



# Automated Vehicles North Carolina Technical Assistance

**NHTSA**  
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**NHTSA**  
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION



# Expectations

- Stated Expectations
  - Education and guidance for the implementation of testing highly autonomous vehicles.
  - Updating state regulations for high autonomous vehicles.
- New Expectations?



# Technical Assistance Objectives

- High level information relative to Advanced Driver-Assistance Systems (ADAS) & Automated Driving Systems (ADS)
- Information on testing and testing taking place in other US States
- Considerations to address ADAS/ADS:
  - Law Enforcement
  - Roadway Design
  - Other
- Data: Consideration of potential data sources relevant to ADAS/ADS in NC



- Start with foundational information from NHTSA
- Look to:
  - Help NC officials identify needs
  - Highlight considerations for the future
  - Clarify responsibilities
  - Offer resources

# Start with 'The End' in mind



NHTSA





## Important Distinction: ADAS or ADS

- Increasing levels of automation - somewhat of a ramp
  - Begin with little to no sustained automation and gradually add layers of automation until vehicle is responsible for the entire driving task ALL of the time
- Lower levels of automation - ADAS
  - Safety technology designed to *assist* the driver
  - Currently available for consumer purchase
- Higher levels of automation - ADS
  - Assume some or all of the driving task
  - Specific operating domains
  - Not currently available for consumer purchase



## Federal Role in the Future Deployment of Automated Driving Systems

- Facilitating safety discussions with safety stakeholders
- Researching and developing safety performance measures and testing procedures for these technologies
- Identifying unintended and unnecessary barriers to safety innovation within existing standards





# Federal Automated Vehicles Policy (FAVP)

- Published in September 2016
- Identified a focus on higher levels of automation
- Four Sections
  - Vehicle Performance Guidance for Automated Vehicles
  - Model State Policy
  - NHTSA's Current Regulatory Tools
  - Modern Regulatory Tools
- Culmination of collaborative effort to identify important considerations as automation was taking hold in the automotive industry



# Automated Driving Systems: A Vision for Safety 2.0

- Published in September 2017
- Update and refinement of FAVP
- Maintained focus on higher levels of automation
- Refined the elements in the vehicle guidance - dropping from 15 elements to 12 and narrowing the guidance on the Voluntary Safety Self Assessment
- Emphasized the roles of the States and Federal Government and refined the considerations to States looking to set up infrastructure
- This remains the pre-eminent document for NHTSA's stakeholders with respect to guidance and recommendations/considerations



## Preparing for the Future of Transportation: Automated Vehicles 3.0

- This document moved the discussion from an Agency-level to a Departmental-level
- 3.0 is a view of how USDOT is looking at vehicle automation
- Set forth 6 principles - one of which is important for States, regarding encouraging a consistent regulatory and operational environment
- Reviews modal authorities and key policy issues (ex. Federal Highways, Federal Transit, Federal Motor Carriers)
- Set up various activities for the Department (re: data collection, disability community, workforce, listening sessions, first responders)



# Ensuring American Leadership in Automated Vehicle Technologies: Automated Vehicles 4.0

- Expanding the perspective to the Federal Government as a whole: 38 departments, agencies, commissions and the Executive Office of the President
- Discusses how the Administration supports growth and leadership in surface transportation automation
- Reviews government Agencies activities
- Establishes Government principles:
  - Protects Users and Communities
  - Promote Efficient Markets
  - Facilitate Coordinated Efforts
- Good to be familiar with, but less of an impact on States the 3.0 and much less than 2.0



## Assistive Resources

- [Nhtsa.gov/av](https://nhtsa.gov/av)
  - Good background in general and about ADS 2.0
- VSSA Index
  - On the AV site, links to all published VSSAs
- NHTSA Research Public Meeting November 2019
  - Presentations include videos
  - ADAS Test Procedure
- NCSL website
  - Bill search section
- Scope out how ADS entities interact and coordinate with other states
  - Boots on the ground



## Advanced Driver Assistance Systems Enhanced Test Procedures

- NHTSA requested feedback on nine (9) draft research test procedures
- Do test procedures adequately, objectively, and practically assess ADAS system performance in test track environment
- Responses will be reviewed



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## Federal Motor Vehicle Safety Standards (FMVSS)

- Currently codified at 49 CFR 571; developed and enforced by NHTSA.
- FMVSS categories:
  - Crash avoidance
  - Crash worthiness
  - Post-crash survivability
- Potential adaptation of regulations to address unnecessary barriers to innovative designs while ensuring that these vehicles would have equivalent levels of safety and performance to systems and components covered by existing safety standards