Research Board Joint Committee Workshop (July 25-26, 2012): “Road Vehicle Automation”
Approach: Moving Forward

- Connected Vehicle Program Milestones
  - Safety Pilot Begins August 2012
  - NHTSA Decision expected in 2013
  - Mobility and Environment Applications Development and Testing Continues

- Vehicle Automation Research Program
  - Continue work on USDOT Vehicle Automation Research Plan and Roadmap

- TRB Workshop Proceedings and Next Steps

- Accessible Transportation Research
Growing Opportunity for Benefits of Automation

54.4 Million People with Disabilities
- 20% US population; 63% Unemployed
- Income: $38,400 vs. $61,000
- Poverty: 24.7% vs. 9.0%

1.4 Million Disabled Veterans
- $1 Billion Claims in 2006
- $6 Billion Claims in 2012

Seniors Age 65 +
- 35 million in 2004
- 72 million by 2025
Where Automation Can Take Us…

Automated Trip Planning

User Needs
- Mobility
- Hearing
- Vision
- Intellectual

Automated On-demand Accessible Connections

Personal Mobility Vehicles

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Surface Transportation System: Independently Managed Today
Moving toward Integrated Multimodal Operations

**Integrated Goals:**
- Safety
- State of Good Repair
- Economic Competitiveness
- Livable Communities
- Environmental Sustainability

**Integrated System:**
- Payload
- Vehicles
- Infrastructure
- Terminals
- Connectivity
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