

# U.S. DOT Perspectives on International Harmonization: a Key Priority

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*Ubiquitous  
Society with  
ITS!*

# Secretary LaHood's Priorities

- **Safety:** Improve public health and safety by reducing transportation-related fatalities and injuries.
- **State of Good Repair:** Ensure the U.S. proactively maintains its critical transportation infrastructure in a state of good repair.
- **Economic Competitiveness:** Promote transportation policies and investments that bring lasting and equitable economic benefits to the nation and its citizens
- **Livable Communities:** Foster livable communities through place-based policies and investments that increase transportation choices and access to transportation services
- **Environmental Sustainability:** Advance environmentally sustainable policies and investments that reduce carbon and other harmful emissions from transportation sources



**D!STRACTION.GOV**  
Official US Government Website for Distracted Driving



# U.S. and Global Problems

## Safety

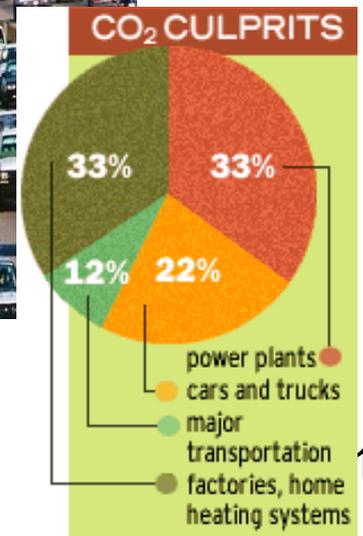
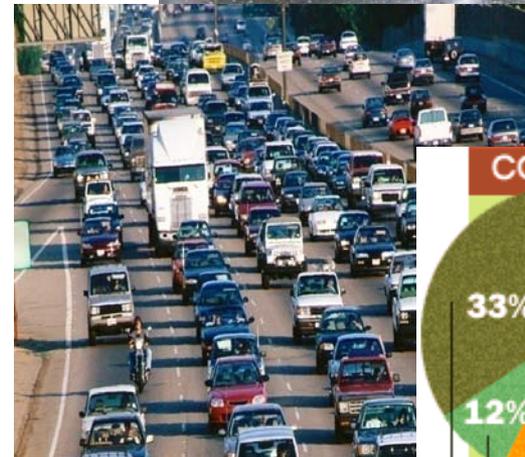
- 33,808 fatalities/year
- 2.22 million injuries/year
- 5.51 million crashes/year
- Leading cause of death for ages 4 to 34

## Accessibility and Mobility

- 4.2 billion hours of travel delay
- \$78 billion cost of urban congestion

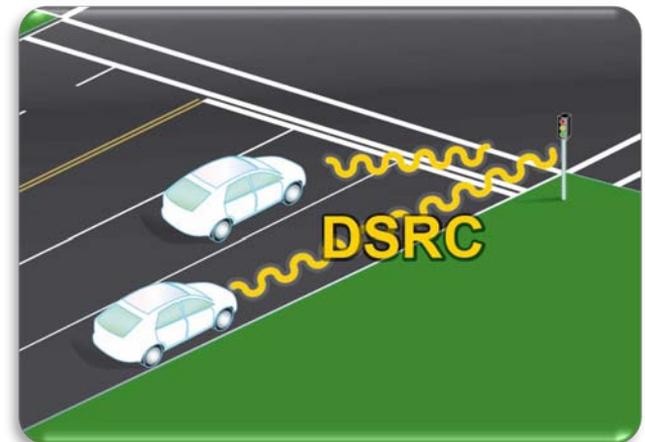
## Environment

- Transportation contributes 28% of U.S. GHG emissions and energy consumption
- 2.9 billion gallons of wasted fuel



# Vision for the Future

- Multi-modal surface transportation system—with connectivity as its central core.
- Vehicles (cars, trucks, buses, fleets of all kinds)  $\leftrightarrow$  Infrastructure  $\leftrightarrow$  Mobile Devices
- Leveraging technology to maximize safety, mobility and the environment—enabled through wireless communications—in all modes.
- First priority is safety: crash and injury prevention.
- Foster technological advances across borders—for benefit of all international partners.
- Open platform for vehicle-to-vehicle (V2V) and vehicle-to-Infrastructure (V2I) communications is the major driving technology.



# ITS Strategic Research

**Vision:** National, multi-modal surface transportation system that features a connected transportation environment among vehicles (cars, trucks, buses, fleets of all kinds), the infrastructure, and mobile devices to serve the public good by leveraging technology to maximize safety, mobility and environmental performance. Connectivity is achieved through dedicated short range communications (DSRC).

## Goal: Safety

- Vehicle to Vehicle Communications for Safety
- Vehicle to Infrastructure Communications for Safety

## Goal: Mobility/Accessibility/Reliability

- Real-Time Data Capture and Management
- Dynamic Mobility Applications including Weather

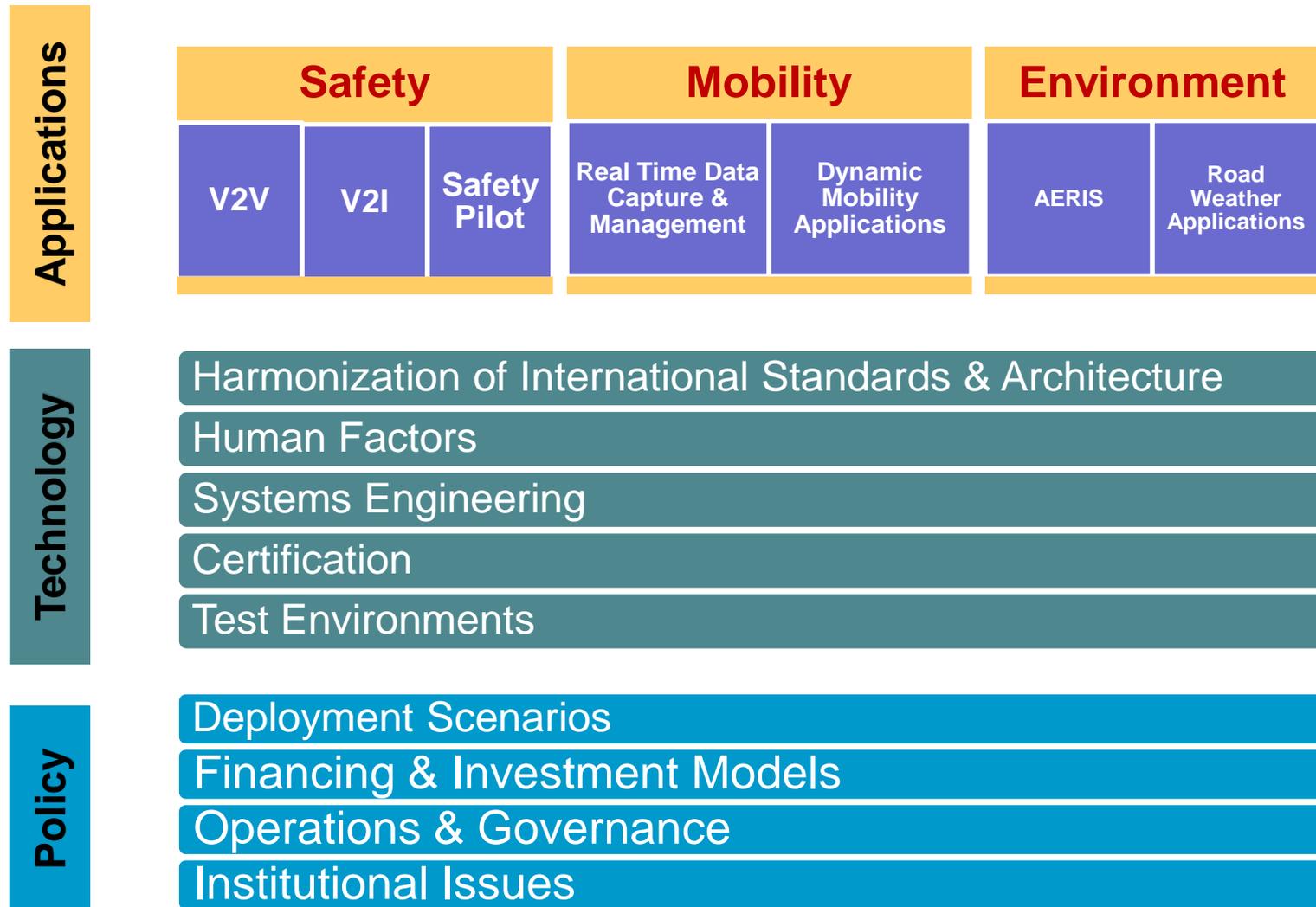
## Goal: Environment

### Applications for the Environment: Real-Time Information Synthesis (AERIS)

Real-time, environmental data from all sources will be integrated and available for use in multimodal transportation management and performance improvement and will contribute to better environmental practices.



# ITS Research Program Components



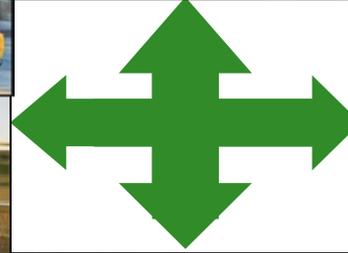
# Making Intellidrive Happen With DSRC

- Suite of technologies and applications with wireless connectivity
- All types of vehicles and fleets, infrastructure and wireless consumer devices, including the after-market
- V2V and V2I using DSRC

Drivers/Operators



Infrastructure



Vehicles  
and Fleets



Wireless Devices

*“We’re fully committed to Dedicated Short Range Communications (DSRC), which delivers real-time information and data to—and between—vehicles. We know that this technology will not only achieve new safety benefits, but also create a platform for innovations with countless commercial applications.”*

Ray LaHood  
U.S. Secretary of Transportation  
May 5, 2010, Houston, Texas

# ITS Breaking Down Silos

- More cross modal
- Now including rail and maritime
- Cars, trucks, buses, fleets, and vehicles of all kinds
- Commitment to dedicated short range communications (DSRC)
- Safety → Mobility → Environment
- Increased outreach and involvement of stakeholders
- Broadening of participation of public and private sectors and universities
- Distracted driving
- International cooperation and standards harmonization



# Standards Role and Activities

## How does ITS JPO support development of standards?

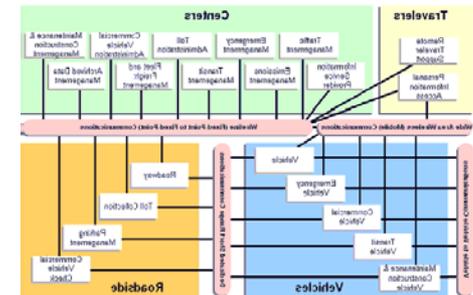
- Strategic plan to guide future standards developments and policies
- Financial support to standards development/maintenance efforts
- Encourage systems engineering processes to facilitate complete and correct standards

## What does ITS JPO not do?

- Do not define contents of standards, not prescriptive
- Do not currently mandate use of specific standards in ITS system deployment

## Where do ITS standards fit in?

- The National ITS Architecture provides the framework for interoperable ITS systems
- Standards define the interfaces between elements within the National ITS Architecture



**Standards are essential to enable widespread deployment of interoperable ITS**

# International Standards Harmonization

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## Why seek harmonization of cooperative systems standards?

### Reduce need for different vehicle hardware/software in different regions

- Reduce cost
- Accelerate implementation

### Facilitate cooperation on applications, technical research

- Avoid duplication of effort
- Expand knowledge base cooperatively

### Enable expanded benefits and services for customers

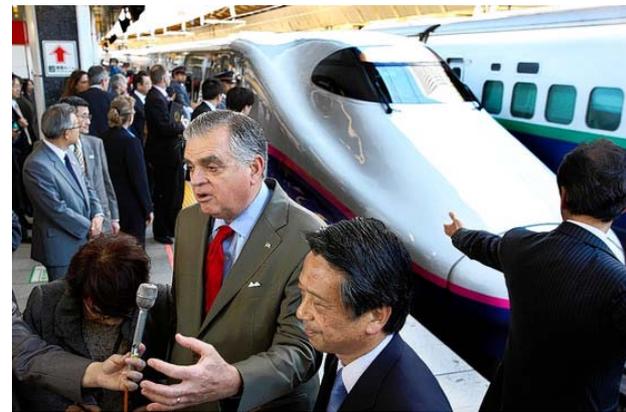
- Interoperable systems that work in all regions



**U.S. DOT remains committed to open standards development processes and harmonization when in the public interest**

# International Cooperation

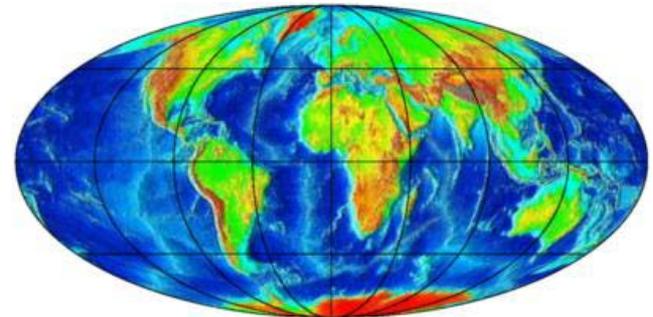
- U.S. DOT leadership recognizes that national transportation systems are bound together in a multinational community.
- Technological advances and interpersonal collaboration foster an interconnected environment.
- Transportation leaders must address ways to harness technology for common goals.
- This forum exemplifies opportunities for interaction / cooperation among leaders.
- U.S. DOT – starting at the top – believes that sound transportation research and data driven analysis will point the way to future successes in collaborative initiatives.
- Commitment to international harmonization of cooperative systems standards.



# International Cooperation

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- The U.S. vision for the future of transportation relies heavily on Intelligent Transportation Systems that operate effectively within our borders and across national boundaries
- The U.S. has engaged partners in agreements to advance global harmonization:
  - We have signed an “Implementing Arrangement between the European Commission and the Department of Transportation of the United States of America in the field of research on Information and Communication technologies applications for road transport”
  - USDOT recently also signed a Memorandum of Understanding with Canada to harmonize our ITS Standards and Architecture
  - The Administrator of Research and Innovative Technology Administration (RITA) just signed a Memorandum of Cooperation between RITA and the Road Bureau of the Ministry of Land, Infrastructure, Transport and Tourism of Japan on Cooperation in the Field of Intelligent Transport Systems
- These are significant first steps, but additional efforts are required in various areas of transportation endeavor



# Example: Europe – U.S. Cooperation

RITA and EC DG Information, Society and Media signed agreement in Cooperative Systems addressing five areas:

## ▪ **Applications:**

- V2V Cooperative Forward Collision Avoidance
- V2I Red light and stop sign violation warning and emergency braking caused by pedestrian detection
- Sustainability application – addressing eco-driving and traffic systems management to reduce emissions

## ▪ **Harmonized standards**

▪ **Assessment tools and methods:** using the same measures in the same ways to create comparable and mutually useful data)

▪ **Human factors:** focused on distracted driving

▪ **Glossary of terms:** defining those terms which are used in our bilateral documents



# Electronic Freight Management (EFM)

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- The EFM initiative was a USDOT- sponsored project that applies Web technologies to improve data and message transmissions between supply chain partners
- In partnership with shippers and carriers, the EFM project focused on:
  - Clearing institutional barriers
  - Demonstrating standardization of information exchange between supply chain partners
  - Building public-private partnerships that showcase operational improvements
- The EFM design enables most organizations that exchange information in support of commercial freight movement to benefit from adoption. Key aspects of the design include:
  - Standardized Messages
  - Secure Data Sharing
  - Open Architecture
- While focused on supply chains that originate or have destinations in the US, EFM is applicable in any geographical setting as it was designed from an international and cross-border perspective



[www.efm.us.com](http://www.efm.us.com)

# We Need You: Policy and Technology

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## Technological Issues

- **What are the infrastructure requirements for V2V data security?**
  - Is DSRC required or are other communication technologies adequate?
  - How much and what type of infrastructure is needed?
- **Is positioning technology adequate?**
  - *Relative positioning* (V2V) versus *absolute positioning* (V2I); differing GPS manufacturers
- **Will IntelliDrive scale to accommodate all vehicles?**
- **Will DSRC radio channel switching for safety and other applications work? Or, will a separate safety radio be required?**

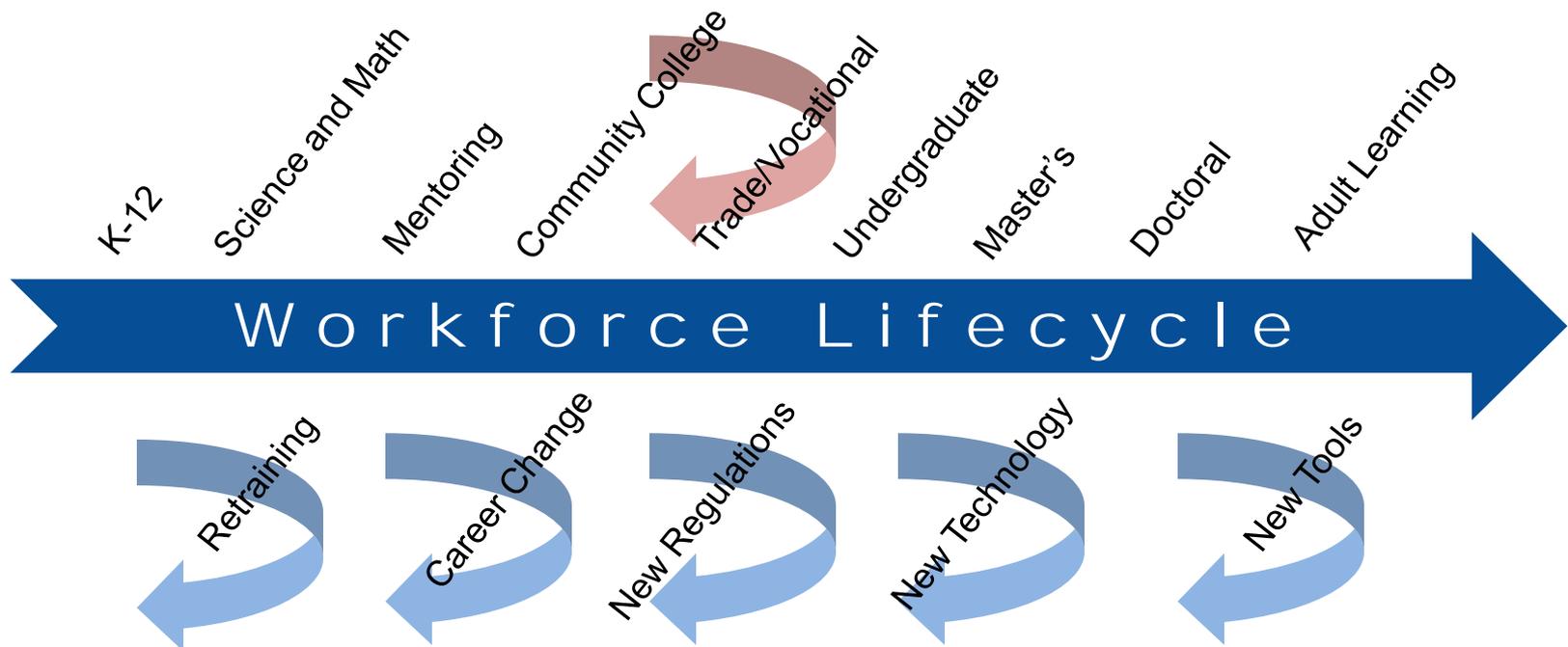
## Policy Issues

- Privacy
- Governance
- Funding
- Deployment approach
- Data ownership
- Certification
- Sustainability
- Risk
- Liability
- Others

**Intellidrive is Collaborative: We're All in this Together!**

# Commitment to Workforce Development

- Not just technology or policy – the people are important
- We are serious about the need to attract, recruit, orient, retain, develop, and mentor a diverse, engaged, collaborative, and high performance workforce:
  - In collaboration with stakeholders, launch a multimodal workforce development initiative that anticipates demographic shifts
  - Increase the education and training level of the workforce



# Thank You for Your Attention

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