

CAT Coalition – AV Infrastructure-Industry Working Group June 25, 2020 Meeting Notes

Attendees:

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|---------------------------------------------------|------------------------------------|------------------------------------------------------|
| - Tracy Larkin-Thomason
(Co-Chair), Nevada DOT | - Roger Berg, Denso | - Rebecca Hunter, Aero Wireless Group |
| - Ed Bradley (Co-Chair), Toyota | - Jim Trogdon, SAS | - Veronica Vanterpool, Delaware DOT |
| - Tom Kern, AASHTO | - Sudhakar Nallamothe, Leidos | - Paul Carlson, Road Infrastructure, Inc. |
| - Venkat Nallamothe, AASHTO | - Lauren Ludwig | - Daniel Halsted, South Carolina DOT |
| - Gummada Murthy, AASHTO | - Val Rader, Alaska DOT&PF | - Marisa Paula Walker, Arizona
Commerce Authority |
| - King Gee, AASHTO | - Brian Simi, Caltrans | - Kevin Tobias, Pennsylvania DOT |
| - John Corbin, FHWA | - John Hibbard, Georgia DOT | - Peter Kozinski, Short Elliott
Hendrickson Inc. |
| - Jeff Lindley, ITE | - Mike Kronzer, Minnesota DOT | - Scott Belcher, SFB Consulting LLC |
| - Siva Narla, ITE | - Alex Wassman, Missouri DOT | - Ginna Reeder, I-95 Corridor Coalition |
| - Carlos Alban, ITS America | - Ali Lohman, Oregon DOT | - Ryan Rice, Gannett Fleming |
| - Ray Derr, TRB | - James Kuhr, Texas DOT | - Shane McKenzie, Kentucky
Transportation Cabinet |
| - Eric Perry, ATTSA | - Zeke Reyna, Texas DOT | - Daniela Bremmer, Washington State
DOT |
| - Jim P. Allen, US Army ERDC | - Jianming Ma, Texas DOT | - Ted Bailey, Washington State DOT |
| - Jeremy Schroeder, Athey Creek | - Anne Reshadi, Wisconsin DOT | |
| - Ginny Crowson, Athey Creek | - Jeff Wishart, Exponent | |
| - Dean Deeter, Athey Creek | - Alex Cardona, State Farm | |
| - Nick Hegemier | - Barry Einsig, CAVita | |
| | - Kyle Garrett, Synesis Partners | |
| | - Jesus Gomez, City of Gainesville | |

Action Items:

- Jeremy: Send invitation to Infrastructure-Industry (I-I) Working Group (WG) members for the next meeting – August 20, 2020, 2:00-3:30p ET.
- Everyone: Contact Jeff Lindley at jlindley@ite.org if interested in participating in the IEEE-ITE virtual meeting on CAV issues that is planned for October.
- Everyone: Contact Tim Drake at tdrake@itsa.org or Bobby McCurdy at bmccurdy@itsa.org for any questions or comments about the ongoing V2X efforts. Additionally, I-I WG are encouraged to contact ITSA if you are able to support efforts to preserve the 5.9 GHz spectrum or if you have access to studies on the need for the full spectrum.
- Everyone: Contact Paul Carlson if interested in the SAE ORAD Roadway Infrastructure TF meetings, which occur every 3 weeks: pcarlson@roadinfrastructure.com.
- Everyone: Provide feedback on draft AV Deployment Scan Report to Jeremy or Venkat: schroeder@acconsultants.org or vnallamothe@aashto.org.

Notes:

1. *Opening and Ongoing Commitment to Outreach and Knowledge Transfer*
 - Jeremy led roll call.
 - Tracy introduced Ed Bradley of Toyota as the new co-chair for the I-I WG. Ed described his background, depth, and interest in the conversations conducted by the I-I WG.
 - The role of this group is to: 1) support pre-competitive industry research that will advance infrastructure development and maintenance; 2) Connect IOOs with industry; 3) Support the natural evolution of infrastructure to accelerate CAVs; and 4) Clarify terms, definitions and target audiences.

- Tracy emphasized the need to expand our membership and share available resources with members. Members are asked to email any suggestions to Ed, Tracy, Venkat, or Jeremy.

2. *Working Group Activities and Work Plan*

Tracy described the ongoing and planned I-I WG activities:

- Tracy talked through the purpose and proposed approach for the Communications 101 resource. Currently, coordination is underway with an NCHRP effort to facilitate development of the Communications 101 resource video.
- The Survey of AV Deployment and Shuttle Initiatives in the US was detailed later in the agenda.
- Expand membership and increase interactions with appropriate associations.
- Working Group Webinars.
- Primer / Synthesis of CV/AV Terms.
- Provide reactions to IOO/OEM Forum activities, as described in the next agenda item.
- Discussion about bigger picture for CAT infrastructure to understand priorities for planning and implementing IOO infrastructure investments, a potential future activity of this WG.
- WG members are encouraged to provide input about other activities this WG should consider.

3. *Quick Update from Focus Area WG: IOO-OEM Forum Products*

Tom Kern described the variety of products being developed by various IOO-OEM Forum working groups over the next year or so, that will be a key output from the CAT Coalition. As part of that effort, WG members will be presented with some of these products during I-I WG webinars over the next year to provide input and feedback on: 1) data needs for WZ CAT systems and role of IOOs providing data; 2) approach for operating and maintaining connected intersections; 3) draft plan for tracking connected intersection deployments; and 4) industry approaches to SCMS development.

4. *Partner Reports: US DOT, ITS America, ITE, and Other Partners*

- ITE: Jeff Lindley described the plan for the ITE Annual Meeting in early August Tuesday – Thursday, with work groups during the second week (Tuesday – Thursday). He noted that ITE has been working with IEEE for the past couple of years to learn to work together. Initially, ITE was going to participate with IEEE at their conference in Greece in September, that will now possibly be two virtual sessions/meetings with a focus on CAV issues and to promote collaboration between IEEE and ITE. These sessions will frame the issues first on infrastructure cooperation with AVs and operational challenges in a mixed environment with AVs. This will be open to anyone to participate – please contact Jeff at jlindley@ite.org if you are interested in participating.
- ITS America: Carlos Alban noted that ITS World Congress has been cancelled as an in-person event and will be replaced with a virtual all-access event; more details will be available soon. Carlos also gave an update on the 5.9 GHz Spectrum, noting that this is not on the FCC's July Agenda, and is anticipated to be part of the September or October FCC meeting. ITSA encourages individuals and organizations to file ex-parte letters in support of the 5.9 GHz spectrum with the 19-138 FCC Docket. Peter asked about the FCC making a move before the November election, and about looking ahead in case a leadership change happens? Carlos indicated that his policy team has considered how the timing of the election could delay a decision, but currently ITSA still anticipates that the FCC will take action on their NPRM at either their September 30 or October 27 meetings. A potential leadership change is something that is being considered as well. Contact Tim Drake at tdrake@itsa.org or Bobby McCurdy at bmccurdy@itsa.org for any questions or comments about the ongoing V2X efforts.

Additionally, members are encouraged to contact ITSA if they are able to support efforts to preserve the 5.9 GHz spectrum or if they have access to studies on the need for the full spectrum.

- **SAE:** Paul Carlson noted in the chatpod that the SAE ORAD Roadway Infrastructure TF mtg will be meeting June 25 at 3pm, and meets every 3 weeks. If interested, please email Paul for him to describe their pursuits: pcarlson@roadinfrastructure.com.
- **TRB:** Ray Derr noted a Connected Road Classification System report that was recently completed and is available at: <https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=4224>.

5. *AV Deployment Scan Findings, Takeaways, and Next Steps*

Tracy reviewed the AV Deployment Scan Findings. The draft report has been shared with I-I WG members as part of the meeting invite, and will be distributed again with the webinar summary. Members are encouraged to provide feedback before the report is posted on the CAT Coalition I-I WG webpage. Tracy noted that there is interest in conducting a follow-up scan at a later date, perhaps a year later, to get additional feedback. Daniela Bremer suggested including information in the follow-up survey about the deployment and funding impacts due to COVID-19, including information regarding impacts and changes on operations. Ginny Crowson asked about any feedback on evaluations that had been conducted on the deployment of these AV shuttles projects/programs. It was noted that it is difficult to fund these deployments and evaluations are very important.

Ted Bailey shared two links to AV Deployment Evaluations as resources that may be of interest:

- https://oohwstcavworkgroup.blob.core.windows.net/media/Default/documents/infrastructure-systems/Meeting_6/20190909_Activity3_Update.pdf, and
- https://oohwstcavworkgroup.blob.core.windows.net/media/Default/documents/infrastructure-systems/Meeting_7/WSTC_AVWG_Infrastructure_Subcommittee_Meeting_7_Activity3Action2TruckPlatooning.pdf.

6. *FHWA Roadway Automation Concept of Operations*

Ginny Crowson and John Corbin presented on the USDOT National Roadway Integration with ADS Concept of Operations (ConOps) with the goals of introducing the ConOps project and gathering some initial input from this working group. John Corbin provided an overview of the purpose and need for the ConOps. He noted that the origin of this ConOps project came from stakeholders suggesting it through various outreach activities, including the National Dialogue on Highway Automation. He noted that transportation agencies desired for FHWA to serve as a convener for engagement with industry and that the ConOps is intended to serve as a national vision for automation that could clarify goals and focus action. John described an automation ecosystem around four interacting dimensions: Communities and Travelers, Infrastructure Systems, Transportation Agencies & Institutional Systems, and Vehicle Systems and noted the interactions between these dimensions will be a focus of the ConOps.

John noted that this ConOps may not be formatted as a traditional ConOps, but rather will serve as a definitional document describing what IOOs will need to prepare for in the timeframe of approximately 2030-2035 with a partial mixed fleet of automated driving systems (Level 3 and above) and human driven vehicles.

Ginny provided additional information on the ConOps project. She noted that work began in October 2019 and will continue until September 2021 with six primary tasks:

- Task 1. Project Management
- Task 2. Background Documentation and Foundational Research
- Task 3. Stakeholder Engagement
- Task 4. ConOps Requirements Development
- Task 5. ConOps Development
- Task 6. ConOps Implementation Plan.

She noted that Task 3 (stakeholder engagement) is really a cornerstone of the project. This interaction today is part of this engagement and she noted that they will likely come back to this group later as the integration cases are further developed and needs are identified. She noted that Task 5 is the largest effort (ConOps Development) and will produce the primary document. Some more information on the ConOps:

- It will not be a standards document, but rather a context for roadway infrastructure needs and activities to support automated driving systems.
- It will be iterative and will evolve over time.
- It will be stakeholder driven.
- It will be strategic to address more than just a single system, but rather a system of systems. and
- Validated through stakeholder engagement.

The ConOps document will be divided into three parts:

- Part I – Executive Summary, focused on upper management,
- Part II – An accessible readable narrative, target audience of IOO staff
- Part II – Technical appendices for IOO specialists.

Ginny focused more on Part II, drawing attention to two sections where work is currently underway and input is desired:

- #6: ADS and Roadway Automation Context; and
- #7: ADS Integration Cases.

The context diagram builds upon the four dimensions John introduced, adding a series of interactions between those dimensions. For example, a Planning and Land Use interaction occurs between IOO Institutional Systems and Communities, Businesses and Travelers dimensions. This interaction includes the social and economic conditions within Communities, Businesses, and Travelers that influence longer term change in Institutional Systems. An example of this interaction includes a community using scenario planning to illustrate various levels of automation and identify the potential impacts on transportation that an IOO needs to factor into long range transportation planning.

Ginny introduced eight integration cases, explaining that these are expected to be prominent integration cases, but certainly not all of the integration cases by 2035. These cases, grouped into four groups include:

Freight and Packages

- Automated Long-Haul Freight
- Automated Local Freight Delivery
- Automated Home Package and Goods Delivery

Transit

- Automated Fixed Route Transit
- Automated On Demand Transit

Individual Commuting & Travel

- Automated Ride for Hire
- Automated Personal Vehicles

Agency Operations

- Automation of Fleet Vehicles

The levels of automation being focused on in this ConOps are Levels 3-5, recognizing that Levels 0-2 will be part of the mixed fleet in 2030. While Level 3-4 interfaces would be very different than Level 5, the ConOps will be focused on attainable and actionable outcomes by 2030, rather than broadening out to other areas.

Ginny noted that she will send a two-page document with additional information about the context to the group and would appreciate any additional input the group would like to send in email follow-up. Feedback from members included:

- As a result of COVID-19 and social distancing, the integration case for home package delivery will likely see a huge increase, and transit use cases will likely be impacted.
- Val Rader noted that we are “on a moving platform looking at a moving target” for 2035. His concern is that the use cases get out front of the IOO’s ability to provide the IOO side of the operation, and that AV deployers will develop new mechanisms to supersede or bypass the IOO completely. IOOs are less fast and nimble to respond. Ginny noted that the team is reviewing voluntary self-assessments that are filed at NHTSA and conducting interviews with select AV developers in private industry.
- Jim inquired about the depth of ConOps content in relation to the last mile for long haul freight challenges or is the presumption that warehouse distribution will be method? He also noted mobility hubs, as well as safety and security concerns of passengers and high value or high hazard materials within these cases.
- Tracy commented on the importance of this effort given the many impacts to IOOs, including land use planning and curb space planning for MOD.

7. *Next WG meeting and Adjourn*

The next meeting for this working group will be: August 20, 2020, 2:00-3:30p ET.