



I-95 CC – Connected and Autonomous Vehicles - Moving Forward Along the East Coast

May 15, 2018

Agenda:

	Topic
1	Introductions and Welcome
2	CAV Workshop Summary (December 2017)
3	Automated Vehicles and Auto Insurance <ul style="list-style-type: none">• Robert Passmore, Property Casualty Insurers Association of America
4	Planning for a Better ACES Future <ul style="list-style-type: none">• Fred Payne, Greenville County
5	Member Roundtable
6	Wrap Up

Meeting Notes:

- **Welcome – Trish Hendren, I-95 Corridor Coalition**
 - Opening remarks and special thanks to the I-95 CC CAV Working Group
- **CAV Workshop Summary (December 2017) - Trish Hendren, I-95 Corridor Coalition**
 - Trish encouraged attendees to read over the I-95 CAV Workshop Summary Report (sent via email on May 7, 2018) and provide any feedback.
 - The workshop had three main goals:
 - Share CAV-related activities
 - Identify challenges and potential solutions
 - Define implementation steps for member-agencies and the Coalition
 - The workshop also had the following main discussion areas
 - Data – there is going to be a lot of data and there's great need to manage it all. Agencies need to define the types of data they want and why they want it. There is also need to find approaches for sharing data.
 - Policies, Legislation – there needs to be a balance of flexibility and safety. It was shown that having CAV legislation isn't a requirement to encourage deployment.
 - Collaboration – need collaboration within and across agencies, DOTs, need a wide variety of stakeholders involved including TNCs (such as Uber) and insurance
 - Planning – it is essential to consider CAV in long range transportation regardless of certainty



- Identify barriers and potential solutions for fast pace of tech vs. agencies
 - How do we react? Share actions not just a provide a repository
 - Start small, build recommendations
- Define implementation steps
 - Identify a leader, create a strategic vision focused on “why”, safety, congestion relief, emergency response, econ development
 - Start a multidisciplinary stakeholder group with members inside the agency
 - Start small – with testing or a pilot project.
- The final CAV Workshop Report will be posted to the I-95 CC website and at that time members are encouraged to share it with others.

- ***Automated Vehicles and Auto Insurance - Robert Passmore, Property Casualty Insurers Association of America***
 - The insurance industry is looking forward to significant disruption. They are confident that insurance won't disappear entirely but there will be challenges to adapt with CAVs.
 - There is some thought that AVs mean fewer insurance claims. This is certainly one possibility, but the likely increase in VMT means that's unclear.
 - Liability determination is going to be more complex and repair costs are going to increase dramatically due to complex components.
 - There are some lingering questions about whether AVs will operate on a MaaS (mobility as a service) model or traditional car ownership.
 - The insurance industry is going to need a new way to figure out rates. There will likely be a shift from driver-based models to tech-based models. There are questions about how these models fit into current systems or if there is data to support the new model creation.
 - There will be a serious need to differentiate between different AV platforms
 - There will be a need to differentiate between technology that was retrofitted vs. manufacturer-integrated into the vehicle
 - There are questions about who should have ownership or access to AV data – from both a user privacy concern and an intellectual property concern.
 - There will likely need to be regulation to make data recording mandatory.
 - Data recording will need to be obtainable in format useful for an insurer or investigator to establish liability.
 - Data recording will likely need to be established so that no consent is needed from the vehicle manufacturer.
 - We need to not lose focus on today's auto safety challenges in the future as we approach AVs.
 - Current manufacturer severity exposure requirements don't change, but there will be new and direct insurance requirements for manufacturers due to increased involvement post-sale.
 - Questions:
 - Roger Cohen (PennDOT) asked how the states can move in coordination to promote the presented national standards to get adopted.
 - Robert Passmore elaborated that states will need to figure out what they need and how they'll get it. Some facets will be similar to how agencies and states are doing things today, but there are issues with privacy and IP rights. There's probably a way to balance all of these things – not just for state transportation regulators but others



- at the table. How are similar things done today and how can we use existing processes? Can we use existing regulatory framework and adapt them to the new technology?
- Trish Hendren suggested we push forward with national standards and data pieces we all need.
 - Daniel Jacobs (PANYNJ) asked if the insurance industry is looking at a mileage-based model vs fixed cost per time model.
 - Robert Passmore noted that the insurance industry has some capability for that to be an option because vehicles are coming equipped with ways to monitor and report mileage as stock features. The insurance model may depend on if MaaS is the adopted model for transportation or not.
 - Tom Maziarz (Connecticut DOT) asked if anyone is exploring legal issues associated with accessing data systems for accident reconstruction.
 - Liability (products vs personal) is currently being explored. Insurance needs to know if they have enough information to be able to tell a system made an error similar to assigning human driver negligence now.
 - Mark Crampton (Maryland DOT) asked if Robert could elaborate on this issue from a homeland security aspect.
 - Robert Passmore noted that cybersecurity is the part of the AV issue that could have homeland security impact. Making sure that the vehicles are protected from hacking is very important and needs to be a key component of a balanced data access and sharing strategy.
 - Emily Parkany (Vermont AOT) asked if Robert could comment on the Uniform Laws Commission Liability Model.
 - Robert Passmore noted that the ULC AV model is still under development, but insurers have been following the process. While they are pleased that the current version recognizes the need for distinct financial responsibility requirements for the automated driving system manufacturer, the latest drafts propose new insurance requirements that could raise some concerns among insurers and the manufacturers. PCI has been participating in the development of the ULC model as an observer of the drafting committee and will continue to do so as the process plays out.
- ***Planning for a better Automated Connected Electric Shared (ACES) Mobility Future - Fred Payne, Greenville County Council***
 - State DOTs want CAVs for safety and will welcome successful CAV projects with open arms.
 - State DOTs should lead, follow, or get out of the way when planning to support CAV projects. Keep in mind that private money coming in is the answer. State DOTs can also monetize access to data to collect funding for mobility projects.
 - Private industry doesn't want to work on regulation with 50 different states and 500 different cities – they want a central route like USDOT/NHTSA.



- Greenville is sponsoring innovation through the Carolina Alliance 4 Innovation: a consortium of public and private partners to collaborate for mass mobility solutions. These include county and city entities, the upstate alliance, FHWA, robotic research, grants, and academia.
- Greenville wants to promote smart greenvillages. Years ago, Greenville had mill villages and people loved the community sense. Greenvillages are walkable, green, livable, and connected.
- Greenville is an excellent representative city because it is a mid-sized metropolitan area – a microcosm of challenges/problems in other areas. They are proactively seeking innovative transportation networks. Currently they've deployed A-taxi shuttles and are exploring GreenPods.
- Greenville A-taxis are a first and last mile solution. Greenville partnered with Robotic Research, LLC. on this effort.
- In areas where the A-taxis are operating, Greenville put up a sign that says 'self-driving vehicle area'. This is not a warning, but people do need to be aware.
- The overall planning vision is to make a multimodal corridor for bike, pedestrian, A-taxi, bus, and park and ride. They will be adding hubs about a mile apart which will serve as greenvillages.
- This planning vision will help accessibility and economic development for poorer communities in the area.
- Public-private-partnership (P3) is crucial. Private industry wants municipalities to provide easier access to right-of-way and permitting. Private investors can design, finance, build, and operate while public MCIP funds repay infrastructure. This means property tax increases, but it will benefit the public a lot.
- Questions:
 - Roger Cohen (PennDOT) asked if Greenville came across issues of procurement.
 - Fred Payne explained that procurement is a major issue. Municipalities have to abide by county procurement laws. The advice is to try to accelerate wherever possible because otherwise it's a huge challenge for innovation. Fred wishes it would be possible to accept unsolicited proposals.
- **Agency Round-Table Discussion – Various Speakers**
 - **MassDOT - Daniel Sullivan**
 - Took lead on unsolicited proposal policy similar to LA
 - Massachusetts is testing CAVs under guidance of an executive order passed by the governor.
 - MassDOT created an in-house CAV working group to examine issues. Public meetings from working groups are well-attended. The working group will be submitting report that outlines best practices.
 - Two CAV startups are testing out of MIT – nuTonomy and Optimus Ride. Each company has over 1000 mi on the streets of Boston.
 - One thing that people are doing differently now is maintaining a close collaboration with municipalities where testing occurs. This helps because those municipalities get feedback from private industry about their infrastructure (roadway design, traffic light style, etc.)
 - MassDOT is trying to develop an effective crash protocol – how do we learn from crashes best?



- **Connecticut DOT/University of Connecticut - Pete Calcaterra, Tom Maziarz, Eric Jackson**
 - CT has produced autonomous vehicle laws. They define terms, establish pilot programs, and create state legislative task force to study.
 - CTDOT thanked MassDOT for providing some framework and consistency for the basis of their pilot program.
 - The pilot project was very well defined. There was an application process, testing requirements (in law and framework document). Testing occurred in mixed-traffic on public roads within certain municipal borders and were prohibited from traveling on limited-access freeways. Test vehicles were mostly SAE level 4 and 5. Testing required that the operator be a license human driver seated in the driver's seat. CTDOT is amenable to working with manufacturers of vehicles that don't have a traditional driver. The vehicles needed to be registered and insured. The pilot required reporting (recording by VIN/make/model). The pilot followed guidelines by AAMVA and will follow NHTSA and FMVSS as guidance is released.
 - CTDOT encourages pilots and portfolios of multiple pilots.
 - CTDOT may consider applying for a federal ITS grant for CAV funding and are working with UConn for support. They also want to collaborate with other support like the CAV pooled fund study, I-95CC, and the New England CAV cross-border research project.
 - UConn is interested in being part of pilots, sharing lessons learned, building a simulator, partnering with CTDOT and industry partners.
 - CTDOT urged participants to attend the 2018 Northeast Autonomous and Connected Vehicles Summit – <https://ctsrc.uconn.edu/home/nacv2018/>
- **New Hampshire DOT, Susan Klasen**
 - Susan was unable to present her slides but they are available in the slide deck for viewing.
- **Rhode Island DOT, Julia Gold**
 - RIDOT urged participants to prioritize innovation and new techniques. RIDOT created a policy and innovation team for this task.
 - RIDOT underwent the TRIP autonomous vehicle mobility challenge – a pilot aimed to safely test multi-passenger autonomous vehicles (SAE level 3+) on Providence, RI's streets. The goal is to understand opportunities and challenges that it will provide communities. It will also explore how this technology can benefit/expand public transit. RIDOT is partnering with RIPTA, Quonset, TRIP, and the city of Providence. There is focus on mobility, electrification, workforce growth, and integrating smart city applications.
 - RIDOT's Lessons learned: build a vision that serves constituents. Agencies are not here to just build AVs for the industry – they focused on benefit for the community.
- **Vermont AOT, Emily Parkany**
 - Vermont AOT submitted a report titled *Preparing for Automated Vehicles in VT* to the Vermont general assembly.
 - Vermont AOT is chairing the technical advisory committee for the New England Consortium CAV cross-border project and specifically looking at how AVs will work in rural environments.



- ***Pennsylvania DOT, Roger Cohen***
 - HAV action plan – PennDOT Secretary Richards released this document at the 2018 PA AV Summit in Pittsburgh.
 - PennDOT is focusing on the balance between innovation vs. safety but their priority on safety.
 - Existing PA code requires a human driver – PA is operating on policy because state legislature did not want to amend vehicle code.
 - AV manufacturers have expectation of voluntary compliance from the state.
 - PennDOT is interested in establishing an independent safety validation mechanism.
 - PAAV Summit focused on the following issues:
 - Safety, infrastructure planning, workforce development
 - Need to establish protocols for testing safely
 - Need more emphasis on connectivity
 - PennDOT, PTC, and Penn State announced PennSTART a new testing and training facility. It will contain an infield with configurable alignment along with a straightaway, toll gantries, and other elements.
- ***Maryland DOT, Kevin Reigut***
 - MDOT established the connected vehicle working group, consisting of higher education, individuals with disability, private sector, and other stakeholders.
 - MDOT stressed the need for multiple stakeholder inputs – networking and communications are important, especially with the public. MDOT launched a public education campaign as well.
 - MDOT is undergoing a DSRC pilot, exploring freight platooning, and are active in national state and local projects.
- ***Virginia DOT, Cathy McGhee***
 - VDOT continues to work with DSRC installations at their test corridor in Northern VA. These DRC installations have been upgraded and are utilizing SPaT and MAP. VDOT is working with private entities who are utilizing this data.
 - VDOT is looking for more v2i applications for testing.
 - Just a warning – the Connected Vehicle PFS, which is led by VDOT, is shutting down and immediately starting back up (administrative change just to get a new number).
 - VDOT is expanding the smart roads testing facility at Virginia Tech.
 - VDOT is looking to make a rural road test track for the Smart Roads (to explore vertical and horizontal curvature challenges).
 - Lessons Learned: don't be afraid to expose your data. People will pick at it but it's not a bad thing.
- ***Commonwealth of Virginia, Office of Intermodal Planning & Investment, Ronique Day***
 - **An update on Virginia Automated 20XX has been added within the slide deck.** Virginia Automated 20XX is a plan for a coordinated and strategic approach to addressing the transition to AV within Virginia.



- **AMPO, Eileen Singleton**
 - AMPO established a CAV working group.
 - They are examining how we look at CAVs in long-range plans when we aren't sure of the technical horizon for these vehicles. They're also looking at challenges/needs/risks like maintaining infrastructure.

- **Closing Remarks & Discussion – Trish Hendren** (I-95 Corridor Coalition)
 - Trish thanked all the presenters and attendees

Presenter Contact Info:

CAV Workshop Summary (December 2017)
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Automated Vehicles and Auto Insurance
Robert Passmore, Property Casualty Insurers Association of America robert.passmore@pciaa.net
Planning for a better Automated Connected Electric Shared (ACES) Mobility Future
Fred Payne, Greenville County Council FPayne@greenvillecounty.org



Participants:

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Kelli Raboy, Amanda Stout	District DOT
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Roan Bennett, Kelly Harper, Sushmita Mitra, Roxane Mukai, Kevin Reigrut, Jason R. Pulliam (Police)	Maryland Transportation Authority
Daniel Sullivan	Massachusetts DOT
Susan Klasen	New Hampshire DOT
Susan Catlett, Tom Houck, Charles Kingsland, Mike Russo	New Jersey DOT
Dominic Ciaramitaro, Kevin Lacy, Hope Mozingo (DMV)	North Carolina DOT
Logann Graham	North Carolina Turnpike Authority
Daniel Jacobs	PANYNJ
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