NATIONAL DIALOGUE ON
HIGHWAY AUTOMATION

U.S. Department of Transportation
Federal Highway Administration

FHWA National Dialogue on Highway Automation

Planning and Policy Workshop
Science History Institute, Philadelphia, PA

June 26-27, 2018

Welcome

Purpose of the Workshop

- Discuss roles and responsibilities to facilitate safe and efficient integration of automated vehicles on our Nation's roads
- Engage stakeholders on key issues of interest on automation
- Facilitate collaboration between public agencies, industry, associations and the transportation community around automation

Agenda Day 1

Time (ET)	Agenda Item	Name
12:30 PM	Registration & Sign-In	
1:00 PM	Opening Remarks	Mala Parker
1:10 PM	National Dialogue Overview	Heather Rose
1:25 PM	Small Group Session Instructions	John Corbin
1:30 PM	Small Group Session 1: Policy and Planning Issues and Challenges • Section 1: Policy Issues and Challenges • Section 2: Planning Issues and Challenges	All Participants
3:00 PM	Break	
3:15 PM	Report Out	All Participants
3:45 PM	Collaboration Corner *Market Square Format*	Topics: Communities and AVs, State and Local Issues, Developing Policy, Research Needs, Terminology
5:00 PM	Wrap Up and Preparing for Day 2	John Corbin
5:30 PM	End of Day 1	

Agenda Day 2 Morning

Time (ET)	Agenda Item	Name
8:00 AM	Registration & Sign-In	
8:30 AM	Kick-Off Day 2 • Agenda Summary Day 2 • Summary of Day 1 Themes	Kenneth Petty
8:45 AM	Introduction	Alicia Nolan
9:00 AM	Welcome Address	Leslie Richards
9:15 AM	Preparing for Automated Vehicles: Policy and Planning Perspectives	*Facilitated by Kenneth Petty* • Robert Grant • Patricia Hendren • Bill Keyrouze • Rick Schuettler
10:15 AM	Break	
10:30 AM	Small Group Session Instructions	Corbin Davis
10:35 AM	Small Group Session 2: Policy and Planning Opportunities • Section 1: Policy Opportunities • Section 2: Planning Opportunities	All Participants
12:00 PM	Lunch (not included)	

Agenda Day 2 Afternoon

Time (ET)	Agenda Item	Name
1:30 PM	Report Out	All Participants
2:00 PM	Keynote Speaker	Brandye Hendrickson *Introduction by Martin Knopp*
2:15 PM	Instructions for Brainstorming	Corbin Davis
2:20 PM	Brainstorming: What's Next?	All Participants
3:05 PM	Report Out	All Participants
3:50 PM	Wrap Up and Next Steps	Jeremy Raw
4:00 PM	Open Discussion	All Participants
4:30 PM	End	

FHWA and its Role in Automation

FHWA - Who We Are

The **Federal Highway Administration (FHWA)** supports State and local governments in the design, construction, and maintenance of the Nation's highway system and various federally and tribal owned lands. Through financial and technical assistance to State and local governments, the FHWA is responsible for ensuring that America's roads and highways continue to be among the safest and most technologically sound in the world.

Levels of Automation

SOCIETY OF AUTOMOTIVE ENGINEERS (SAE) AUTOMATION LEVELS

Full Automation

0	1	2	3	4	5
No Automation	**Driver Assistance**	**Partial Automation**	**Conditional Automation**	**High Automation**	**Full Automation**
Zero autonomy; the driver performs all driving tasks.	Vehicle is controlled by the driver, but some driving assist features may be included in the vehicle design.	Vehicle has combined automated functions, like acceleration and steering, but the driver must remain engaged with the driving task and monitor the environment at all times.	Driver is a necessity, but is not required to monitor the environment. The driver must be ready to take control of the vehicle at all times with notice.	The vehicle is capable of performing all driving functions under certain conditions. The driver may have the option to control the vehicle.	The vehicle is capable of performing all driving functions under all conditions. The driver may have the option to control the vehicle.

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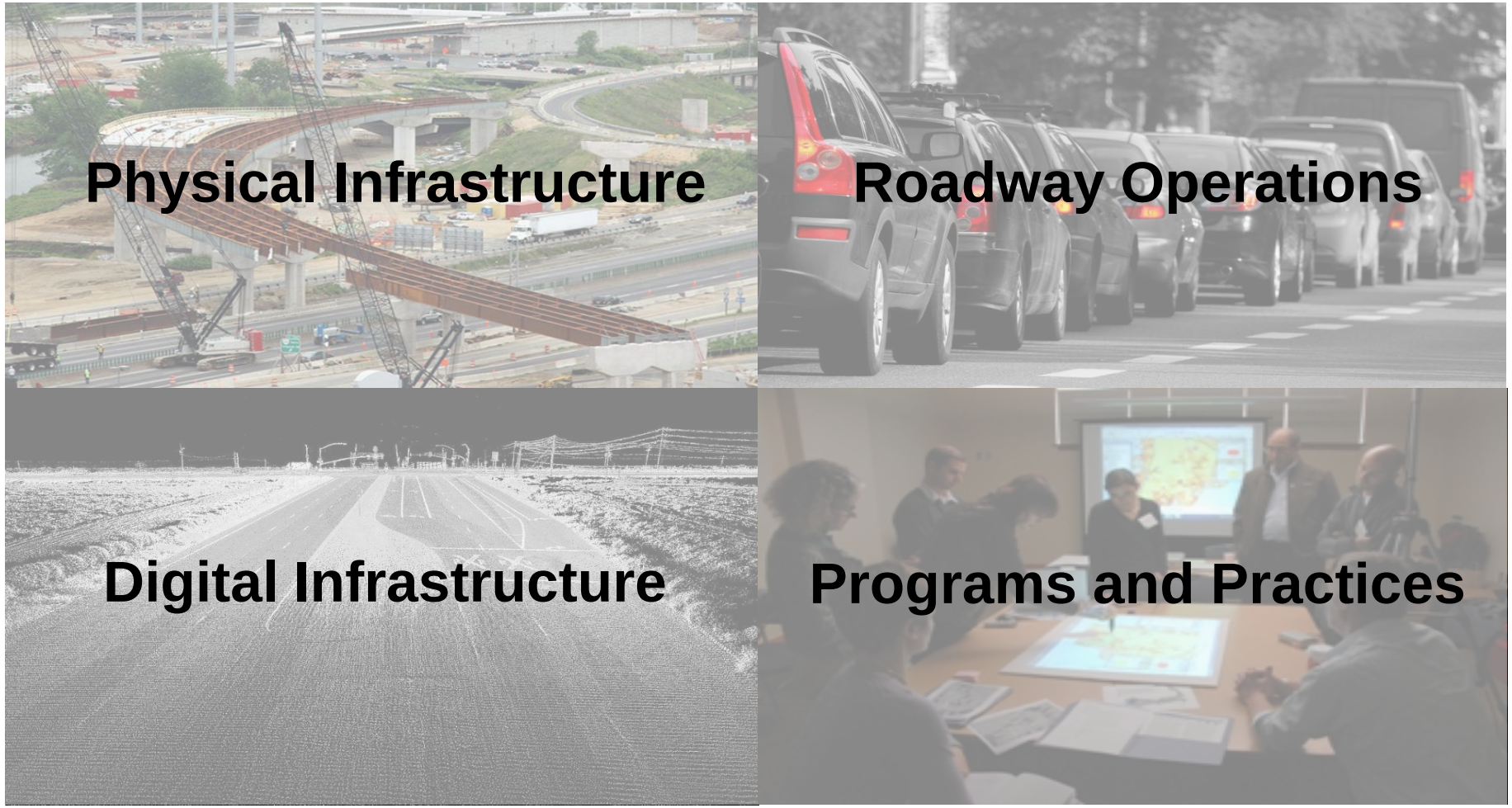
Automated Vehicle Implications for Roadways



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USDOT Activities in Automation

USDOT Surface Transportation Modal Administrations

- Federal Highway Administration (FHWA) – Roadways and Bridges
- Federal Motor Carrier Safety Administration (FMCSA) – Trucking and Motor coach Operations
- Federal Railroad Administration (FRA) - Railways
- Federal Transit Administration (FTA) – Public Transit
- Maritime Administration (MARAD) - Maritime
- National Highway Traffic Safety Administration (NHTSA) – Motor Vehicle Safety
- Pipeline and Hazardous Materials Safety Administration (PHMSA) – Pipelines and Hazardous Materials Safety

USDOT Activities in Automation

Modal Requests for Information and Comments on Automation:

- Federal Highway Administration
- Federal Motor Carrier Safety Administration
- Federal Railroad Administration
- Federal Transit Administration
- National Highway Traffic Safety Administration
- Pipeline and Hazardous Materials Safety Administration

Information Available at: https://www.transportation.gov/av/publicnotices

USDOT Activities in Automation (continued)

FHWA Request for Information Key Themes:

- Greater **Uniformity and Quality** in road markings and traffic control devices would enable automation.
- FHWA should take a **Leadership** role in convening stakeholders to encourage collaboration.
- Certain **Data Elements** around the roadway environment are useful for industry, State, and local DOTs to share and could improve automation operations.
- Conducting **Pilots** and supporting pilot testing are important for facilitating learning, collaboration, and information sharing.
- **Uncertainty** in infrastructure investment and allocation of limited resources are key concerns for State and local agencies.

USDOT Activities in Automation (continued)

Event	Date	Summary / Outcomes
USDOT releases *Automated Driving Systems (ADS) 2.0: A Vision for Safety*	September 12, 2017	• Replaces the 2016 Federal Automated Vehicles Policy. • More information on ADS 2.0 is available on the NHTSA website: https://www.nhtsa.gov/technology-innovation/automated-vehicles.
Roundtable on Data for Automated Vehicle Safety	December 7, 2017	• Demonstrated multimodal alignment around "One DOT" approach to Federal automated vehicle policy. • Brought together over 60 participants from government, private sector, nonprofit organizations, universities, and research centers. • Gathered feedback on USDOT's Guiding Principles and Draft Framework.
Automated Vehicles 3.0 announced	January 10, 2018	• Secretary Chao announced work on a follow-up Automated Vehicles 3.0 document, with a possible release date in 2018.
Public Listening Summit on Automated Vehicle Policy	March 1, 2018	• Stakeholder engagement summit with senior leadership at USDOT. • Focused on key cross-modal issues important to successful integration of automated vehicles.
National Dialogue Launch Webinar	May 8, 2018	• Introductory webinar introducing the National Dialogue. • 360+ attendees. • Recording: https://connectdot.connectsolutions.com/p52h2c59wp92/.

The National Dialogue on Highway Automation

Purpose of the National Dialogue

1. **LISTEN:** Gather input from a diverse group of stakeholders.
2. **ENGAGE:** Facilitate information sharing among industry, public agencies, associations and others.
3. **INFORM:** Raise awareness of FHWA and USDOT activities in automation and emerging technologies.
4. **EVOLVE:** Adapt existing programs, policies and research to address automation.

Desired Outcomes

FHWA will use inputs to:

1. Assess National issues and priorities
2. Develop technical guidance, best practices and standards
3. Support necessary research
4. Adapt programs and policies
5. Create a National community or coalition

Areas of Interest

Focus Area	Topics of Interest
Planning and Policy	• Travel demand changes • Land use implications • Right-of-way Use • Regulatory/Policy Barriers
Digital Infrastructure and Data	• Data requirements and needs (e.g., digital work zone maps, road closures) • Partnerships for data sharing and safety
Freight	• Truck platooning application • Automated truck freight delivery issues • Implications on traffic patterns and operations
Operations	• Identification of further research necessary to address operations challenges • Transportation Systems Management and Operations • Incident management • System Efficiency • Implications on traffic patterns and roadway capacity
Infrastructure Design and Safety	• Infrastructure needs • Ensuring safety for road users, including drivers, pedestrians, bicyclists, and motorcyclists • Consistency • Collaboration to plan for locations where existing roadway infrastructure could lead to safety hazards

National Dialogue Tentative Schedule

Month	Event	Location
June 7	**National Dialogue Launch Workshop**	Cobo Center, Detroit, MI
June 26-27	**National Workshop 1** Planning and Policy Considerations for Highway Automation	Science History Institute Philadelphia, PA
July 12	**Automated Vehicle Symposium** FMCSA-FHWA Truck Automation Listening Session	San Francisco, CA
August 1-2	**National Workshop 2** Digital Infrastructure and Data Considerations for Highway Automation	DoubleTree Hilton Seattle Airport Seattle, WA
Early September	**National Workshop 3** Freight Considerations for Highway Automation	Chicago, IL
October 24-25	**National Workshop 4** Operations Considerations for Highway Automation	Phoenix, AZ
Week of Nov. 12	**National Workshop 5** Infrastructure Design and Safety Considerations for Highway Automation	Austin, TX

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