

CAT Coalition – AV Infrastructure-Industry Working Group October 29, 2020 Meeting Summary

Action Items:

- None identified at this time.

Notes:

Opening and Ongoing Commitment to Outreach and Knowledge Transfer

- 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.

Quick Update from Focus Area WG: IOO/OEM Forum – October 14-15 Meeting Overview

Collin Castle shared a summary of the IOO/OEM Forum's October meeting and outcomes. Specifically, there was consensus at the October meeting that the current Forum structure remains valid, productive, and appropriate. Forum members acknowledged that increased involvement would be beneficial, perhaps by manufacturers of signal controllers, RSUs, and OBUs, either in the IOO/OEM Forum or other CAT Coalition working groups. Additionally, Forum members agreed that current products are valuable for advancing to V2I communications with production vehicles, and also demonstrate the levels of trust and cooperation built between the IOOs and OEMs. The group noted that there remains more to do after the current set of Forum products is completed. A Task Force was suggested to discuss the future beyond 2021 and how OEMs and IOOs can continue to rely on each other in the partnership that is needed to achieve V2I connectivity. Forum members discussed the need to establish a permanent organizational structure to develop and update connected V2I applications. Likewise, creation of a new IOO/AV Forum was discussed and supported. Finally, the meeting included discussion and updates from the SPaT/RLVW, RSZW, and Connected Automation Work Groups.

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

- USDOT: John Corbin provided an update on the Roadway Automation ConOps effort. This project started about a year ago and included stakeholder engagement. In the next few days, John will begin sending information about an upcoming wave of stakeholder engagement will occur in early December with a follow-up meeting February 2021. This round of outreach will provide more substantial contact for stakeholders to react to.
- ITE: Siva Narla of ITE provided two major updates:
 - The Connected Intersections Project has finished a walkthrough of the ConOps and Needs, and developed a final ConOps document. This effort is following a systems engineering approach to develop needs and requirements that are testable and deplorable. There are five task forces that focus on different issues. Next steps will include a walkthrough the requirements and have a detailed conversation with IOOs, OEMs, mobile users, deployed, and others to finalize these documents. Requirements are expected to be finalized by January. Later, a Guidance document will include at least one or more agencies that can deploy the RLVW application through the April timeframe. This will focus on interoperability between IOOs, OEMs, and other users to cooperatively enhance safety.
 - Secondly, an RSU Standard effort that aims to update and standardize the USDOT RSU Specification version 4.1 document, including needs and requirements for deployment that do

not work in favor or against any particular technology providers or existing deployments. The ConOps and Requirements documents are nearly complete. A design draft will be made available for review in early November with a walkthrough in December. Intent is for this standard to be deployable and technology agnostic for anything available now or in the future. The goal is to have a published standard by August or September 2021.

- **AASHTO:** Venkat highlighted the recent, successful Committee on Transportation System Operations (CTSO) meeting as part of the AASHTO update. Five themes were discussed during this meeting to inform work over the coming years. In particular, the alignment of operations and technology strategies including CAT was discussed, with collective recognition of the need for identifying applications and use cases to help scale and standardize the technology beyond pilot projects. He notes that Secretary Jennifer Cohan is retiring as Chair, and Scott Marler, Director of Iowa DOT, is the new, incoming chair. He noted that the CAT Coalition is entering its fourth year and the working groups are concluding development of a total of about 40 products. The AASHTO annual meeting is being conducted virtually in a couple weeks, including a couple spotlight sessions on AV technologies.
- **ITS America:** Carlos Alban provided an update from ITS America. He notes that the FCC will be discussing the 5.9 GHz spectrum in their November meeting, following on the report released earlier this week that discussed reallocation of the spectrum for other uses. Additional rule making is proposed. ITS America is hosting a call with their V2X task force to continue the fight to preserve the vehicle safety spectrum, and these efforts are expected to remain the primary focus.
- **ATTSA:** Eric Perry gave an update from ATSSA on a survey being conducted soon about the state of signals and infrastructure used by members to support CAVs. The annual meeting will be virtual in February.
- **TRB:** Ray Derr shared a recent report released on business models for CAV infrastructure. He also shared a summary of TRB Cooperative Research Program work, which is available at <http://bit.ly/2y8gEm4>.

Easy Mile Perspective on AV Deployment

Lauren Isaac notes the challenges with dealing with regulation from the 30 countries that EasyMile has operated in to date. She noted the EZ10 driverless shuttle that has been widely used, but a driverless luggage car has also been developed, and a new bus model will be available soon. The EZ10 operational design domain (ODD) is a pre-mapped environment on a well-paved and maintained roadway with good cellular coverage. Traffic signals require CV technology for operations. EZ10 is used on both private sites like business parks as well as public roads for first/last mile solutions.

Lauren described several deployments, including a Utah DOT deployment that examined 10 use case settings over 12 months, a Dallas-Fort Worth Airport deployment where the shuttle service was used in a parking lot, and a Houston Metro deployment. Lessons learned include the importance of projects actually addressing a mobility challenge. She notes that route complexity must match the state of the technology. It is important for the partners to communicate to understand needs, data sharing preferences, funding constraints, and what will work best.

Lauren talked about the importance of thinking about what comes next, including infrastructure changes, stakeholder involvement, outreach, and understanding liability issues. EasyStreet is a new initiative led by Colorado Smart Cities Alliance to deploy meaningful autonomous service with an intent to educate the industry with lessons learned and prepare the public sector for autonomous transit. This

effort will start with 5 vehicles in May 2021, increasing to 10-15 vehicles by the end of the year. A funding sources are being leveraged and a variety of partners are involved, such as Panasonic, transit agencies, universities, insurance partner, and host cities. More information on this effort will be coming soon.

The general business model for EasyMile has been to sell or lease the vehicles, sometimes directly to a transit agency or to an operating partner.

The key thing for making a successful project from an agency perspective include dedicated funding, aligned stakeholders, and established objectives.

Tracy asked if it would be worthwhile for this group to conduct a survey of AV deployers to understand the lessons learned, to build on the previous survey that was conducted of the agencies with AV shuttle deployments. Lauren felt this would be worthwhile.

Honda's Perspective on AV Deployment

Sue Bai talked about Honda's role in Ohio's Smart Mobility Corridor. They have been able to gather very valuable V2X interaction data to contribute to future connected vehicle (CV) system design. Understanding these vehicle interactions can help to fine-tune the CV applications. She shared how the US 33 corridor technologies have been deployed and expanded since 2017 by the Ohio DOT and City of Marysville. This 30-mile corridor is almost fully covered by roadside infrastructure, as well as 27 smart intersections in Marysville. Additionally, the deployment began with 5 vehicles in 2017 and now includes over 100 vehicles. Over 100,000 V2V interactions, 153,464 Smart Intersection interactions, and over 13,000 interactions at connected intersections with Signal Phase and Timing (SPaT) have been observed. A significant safety benefit has been observed even with this limited deployment, as well as mobility benefits even in a low-V2X-density environment.

Sue noted the challenges with the new FCC proposal to reallocate the spectrum, given interference and other issues. Looking ahead, Honda is looking to expand the CV environment in the Smart Mobility Corridor as technology and infrastructure continue to mature. Honda is also involved in other new initiatives, including the Michigan CAV corridor.

Next, Sue discussed the SAE V2X Committee. She noted the progress on the J2945/6 draft standard for cooperative, which is being balloted in November. There is also an effort J2945/D to facilitate road user to road user courteous communications to help enable a more pleasant, and therefore safer, roadway environment. This standard is expected to be published in 2021. The early prototypes of this uses DSRC connectivity, but this could be adapted for other solutions like a cellular phone app or in-vehicle app that is being evaluated.

Ted Bailey asked if there were other target areas that transportation stakeholders could focus on, such as lower bands; Washington State DOT is using other bands for other purposes at this time. Sue thinks it is too early to consider other options at this time, given the effort that is underway to preserve the spectrum.

Next WG meetings and Adjourn

The next meeting for this working group is tentatively scheduled for December 17, 3:00-4:30 pm ET.

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