



MEETING SUMMARY

MEETING ATTENDEES

Attendee	Representing
Jamal Alavi	NC Department of Transportation
Jeff Barghout	Robocist, Inc.
Ryan Brumfield	NC Department of Transportation
Amna Cameron	NC Department of Transportation
John Congleton	NC Department of Justice
Starla Couso	Kimley-Horn and Associates
Jeff Dale	Kimley-Horn and Associates
Torrey Dixon	NC Department of Justice
Amanda Good	Kimley-Horn and Associates
Dan Graves	Amazon Web Services
John Hardin	NC Department of Commerce
Heather Hildebrandt	NC Department of Transportation
Ben Hughes	NC Department of Transportation
Ali Karimoddini	North Carolina A&T State University
Jennifer Keel	NC Division of Motor Vehicles
Martin Kinnamon	City of Charlotte
Kevin Lacy	NC Department of Transportation
Thomas Moore	Cardinal Government Affairs on behalf of General Motors
Drew Moretz	Brooks Pierce
Justin Owens	UNC Highway Safety Research Center
John Policastro	NC Automobile Dealers Association
Katy Salamati	SAS
Laura Sandt	UNC Highway Safety Research Center
Robert Sawyer	NC Division of Motor Vehicles
Judy Schmidinger	NC Division of Motor Vehicles
Sarah Searcy	NC Department of Transportation
David Spencer	Town of Cary
Ravi Tallury	Amazon Web Services
Brandon Vick	NC State Highway Patrol
Tim Wilson	NC State Highway Patrol
Leila Yahyapour	SAS

MEETING NOTES

Attendees were welcomed to the meeting followed by a brief outline of the meeting agenda. Today's meeting included two presenters: Sarah Searcy from NCDOT's Integrated Mobility Division (IMD) and Ravi Tallury from Amazon Web Services (Amazon/AWS). The meeting also



included updates from Kevin Lacy from NCDOT, Thomas Moore from Cardinal Government Affairs on behalf of General Motors, and Jeff Dale from Kimley-Horn and Associates.

At the onset of the meeting, participants were given cards to write down future FAV-related topics. The following bullets summarize the feedback that was received on the cards.

- Statutory changes to require entities and manufacturers who “test” in North Carolina to have a testing license.
- Discussion on ways to label or flag a title for vehicles that are upfitted with AV equipment. This would protect a customer by providing the history when the vehicles are purchased. Is there a need for a statute to enforce this?
- Data transparency from private companies testing AVs.
- MUTCD Retroreflectivity Maintenance Requirements. What are NCDOT and other agencies doing to meet the requirements?
- Application of artificial intelligence to automated driving systems and the development of the necessary infrastructure including devices to facilitate the identification of objects in a given area for automated driving control systems that should be installed on the roads.

Connected Autonomous Shuttle Supporting Innovation (CASSI) – Sarah Searcy

Sarah Searcy provided an overview of the Connected Autonomous Shuttle Supporting Innovation (CASSI) program. Based on the Society of Automotive Engineers (SAE) terminology standards, the automated shuttles that were tested under the CASSI program operated at Level 3 automation or “conditional automation.” Sarah described the two deployments that were completed in 2023.

CASSI in Cary’s Bond Park was a 13-week pilot that demonstrated the automated shuttle’s Vehicle-to-Infrastructure (V2I) communication capabilities. The deployment was successful because of partnerships and teamwork, including between staff from NCDOT, Cary, and Kimley-Horn and Associates.

NCDOT gathered feedback from riders about the shuttle and service through an online survey. Responses were collected from 145 riders.



Lessons learned from the pilot in Cary's Bond Park include:

- An onboard attendant was needed and ensured the safe operation of the automated shuttle.
- Prior to deployment on public roadways, the automated shuttle required an exemption from Federal Motor Vehicle Safety Standards (FMVSS).
- Disengagement from autonomous mode into manual mode happened most often at the signalized intersection.
- Most low-speed automated shuttles do not include the full set of accessibility-related features needed to serve people with disabilities. NCDOT was able to collect a lot of valuable feedback from the public on what to include in the next generation of vehicles to better support all riders.

The final report, datasets, and data documentation were published in October 2023.

CASSI at the University of North Carolina at Charlotte (UNC Charlotte) was a 23-week pilot. The project involved new challenges including more signalized intersections, a longer route, and navigation within a more complicated environment. Like CASSI in Cary's Bond Park, the project's findings, datasets, and data documentation will be published.

Sarah also described future projects within the CASSI program.

- Testing and integration of Automated Driving System (ADS)-equipped conventional vehicles into high quality, on-demand transit services.
- Supporting N.C. A&T State University to test connected and automated vehicles (CAV).
- Continuing to partner with the Center for Regional and Rural Connected Communities.
- Publishing an RFI on Automated Bus Technologies.
- Developing Advanced Mobility NC—a three-year strategic plan to identify synergies between all transportation modes with an emphasis on automation.

CASSI-Related Links

- CASSI program and project webpages
 - NCDOT
 - [Landing Page](#)
 - [Completed Projects](#)
 - UNC Charlotte
 - [Meet CASSI](#)



- CASSI in Cary's Bond Park resources
 - [Final report](#)
 - [Curated data story and datasets](#)
 - Press releases ([NCDOT](#) and [Cary](#))
 - [Webpage](#)
- N.C. A&T State University's Aggie Auto program
 - [Webpage](#)
 - Press releases ([NCDOT](#) and [NC A&T](#))
- Center for Regional and Rural Connected Communities (CR2C2)
 - [Webpage](#)
 - [Press release](#)
- NCDOT's Advance Mobility NC initiative
 - [Webpage](#)
 - [Webinar](#)

CV2X Data Strategies | AWS Solutions Proposal – Ravi Tallury

Ravi Tallury described the primary research question: ***how do we ensure that the agencies can communicate with passenger vehicles, commercial vehicles, and delivery organizations in a way that is timely and prevents incidents?***

AWS recommends a four-part data strategy:

- Start with a small problem to show value quickly.
- Scale each part independently over time.
- Promote public-private collaboration to solve problems faster.

Ravi described that the distribution options for data include:

- Commercial navigation apps.
- Research institutes and startups.
- Commercial providers of analytics and insights.

The consumer options include:

- Department of Transportation certification can be valuable to commercial companies.
- Consumer navigation apps will adopt data with stronger consumer impact.
- Large organizations will adopt data that is free and easy to fit within existing schemas.



When asked how commercial companies share their data, Ravi explained that each metropolitan planning organization (MPO) has their own data exchange standards. Some companies are reluctant to share the data collected by their vehicles.

Through conversations around better work zone data, it was also suggested that school zones are also dynamic and should be included within the CV data considerations. The following links to recent studies about school zones were shared with the attendees.

- [Ten Actions Needed by Developers Before Deployment of Automated Driving Systems Around Schools \(September 2020\)](#)
- [Considerations for Deploying Automated Driving Systems Around Schools \(May 2020\)](#)

In the Know – FAV Updates

Potential Crash Improvements with FAV – Kevin Lacy

Kevin Lacy discussed the potential crash improvements with the integration of fully autonomous vehicles.

Using Cruise's Safety Report, NCDOT was able to compare the rate of crashes between human-driven vehicles and automated vehicles on local streets and collectors. Kevin acknowledged that while the projected numbers might not be precise, the trends are generally correct. Based on the preliminary data, it shows that automated vehicle integration will have a significant impact on helping reduce crashes, injuries, and fatalities.

Update on Behalf of General Motors – Thomas Moore

Cruise—a subsidiary of General Motors—has been recalling its driverless cars following a crash involving a pedestrian. Thomas Moore explained that there have been several leadership changes at Cruise. The current rollout of vehicles is paused to address safety concerns.

FAV Strategic Plan – Jeff Dale

Jeff Dale provided an update on the strategic plan. Comments on the draft plan demonstrated new energy around how the plan could be used by stakeholders. This energy was focused on a deeper tactical approach to the document that a wider base of stakeholders could leverage to have an impact. Based on the comments received, the following actions will be taken to further develop and refine the draft plan toward finalization:



- **Refine the structure** | to better organize the plan, the existing content will be reorganized to enhance the flow and voice of the document.
- **Leverage sources** | using existing national and professional organization sources, the plan will leverage the existing definitions to be consistent with federal standards.
- **Define a vision, mission, and goals** | the FAV Committee will engage in a visioning exercise early next year to craft a direction for the committee. This will be reflected within the vision, mission, and goals of the plan.
- **Revisit the action plan** | incorporating comments from the core team and stakeholders, the action plan will contain more specific information for each action identified.

Upcoming Meetings

Amanda Good closed the meeting by highlighting the following future meetings:

- ITS Carolinas Meeting (March 12-13, 2024)
 - Location: Charleston, SC
 - Select topics including AV and CV will be present.
 - Registration opens January 8, 2024. For more information, visit <https://itscarolinas.org/upcoming-events/>
- 2024 FAV Committee Meetings
 - February 14, 2024
 - May 16, 2024
 - August 21, 2024
 - November 14, 2024