

# Automated and Connected Vehicle Activities: Overview



AAMVA Workshop  
March 9, 2016

# Recent Announcements:

- Automated Vehicles:
  - \$3.9 Billion/10 year proposal in President's FY '17 budget
    - Accelerate development and adoption of safe vehicle automation through real world pilots
- Accelerate Vehicle Safety Innovations:
  - Deployment and Operational Guidance for Automated Vehicles
  - Model State Policy on Automated Vehicles
  - Encouragement of manufacturers to request exemptions to NHTSA to facilitate AV deployment
  - Develop new tools and seek new authorities as necessary to facilitate deployment of safety beneficial AV technologies
- DOT/NHTSA Policy Statement Update
- Smart Cities Initiative

# Standards and Regulations

- Reviewing FMVSSs
- Recent Interpretations
  - BMW
    - Remote controlled parking system
    - Asked if it complies w/FMVSS 114
    - NHTSA response issued January 4, 2016
  - Google
    - Requested NHTSA interpret several FMVSS provisions as they apply to Google's Self Driving Vehicle
    - NHTSA response issued Feb 4, 2016

# Advanced Technologies and Smart Cities\*

Technology convergence will revolutionize transportation, dramatically improving safety and mobility while reducing costs and environmental impacts

Connected Vehicles

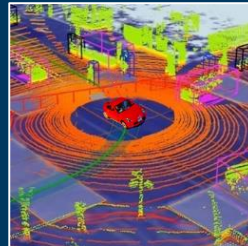
Vehicle Automation

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

\* Managed by USDOT's ITS Joint Program Office

# NHTSA Research: Need to Address the Building Blocks of Automation

- NHTSA programs include (but not limited to):
  - Electronic Stability Control
  - Automatic Emergency Braking
  - Pedestrian Crash Avoidance and Mitigation
  - Rear Backover - Automatic Braking
  - Lane Keeping/Centering
  - Blind Spot Intervention
  - Next Generation Test Targets – 3D Guided Soft Targets
  - Connected Vehicles - Vehicle to Vehicle Communications

# Vehicle to Vehicle Communications

- **Notice of Proposed Rulemaking (NPRM) planned in 2016**
- Technology can address a large percentage of vehicle crashes
- Previous Actions:
  - Advance Notice of Proposed Rulemaking
  - V2V Report: Readiness of V2V Technology for Application
- [www.safercar.gov/v2v](http://www.safercar.gov/v2v)

# Key Areas of NHTSA's Highly Automated Vehicle Research



## Human Factors Research

- Human factors evaluation of Level 2 and Level 3 automated driving concepts
- Initial human factors design principles for L2/L3



## Electronic Control Systems Safety (including Cybersecurity)

- Functional safety of safety-critical automotive systems and extensions to L2-L4
- Cybersecurity threats, vulnerabilities, countermeasures assessment



## System Performance Requirements

- System performance requirements framework
- Objective test procedures



## Benefits Assessment

- Target crash population estimation for automated vehicles L2-L4
- Multi-modal benefits framework development



## Testing and Evaluation

- Controlled test track studies
- Field operational tests (e.g. Level 2 Naturalistic Study)

# For More Information

NHTSA:

Tim Johnson – Director, NHTSA, Vehicle Research and Test Center

[Tim.Johnson@dot.gov](mailto:Tim.Johnson@dot.gov)

NHTSA Public Website:

[www.nhtsa.gov](http://www.nhtsa.gov)

USDOT Automation/Connected Vehicle Programs:  
USDOT's ITS Joint Program Office

[www.its.dot.gov](http://www.its.dot.gov)