



# IntelliDrive Safety Program Overview

IntelliDrive Safety Workshop  
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Research and Innovative Technology Administration/ITS Joint Program Office

# The Problem!!!

## Safety

- 33,963 deaths/year (2009)
- 5,800,000 crashes/year
- **Leading cause of death for ages 4 to 34**



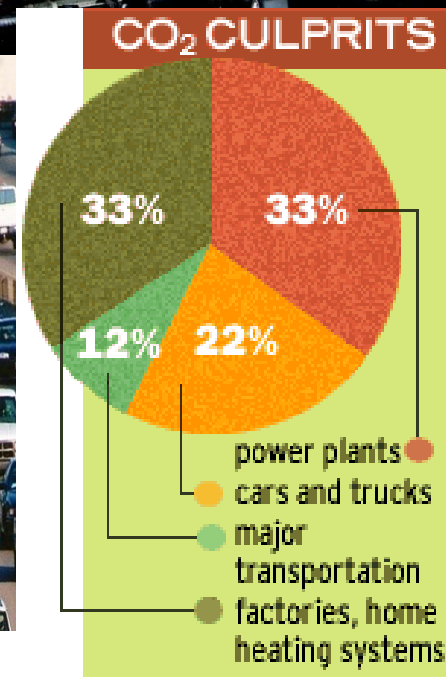
## Mobility

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

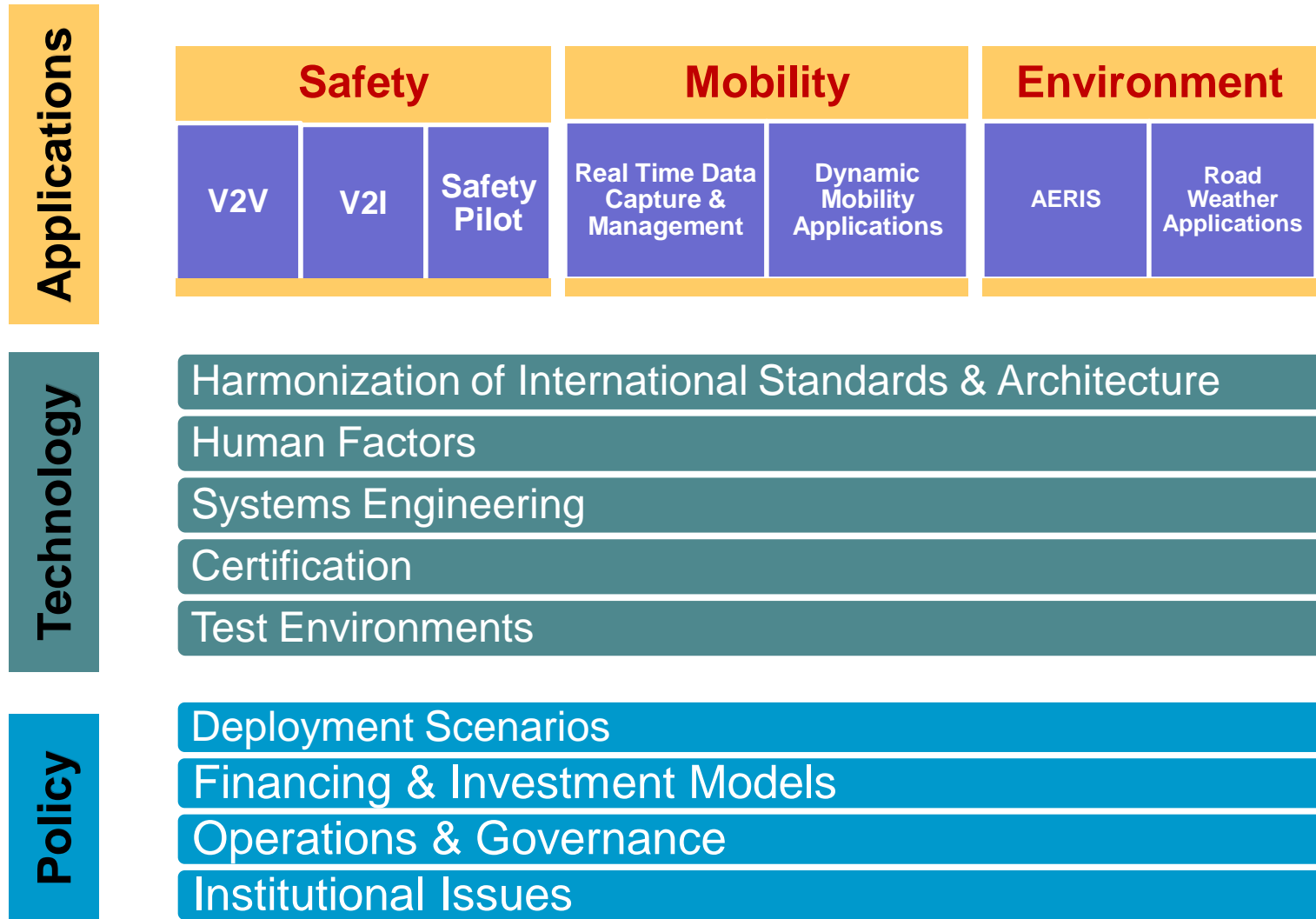


## Environment

- 2.9 billion gallons of wasted fuel



# IntelliDrive Program Structure



# Major IntelliDrive Objectives

- Move aggressively on vehicle to vehicle communications
  - Regulatory Decision on In-Vehicle Equipment by 2013
- Accelerate in-vehicle technology
  - “Here I Am” messages
  - Enables safety and active traffic management
- Accelerate infrastructure communications capability
  - Signal Phase and Timing (SPaT) as initial focus
  - Enables safety, mobility, and environmental applications
- On road multi-modal pilot deployments for high-value applications
- Monitor and evaluation of driver distraction issues
- Understand benefits and communications needs (DSRC/other) of transformative mobility applications

# Evolution of IntelliDrive Deployment

## Original VII Deployment Model

- DSRC based for all applications
  - Infrastructure intensive using new DSRC technology
  - Vehicle turnover for embedded DSRC technology
- Start with V2I (for all application types) and evolve into V2V (safety)

## US DOT's Current Perspective on IntelliDrive Deployment

- Non-safety (mobility, environment)
  - Leverage existing data sources & communications; include DSRC as it becomes available
  - Support development of key applications for public agencies using current data sources and evolving probe data from IntelliDrive
- Safety → DSRC
  - Aggressively pursue V2V; leverage vehicle capability for V2I spot safety
  - Can leveraging of nomadic devices & retrofitting accelerate benefits?
  - Infrastructure requirement for security is still a TBD

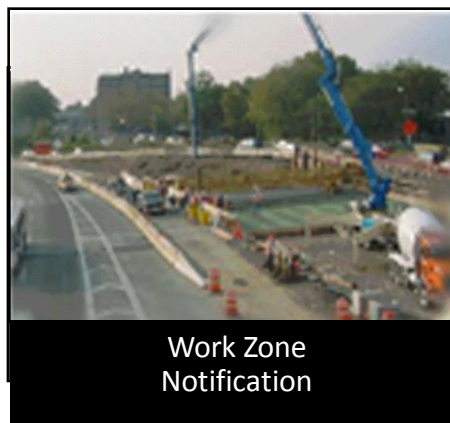
# Opportunity for Safer Driving

## ➤ Greater situational awareness

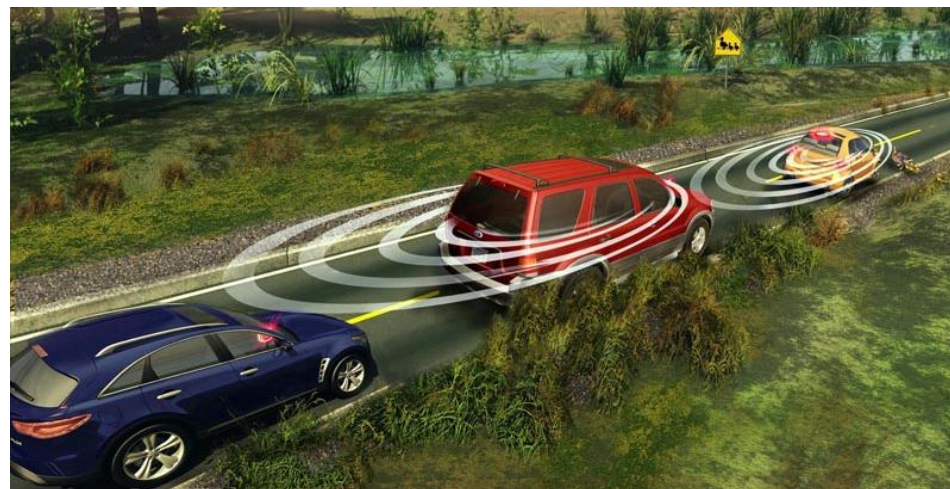
- Your vehicle can “see” nearby vehicles and knows roadway conditions you can’t see

## ➤ Reduce or even eliminate crashes thru:

- Driver Advisories
- Driver Warnings
- Vehicle Control



*IntelliDrive has the potential to address 82% of the vehicle crash scenarios involving unimpaired drivers*



# Key Elements of the IntelliDrive Safety Program

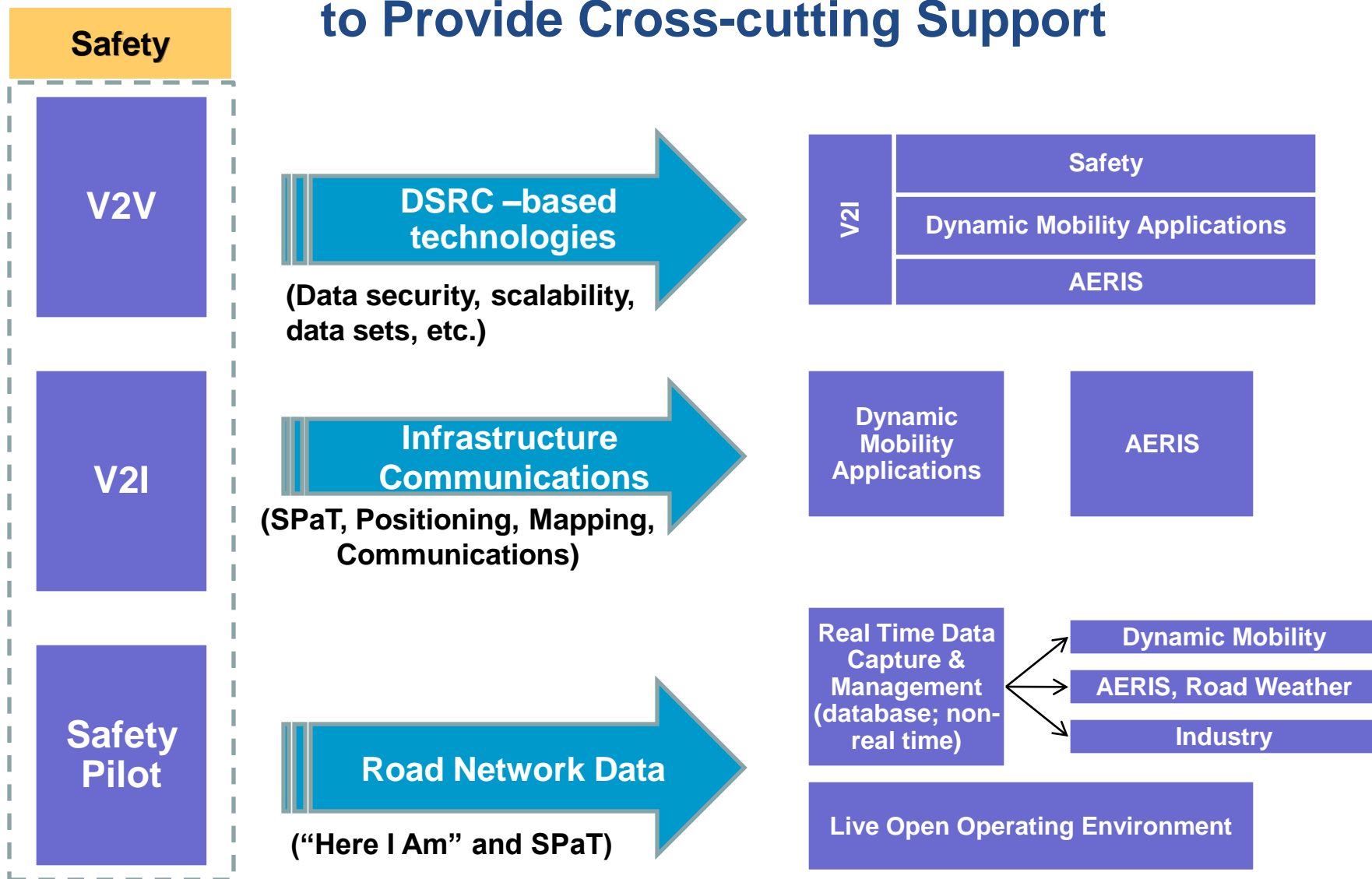
- DSRC for low latency needs
- OEM, retrofit, aftermarket device scenarios being considered for deployment
- All vehicle types being examined for value added applications
- Programs are structured towards achieving deployment
- Establishing national level interoperability → Open standards for communications and data
- Introduction of new systems/devices must consider driver distraction safety issues
- Ensure adequate levels of security
- Reasonably protect personal privacy
- Activities supportive of mobility and convenience applications

# IntelliDrive Safety Program Areas

Initiative	Objectives
Vehicle-to-Vehicle	<ul style="list-style-type: none"> <li>▪ Support NHTSA regulatory decision for 2013</li> <li>▪ Could cover NEW cars, trucks, and buses</li> </ul>
Safety Pilot	<ul style="list-style-type: none"> <li>▪ Ensure technical and institutional viability through real-world deployment testing.</li> <li>▪ Accelerate in-vehicle technology to ensure value to the first V2V deployed vehicles</li> </ul>
Vehicle-to-Infrastructure	<p>Enable active safety applications to assist vehicle operators (including cars, trucks, and buses) and pedestrians to avoid or mitigate crashes.</p>
Policy	<p>Develop policy options and actionable recommendations for privacy, security, governance and other issues</p>
Certification	<p>Establish certification framework for ensuring that DSRC devices/interfaces are compliant with industry standards for communications and data messaging.</p>
Human Factors for IntelliDrive	<p>Eliminate distractions related to ITS devices as a contributing factor to crashes.</p>
International Harmonization	<p>Develop internationally harmonized standards, particularly around vehicle-based applications</p>

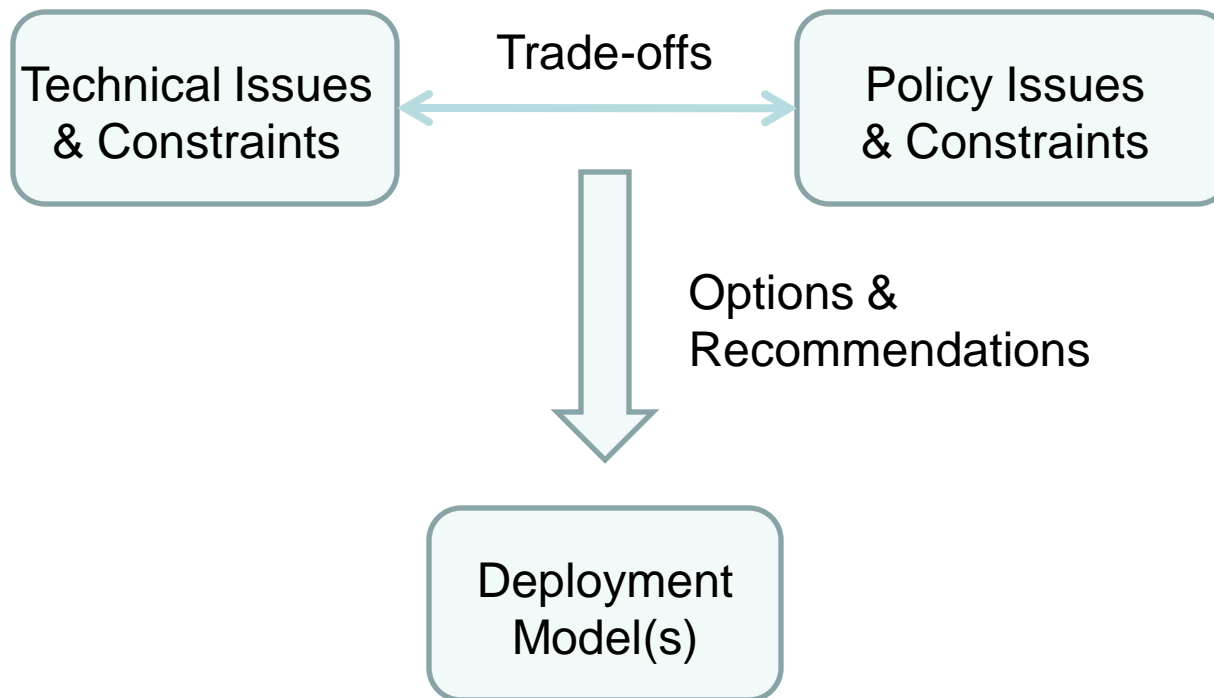


# Leveraging Safety Program Activities to Provide Cross-cutting Support



# Technical and Policy Interactions

(For Example: Security vs Privacy Trade-offs)



➤ *Policy trade-offs will require senior level decisions.*

# Outstanding Technical Issues

- Penetration vs. Effectiveness
  - Driver Acceptance
  - Data Security
  - Positioning
  - Scalability
  - Channel Switching
- Being addressed under current CAMP activities
  - Establish independent technical peer review
  - Safety Pilot to provide real-world deployment for proving out solutions

# Outstanding Safety Policy Issues

- How will tradeoffs between security, privacy and functionality be managed?
- Operations
  - Who will monitor for misbehavior?
  - Who will operate the Security Certificate Authority?
- Compliance & Enforcement
  - Who will enforce DSRC standards?
  - How will the rules of operation be developed and enforced?
  - Who and how will DSRC devices be certified?

- Critical V2V and V2I Policy Issues Being Defined
- V2V Policy White Paper /Roadmaps Defined and Being Executed
- Internal and External Stakeholder Engagement Being Defined

# Large Scale Multi-Application Pilot

- Establish pilot V2I deployment that includes infrastructure and back office management
- Encompasses all application types
- Includes multiple wireless communication media
- Follow on to current activities in:
  - Systems Engineering
  - SPaT development
  - Standards update
  - Aftermarket device maturity
  - Safety Pilot
- Small prototyping over next 2 years
- **Currently under consideration for development**

# For More Information...

<http://www.intellidrive.org/>



The screenshot shows the IntelliDrive website homepage. At the top left is the IntelliDrive logo with the tagline "Safer. Smarter. Greener." Below the logo is a large video player showing an aerial view of a highway interchange with yellow circular overlays and the IntelliDrive logo. A "Download This Video" button is visible above the video. To the right of the video player is a search bar and a "Search" button. Below the video player is a "News & Updates" section with three news items: "Proof of Concept Test Results Released" (March 11th, 2009), "IntelliDriveSM Brand Replaces VII" (February 23rd, 2009), and "SAFETRIP-21 News" (December 4th, 2008). Below the news section are five navigation boxes: "About IntelliDrive" (Overview, FAQs), "Who We Are" (DOT's IntelliDrive Program Coalition), "Benefits" (Future Vision, Consumers), "Research" (DOT-Sponsored Research Activities, State and International Research), and "Library" (Research Reports, Presentations). At the top right of the website, it says "Site sponsored by the US Department of Transportation Research and Innovative Technology Administration".

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## News & Updates

**Proof of Concept Test Results Released**  
March 11th, 2009 at 4:04pm

**IntelliDriveSM Brand Replaces VII**  
February 23rd, 2009 at 10:12am

**SAFETRIP-21 News**  
December 4th, 2008 at 3:12pm

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