**Cooperative Automated Transportation Coalition**
**Technical Resources Working Group**
**Quarterly Meeting Summary**
**Wednesday, August 12, 2020 11:00 am - 12:30 pm Eastern Time**

## Action Items

1. Everyone: Share leads, links, or attachments of resources with Faisal or Jeremy on:
   - Suggestions from working group (WG) members on ways to enhance impact, including: 1) proposed new WG Members, 2) communications with/Involvement in other initiatives, and 3) knowledge resources to include on the CAT Coalition Website.
   - Resources or information to support SPaT and Connected Fleet deployments.
2. Everyone: Provide feedback on Connected Vehicle (CV) Deployment Resource.
3. Everyone: Download the CCI document, Version 1.95 from the CAT Coalition website: https://transportationops.org/CATCoalition/IOO_OEM_Forum, to review, consider input to contribute, and share feedback with Faisal or Jeremy.
4. Jeremy: Send request to Ed, Govind, and Deb about getting more CV Pilot members involved with the CCI efforts.

## Meeting Summary

**Ongoing Commitment to Outreach and Knowledge Transfer and Resources WG Recap**
- Resources WG members were reminded to provide suggestions for proposed new WG Members, share new information about communications with/involvement in other initiatives, and any knowledge resources to include on CAT Coalition website.
- Jeremy provided a brief recap of the previous Resources WG webinar in May; the meeting materials are posted online.

**Infrastructure Owner Operator (IOO) / Original Equipment Manufacturer (OEM) Forum Work Plan: Clarifications for Consistent Implementations (CCI) for Connected Intersections**
Dean described the inherent and intended flexibility in the standards and system architecture documents that V2I data exchanges are based on. IOOs want to deploy intersection systems that successfully communicate with every production vehicle that is eventually equipped with on-board units, so IOOs and OEMs must agree on concise interpretations and clarifications on known ambiguities that might prevent national interoperability for V2I data exchange, which is the intent of this document. It is anticipated that future versions of standards may clarify some or all of the ambiguities described in the CCI, and at such time, ambiguities clarified in the standards will be removed from the CCI. The CCI document is technology agnostic, e.g. DSRC versus C-V2X, however some clarifications focus on the Red-Light Violation Warning (RLVW) application, communications, or signalized intersections in general. The CCI document contains 15 clarifications and points to relevant standards and other sources for more information.

One outcome of the IOO/OEM Forum CCI effort was the FHWA / ITE Connected Intersections Effort that is now underway. The initiative's approach to standards guidance will address and resolve as many of these as possible.

Resources WG members were asked to download the latest version (version 1.95) of the CCI document from the CAT Coalition website: https://transportationops.org/CATCoalition/IOO_OEM_Forum, and then review and consider the following questions and share feedback with Faisal or Jeremy:

1. Do you have any input to offer to any of the clarifications?
2. Are you aware of any additional ambiguities regarding connected intersections that should be added?

Feedback will be considered for any future versions of the CCI document and shared with the ITE Connected Intersections initiative. Blaine described how he took the CCI document to his team at Utah DOT to compare to their existing deployments.

Bob Rausch asked if a request has been made to USDOT to reach out to the CV Pilots. Deb Curtis coordinated on this effort and provided the "triple spreadsheets" from the CV Pilots to help develop the CCI document. However, some of the issues in the document may benefit from a review by CV Pilot site staff. The IOO/OEM Forum CCI document has been shared with the USDOT/ITE Connected Intersections effort who will be using this as a foundation for that effort, and CV Pilot input and lessons learned will be captured as part of that effort. Ed requested that a request be sent to Ed, Govind, and Deb about getting more CV Pilot members involved with the CCI efforts.

It was noted that the ATSSA traffic signal committee is currently looking at future components that will be needed, and a question was asked: Does this CCI effort dovetail with that where this document would result in new expectations for traffic signals to be pre-qualified for meeting? Blaine said the idea is that this would result in some level of codification to achieve consistency, but not necessarily the same kind of approach.

Alan inquired about the relationship of CCI with NEMA TS-10. NEMA TS-10 is a hardware specification, and CCI is more about ambiguities in the message set. Alan noted that NEMA TS-10 includes applications, but not all the ambiguities that are being addressed in the CCI. Generally, these are two complementary efforts that have cover different issues.

Faisal noted the importance of clarifying the purpose of the CCI in the resource document, if it is not already included.

**Partner and Member Updates**
- ITE: Blaine presented an update on the USDOT/ITE Roadside Unit (RSU) Specification. The RSU Specification version 4.1 is five years old, and requires an update because the specification is focused only on dedicated short-range communications (DSRC) and so a broader specification is needed. Additionally, a lot of hardware and CV practices have changed, particularly with the experiences gained from CV Pilots and SPaT Challenge sites. The project leads for this effort include ITE, USDOT, and standards development organizations (SDO) representatives from NEMA, AASHTO, and SAE. There are 15 members on the RSU Standard Working Group with balanced representation from AASHTO, ITE, NEMA, and road users. There are also about 15 subject matter experts (SMEs)

who are drafting, reviewing, and preparing documentation of the standards. The products coming out of this effort include:

- o Concept of Operations with user needs and rationale; technical, environmental, and institutional constraints; and reference to other relevant specifications.
- o Systems Requirements Specifications (SRS).
- o Standard Design Details (Standard) with full traceability to the user needs and requirements.

Each step includes a technical walkthrough with interested stakeholders and a comment resolution report to resolve comments. After the RSU standard is created, an RSU Standard Hardware Reference Implementation will be developed. The ConOps was completed on July 13. A SRS walkthrough is planned for August 24-28, and the effort is planned to conclude in September 2021.

- **USDOT**: The Leidos team shared an update on the CV Support Services. No-cost equipment loans are available for agencies to use, including onboard units (OBUs), bench test devices, RSUs, V2X Hub, networking equipment, and tablet and computers. C-V2X equipment loans are expected to be available soon after the Saxton Lab reopens. Loans can be requested through [CAVSupportServices@dot.gov](mailto:CAVSupportServices@dot.gov) or via the website: [https://www.pcb.its.dot.gov/CV_deployer_resources.aspx](https://www.pcb.its.dot.gov/CV_deployer_resources.aspx). After a loan agreement is signed, devices are shipped for a 30-day loan that can be renewed. A wide range of CAV technical support is also available, including open-source software, testing support, standards support, and device implementation recommendations and design.
- **AASHTO**: Tom Kern provided an update on the Committee of Transportation System Operations (CTSO), which will be meeting virtually from September 28-October 2. Each subcommittee has been asked to identify alignment between CAT and TSMO to facilitate technology deployments. It may be useful for CTSO to circle back to the Resources WG to discuss the convergence of CAT and TSMO.
- **TRB**: The NCHRP 20-12 panel selected new tasks last week, including unintended consequences of CVs on IOOs and CV applications for IOOs. Announcements will be forthcoming seeking panel members for these two efforts. Plans for scan tours were postponed and will be restarted in a couple of weeks as virtual scans.
- **ITS America**: Tim Drake provided an update on FCC proceedings regarding the 5.9 GHz spectrum. The FCC is currently reviewing comments and documentation. The final report and order will not be considered until later this fall, which is assumed to most likely occur at the October 27 meeting or after the November national election. There are numerous considerations from both sides, regarding a variety of issues such as interference. The FCC seems to be moving forward with the proposal, however ITS America is still advocating for the preservation of the spectrum. There was an emergency allowance for using part of the spectrum during the COVID-19 pandemic, however this is done under strict rules. The big takeaway is that the FCC is still working to draft the final order and while no action is expected prior to October, action is expected in 2020.
- **Other Member Updates**:
  - o **Colorado DOT**: A new project is starting that may be of interest to partners. Colorado DOT won a USDOT AID grant for connected vehicle signal priority for snow plows and is currently developing a ConOps and Systems Engineering documentation. FHWA approval has been granted for a pilot in the fall before full implementation on two corridors to help make snow plowing more efficient. Colorado DOT is working with Denver and Utah DOT. The systems engineering resources will be available for anyone who may be of interest.

- o Columbus has deployed all planned roadside units (RSUs) for the Smart City initiative, and is now working to deploy vehicle equipment. They are working to experiment with flexible lane allocations in the MAP message for right turns. Tom Timcho will be able to share an update on this in a future Resources WG webinar.
- o NYC has now deployed 120 RSUs and 1700 vehicles with fully functioning aftermarket devices. Data collection has begun, but interesting lessons learned are being generated as a result of the dense urban environment.
- o Alan Clelland noted that Honolulu now has 35 intersections operational with DSRC and C-V2X capabilities, as of July.

**CV Deployment Environment Discussion**

Jeremy presented an update of this effort to develop a resource for agencies considering a CV deployment to comprehensively understand the bigger picture of considerations, upgrades, and technologies needed to have a fully operational CV environment. All sections have now been reviewed by the small working group volunteers and their feedback mostly incorporated. He stepped through the last two sections developed: CV and ITS External Support Systems and Communications. Jeremy will send an updated, complete version of this resource, which includes all five chapters and Executive Summary, to all WG members for additional review and comments. Members are asked to review existing content and supply new information and lessons learned, as available, to help expand this document to cover the range of considerations and deployment approaches for agencies considering a new deployment.

**Upcoming Webinar & Close**

Members should have received a new meeting invite from Jeremy for the next Resources Working Group meetings in 2020 that will be held on Wednesday, 11/4/2020 at 11am ET

## Attendance

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