

Autonomous Vehicle Testing and Research in North Carolina

NC Executive Committee for
Highway Safety (ECHS)

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www.hsrc.unc.edu

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It's 2018, so where are the self-driving cars?

35 

It's time for a reality check

By [Andrew J. Hawkins](#) | [@andyjayhawk](#) | Jan 30, 2018, 1:29pm EST



SHARE

Automated Vehicle Research Areas

- Technology
- Testing & safety assurance
- Human-machine interface
- Connected vehicles
- Traffic flow
- Energy & emissions
- Policy & law
- Ethics
- Infrastructure
- Adoption



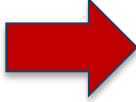
NC Research Hubs

- NC Fully Autonomous Vehicle Committee
- Triangle Expressway Automated Vehicle Proving Ground
- University Transportation Centers

NC FAV Committee

- S.L. 2017-166 (**H 469**) enacts new Article 18 in Chapter 20 (G.S. § 20-400 – 403)
 - “... To regulate the operation of fully autonomous vehicles on the public highways...”
- G.S. 20-403 establishes 17-member Fully Autonomous Vehicle (FAV) Committee
 - Considers matters related to FAV technology
 - Reviews the application of state motor vehicle law to FAV
 - Makes recommendations regarding FAV testing
 - Makes recommendations for DOT rules and ordinances
 - Make recommendations to the General Assembly on necessary changes to state law

FAV Committee Working Groups

- Business
 - Business & workforce development
- Infrastructure
 - Impacts of AV technology on transportation infrastructure
- Legislative
 - Evaluate and propose potential changes in NC policy
- Operations
 - Impacts to approaches to transportation as a service
-  Research
 - Identify and facilitate research opportunities for universities, private agencies, manufacturers and partnerships
 - Educate committee members and other WG about current AV research

Triangle Expressway AV Proving Ground

- One of 10 designated proving ground pilot sites
 - Encourage testing and information sharing around automated vehicle technologies



Photo: Volvo Trucks North America

Triangle Expressway AVPG Research Partners

- Regional Transportation Alliance (RTA)
- UNC-Highway Safety Research Center (HSRC)
- Institute for Transportation Research and Education (ITRE)
- Duke University Humans and Autonomy Lab (HAL)
- UNC-Charlotte Center for Transportation Policy Studies
- NC Agriculture & Technical State University (NC A&T)
- North Carolina Center for Automotive Research (NCCAR)

University Transportation Centers (UTC)

- National
 - UNC: Collaborative Sciences Center for Road Safety (CSCRS)
 - Research priority: promoting safety
 - Consortium members include Duke University
- Tier 1
 - UNC-C: Center for Advanced Multimodal Mobility Solutions and Education (CMMSE)
 - Research priority: improving mobility of people and goods
 - NC A&T: Center for Advanced Transportation Mobility (CATM)
 - Research Priority: improving mobility of people and goods
- Others
 - U. of Florida: Southeastern Transportation Research, Innovation, Development and Education Center (STRIDE)
 - Regional UTC, reducing congestion
 - NCSU is a consortium member
 - San Jose State: Mineta Consortium for Transportation Mobility (MCTM)
 - Tier 1 UTC, improving mobility of people and goods
 - UNC-C is a consortium member

Sample University Projects

- Technology
 - Aggies' Autonomous Auto (NC A&T)
 - EcoPRT (NCSU)
 - Cost-Effective Infrastructure for Automotive Vision Capabilities (UNC)
- Mobility
 - Automated Last Mile Connectivity for Vulnerable Road Users (NC A&T)
- Congestion
 - Impact of Connected and Automated Vehicles on Freeway Capacity (UNC-C)
- Human-Machine Interface
 - Message Delivery in Manual and Automated Driving (NCSU)
 - Development and Evaluation of Vehicle to Pedestrian Safety Interventions (Duke)

Moving Forward: HSRC AV Research

- Augment existing HSRC research areas by integrating AV topics
 - Traffic Operations and Roadway Design
 - Pedestrian and Bicyclist Safety
 - Changing Behaviors
 - Training and Education
- Expand HSRC research through university collaborations
 - Department of City and Regional Planning
 - Gillings School of Public Health
 - Computer Science
 - Collaborative Sciences Center for Road Safety
- Construct in-house driving simulator
 - Represent different levels of vehicle automation
 - Perform human-in-the-loop studies

Questions?

