(One) Federal Perspective on the ITS Workforce

2016 ITS UNIVERSITY WORKSHOP

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U.S. DEPARTMENT OF TRANSPORTATION (ON DETAIL FROM US DOE/NREL)

Increasingly Complex and Intertwined Transportation Challenges

Safety
33,561 highway deaths in 2012
5,615,000 crashes in 2012
Leading cause of death for ages 4, 11-27

Mobility
5.5 billion hours of travel delay
$121 billion cost of urban congestion

Environment
2.9 billion gallons of wasted fuel
56 billion lbs. of additional CO_2

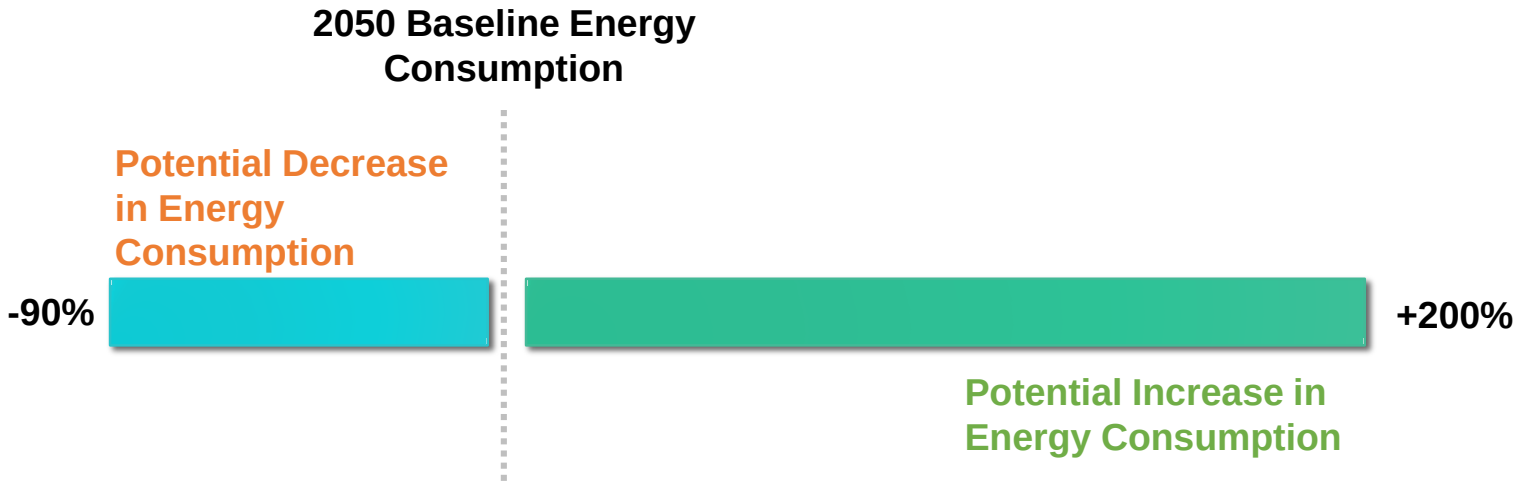
DOT

DOE

Mobility

– New mobility paradigm can have a range of impacts

Potential Energy Implications of Connected and Automated Vehicles



Emerging Transportation System Frameworks

Energy Efficient Mobility Systems (US DOE)

Today:

- Vehicle level focus
- Independent
- Unconnected
- Subject to behaviors & decisions

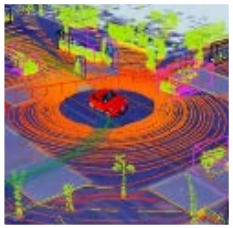
Tomorrow:

- System level focus
- Connected
- Automated
- In concert
- Across modes
- Managed behaviors & decisions

Emerging Transportation System Frameworks

Beyond Traffic (US DOT)

- Connected Vehicles
- Vehicle Automation
- Internet of Things
- Machine Learning
- Big Data
- Mobility on Demand



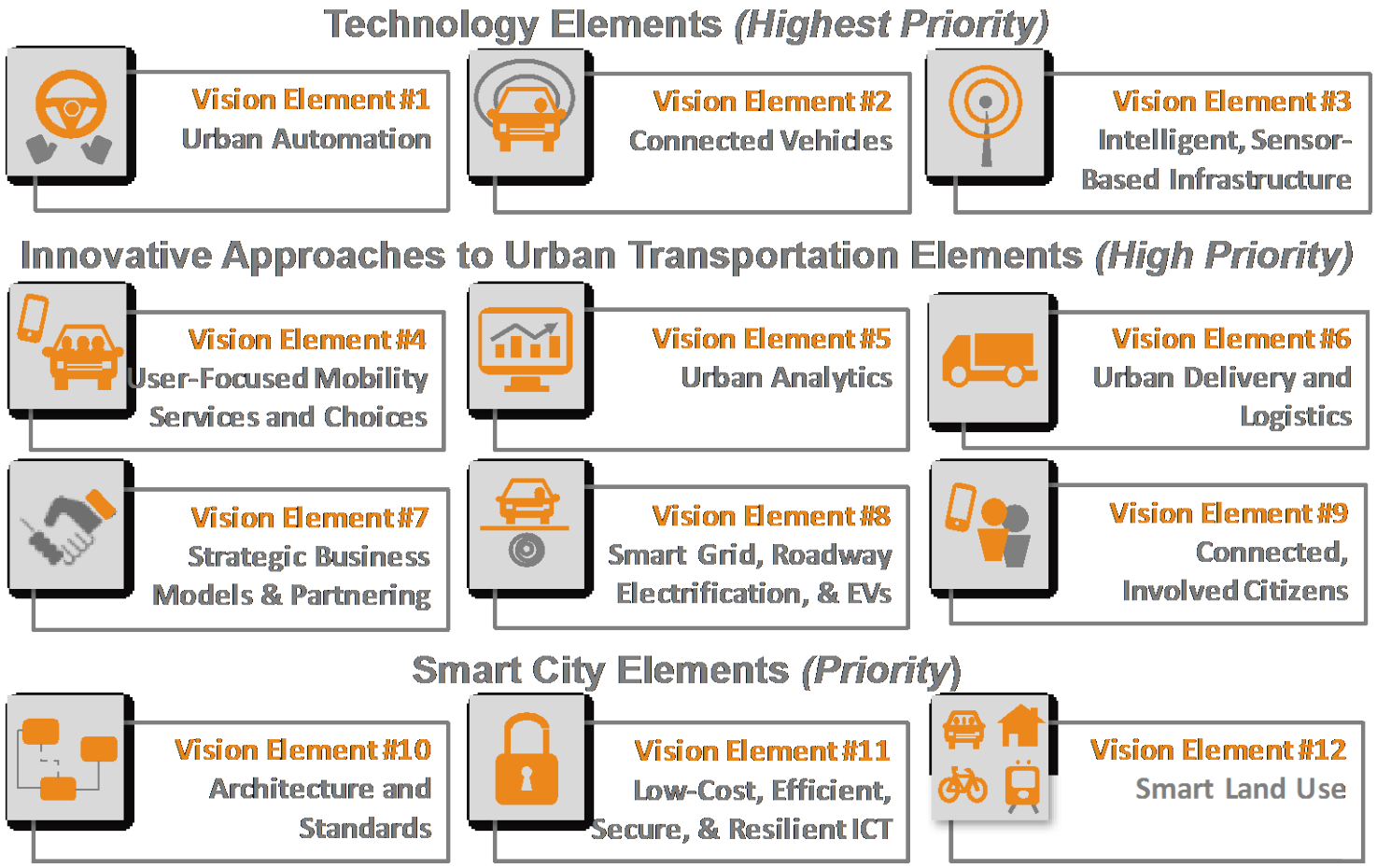
Connected-Automated Vehicles

Smart Cities

Benefits

- Order of magnitude safety improvements
- Reduced congestion
- Reduced emissions and use of fossil fuels
- Improved access to jobs and services
- Reduced transportation costs for gov't and users
- Improved accessibility and mobility

US DOT Smart City Challenge



Potential Implications for the ITS Workforce

Technology is moving rapidly and barriers to entry are greatly reduced in some areas; government and academic institutions need to keep up

Interdisciplinary learning and research is becoming increasingly important

- Increased need for cross-disciplinary/agency teams and skill sets
- Chief innovation officer roles/embedded technologists can add capacity and provide for enhanced learning opportunities by all parties.

Increasingly complex systems require new approaches such as machine learning, artificial intelligence, and enhanced approaches to data management and collection. These new approaches also require novel social and ethical considerations

Cybersecurity is a common theme in nearly all disciplines

Innovation is more than technology – it's also culture, process, and a practiced skill. We need to teach people these things so that they bring them to the workforce.

QUESTIONS/DISCUSSION

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