

CAT Coalition – AV Infrastructure-Industry Working Group

July 31, 2019 Meeting Notes

Attendees:

Tracy Larkin (Co-Chair)-Nevada DOT	Carlos Alban-ITS America
Steve Gehring (Co-Chair)-Global Automakers	King Gee-AASHTO
Hunter Rayfield-Drive Ohio	Peggy Tadej-Northern Virginia Regional Commission
Malcolm Gilbert-Drive Ohio	Ginna Reeder-I-95 Corridor Coalition
Jesus Gomez-City of Gainesville	Ed Bradley-Toyota
Paul Carlson-Road Infrastructure	Emily Brown-Central Florida Expressway Authority
Jim Allen-US Army ERDC	Brandon Kim-US Army ERDC
Peter Kozinski-Arapahoe County	Gummada Murthy-AASHTO
Daniela Bremmer-Washington DOT	Faisal Saleem-Maricopa County
Tom Kern-AASHTO	Jeff Paniati-ITE
Roger Berg-Denso	Venkat Nallamotheu-AASHTO
Jodie Bare-RTC of Southern Nevada	Dean Deeter-Athey Creek
Ken Moshi-Transport Canada	Ginny Crowson-Athey Creek

Action Items:

- Jim Allen: Provide Peggy Tadej contact information for interested working group members to explore opportunities for tour of JBM-HH pilot through September. *Information included in notes below.*
- All: Contact Daniela Bremmer with suggestions for additional points to share survey on CAT/CAV Capacity and Funding Approaches in the States.
- Jeremy Schroeder/Venkat Nallamotheu: Share detailed survey results document from Daniela Bremmer with the working group.
- Paul Carlson: Check with FHWA to see if the preliminary checklist for AV readiness may be shared with the working group for further feedback.
- All: Contact Tracy, Steve or Venkat with interest in joining the working group and supporting work plan activities.
- Jeremy Schroeder: Send meeting notices to confirm September 12 and December 18 working group meetings.

Notes:

1. Welcome and Introductions
Ginny Crowson was introduced as the meeting moderator and reviewed the agenda, noting that Chris Barker from Keolis had a late travel conflict and Col. Jim Allen with the US Army Engineer Research and Development Center would be presenting.

2. Co-Chairs' Remarks

Tracy Larkin-Thomason welcomed participants and introduced new co-chair, Steve Gehring. Steve noted his prior experiences with GM, Mazda and ITS America. He's now at Global Automakers working with variety of automakers and on regulatory actions.

Tracy reviewed working group role in the CAT Coalition to lead adoption, connect IOOs and industry, pursue infrastructure evolution to accelerate CAV, and clarify terms with target audiences.

3. Overview of Phase 2 – Year 2 Work Plan

Dean Deeter provided an overview of the CAT Coalition year 2 work plan to set the stage for Tracy to share an overview of the working group's year 2 activities. As background, Dean noted the coalition chairs – Roger Millar, WSDOT and Jennifer Cohan, DelDOT – and that year 2 for the coalition runs from November 2018 to November 2019. He then shared the coalition org chart and noted the three focus areas. The year 2 work plan focus has been on evolving from solely V2I deployment focus of the former V2I Deployment Coalition and folding in topic areas from the National Dialogue that were documented in AV 3.0 and that will be the focus of the National Strategy on Highway Automation. Dean highlighted six work plan activities and their relationship to the focus areas. Those most closely related to the working group are:

- Harmonization with the National Dialogue on Highway Automation
- Support dialogue regarding wireless spectrum for V2V and V2I communication
- Support member understanding and benefit from USDOT activities and deliverables, and
- Discuss options for expanding membership and introduce mobility as a service/mobility on demand.

Tracy next highlighted four key working group activities for year 2:

- Communications 101 which would focus on basic telecommunications information
- Primer of terms that will continue educating target audiences and leverage similar efforts
- Exercise about bigger picture for CAT infrastructure to understand priorities for planning and implementing infrastructure investments - in conjunction with work started by Paul Carlson (AV readiness, striping, signage, mapping (Lidar), etc., and
- Expand membership to broaden perspective and better understand issues.

4. FHWA Updates

FHWA representatives, John Corbin and James Gray were not available. Venkat Nallamotheu acknowledged FHWA's continued support of the coalition and further acknowledged King Gee and Tom Kern participating from AASHTO. King thanks the working group and noted the importance of continuing efforts to build relationships between infrastructure and industry, as well as jurisdictions. Tom encouraged the working group to consider what knowledge resources they have available to share and identify what else may be needed.

5. Guest Presentations

Smart Bases CPI AV Pilot – Col. James Allen, U.S. Army Engineer Research and Development Center

Jim provided a brief overview of an AV pilot underway at Joint Base Myer-Henderson Hall (JBM-HH) in Arlington, VA and another that will soon be underway Fort Carson in Colorado Springs, CO. Jim explained that the pilots are looking at commercial technology, such as the Olli vehicle from Local Motors, and how it will interact within military communities to lower operating costs, improve soldier and family quality of life, and enhance mission readiness. JBM-HH project will allow them to develop measures of effectiveness and explore data mining and cybersecurity issues. The pilot will also build expertise in their research lab, develop guidance for installations, support technology transfer, and use simulation to further conceptualize future installations. Fort Carson pilot is coming up in Colorado Springs and will explore use cases beyond passenger service. The JBM-HH project will also leverage the greater Washington Olli Fleet Challenge.

Phase 1 of the project started in late June and service will operate through September. Phase 2 and Phase 3 are pending funding and would expand service. Raw data is being received in government cloud storage and JBM-HH would like to share the data with VDOT and Arlington County to explore potential uses. Another key milestone will be the identification of success indicators to proceed with Phase 2. Jim explained that bases are like small cities – the Wright Bros did the first military flight from JBM-HH so it has a history of innovation. The base infrastructure provides an ideal test environment. Stakeholders were acknowledged and the route map shared. Jim concluded with identifying outstanding issues encountered in the pilot to-date – trying to understand how to pay for ongoing data management, challenges with age of traffic signals and construction disruptions, policy challenges, and data sharing terms and cybersecurity. , Peggy Tadej added that operations will continue through September and tours are welcome. Jim will provide Peggy’s contact information for the working group. Tracy noted that it would be valuable to have additional conversations about shuttle implementations at JBM-HH, in Las Vegas and in other locations to see what’s comparable across them.

Contact Information: Jim Allen, james.p.allen@usace.army.mil; Peggy Tadej, Northern Virginia Regional Commission, peggy.tadej@novaregion.org

CAT Coalition PLR WG Survey on Funding & Organizing CAT/CAV programs – Daniela Bremmer, Washington (State) Department of Transportation

Daniela explained that her presentation will step back from the deployment nature of Jim’s presentation to share how agencies are approaching and funding CAT/CAV activities. A survey was issued by the Policy Legislative and Regulatory Working Group to learn the status of activities and facilitate learning among DOTs. The survey focused on organizational capacity, funding, and deployment. Responses were received from 25 DOTs and 2 local agencies. Many agencies reported having dedicated positions for CAT/CAV – MN and CA both have over 5 FTEs. There are also organizational differences in where activities are located. Funding for activities is coming from new sources in some cases while resources

are being redirected in others. Most capital activities are funded at between \$1M-\$5M and agencies are exploring other sources to expand funding – including P3s. Common themes for P3s include data exchange and communication support. When asked about pursuing grant opportunities for additional capital funding, most respondents indicated having no barriers/challenges or barriers/challenges that can be managed.

Deployments currently underway are focused on data, with participation in the SPaT Challenge notes most often. Areas of future deployment also included data and additionally worker safety. Over 80% of respondents are in public/private partnerships with mostly hard/soft match contributions but also partnerships in training/learning exchanges, leadership sharing and research. Survey results have been shared in a limited capacity with AASHTO committees. Daniela asked the group to share suggestions for additional points of distribution. She also noted that it has been suggested to issue the survey again in a year and confirmed that the detailed results document may be shared with the working group. , Ken Moshi shared that a similar survey has been conducted through Transport Canada but with emphasis on capacity building – this could be an interesting piece to add to future surveys.

Contact Information: Daniela Bremmer, WSDOT, bremmed@wsdot.wa.gov; Pat Zelinski, AASHTO, pzelinski@ashto.org

Impacts of AVs on Highway Infrastructure – Paul Carlson, Road Infrastructure Inc.

Paul shared very preliminary information from two workshops funded by the FHWA Office of Infrastructure R&D. The workshops were completed two weeks ago and final products from the research are expected in late 2019. Workshops focused gathering information from IOOs to assess potential AV impacts and guide agencies in determining AV readiness. Workshops were held at the AASHTO Subcommittee on Maintenance meeting on July 17 and at the AV Symposium on July 18. They consisted of sharing what’s been learned through in-depth industry interviews and gathering feedback in four areas of infrastructure: traffic control devices, TSMO/ITS, urban multimodal, and physical infrastructure (pavements, bridges). Paul briefly highlighted workshop slides that set the stage and highlighted key observations from the AV industry interviews. He then summarized feedback gathered during the workshops in each of the four areas of infrastructure.

Feedback on traffic control devices emphasized agency priorities for changes to pavement marking practices to support AV deployment, in addition to uniform work zone set ups and communication/connectivity. TSMO/ITS feedback also emphasized near-term changes in connectivity, sharing of real-time advisories and work zone data. Feedback on near-term changes to support AV deployment in the urban multimodal category included reducing conflicts at multimodal point, mode separation, and the use of video analytics. Physical infrastructure feedback included emphasis on winter maintenance, pavement markings, funding and pavement condition. Paul further shared that when a preliminary checklist for AV readiness was shared in the workshops, most they were either somewhat or very unready to support AV deployment. Common reasons included insufficient

resources/funding, needs not well-defined, inadequate striping and lack of understanding. Additional webinars are anticipated at the conclusion of the research and will likely be marketed by FHWA. Paul will also check with FHWA to see if the preliminary checklist for AV readiness could be shared with the working group for further feedback.

Contact Information: Paul Carlson, Road Infrastructure, pcarlson@roadinfrastructure.com

6. Action Items and Next Steps

Ginny reviewed the action items noted at the beginning of these notes. Steve shared that he was pleased to hear today's information, noting that Olli is part of Global Automakers. Tracy thanked today's presenters and would like to explore further discussion on shuttle pilot experiences and the survey results. Venkat expressed his appreciation for the working group volunteers and the additional CAT Coalition support from ITE and ITS America. Tracy added that additional members are welcome, as is member assistance with the work plan activities. Contact Tracy, Steve or Venkat if you have interest in joining the working group and supporting work plan activities.

7. Next WG meeting and Adjourn

The remaining 2019 meetings for this working group are targeted for the following dates and times. Jeremy Schroeder will confirm with meeting notices.

- September 12, 3:00-4:30 (Eastern)
- December 18, 3:00-4:30 (Eastern)

For further information regarding the Infrastructure-Industry Working Group, please contact: Venkat Nallamothe, AASHTO, vnallamothe@aaashto.org
Jeremy Schroeder, Athey Creek Consultants, schroeder@acconsultants.org

Meeting notes, webinar recording and related presentation materials will be posted to the CAT Coalition website, hosted by the National Operations Center of Excellence, at https://transportationops.org/CATCoalition/infrastructure_industry_WG.