TECHNICAL MEMORANDUM

TxDOT IAC – Technical Support to the CAV Task Force

DATE: August 12, 2020

TO: Zeke Reyna, TxDOT
Strategic Research Analyst, CAV

COPY TO: TTI_Reports@tti.tamu.edu
Tim Hein, Research Development Office, TTI
Ed Seymour, Executive Associate Agency Director, TTI
Robert Brydia, Senior Research Scientist, TTI

FROM: Beverly Kuhn, Research Supervisor
Senior Research Engineer, Texas A&M Transportation Institute

RE: Education, Communication, and User Needs
July 15, 2020 Meeting Notes

Attendees:

Amy Parikh	Stantec
Andrea Chacon	Texas A&M Transportation Institute
Anne O'Ryan	AAA Texas
Beverly Kuhn	Texas A&M Transportation Institute
Beverly West	TxDOT Strategic Planning
Bob Brydia	Texas A&M Transportation Institute
Bobby Cottam	Burns and McDonnell
Brian Moen	City of Frisco
Dan Hennessey	WTI
Ed Seymour	Texas A&M Transportation Institute
Hannah Baron	Austin Smart Mobility
Jason JonMichael	Austin Smart Mobility
Jeff Peterson	First Transit

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Kathleen Baireuther	Ford
Katie Herbek	Ford
Kristie Chin	University of Texas Center for Transportation Research
Mia Zmud	Central Texas Regional Mobility Authority
Rachelle Celebrezze	Cruise
Stacey Bennet	EasyMile
Tammy Meehan Russell	Plum Catalyst

I. Opening Comments/Roll Call – Zeke Reyna, TxDOT
- Zeke welcomed the group. Everyone should contribute their thoughts.
- Zeke took roll call of all attendees.

II. Chair Welcoming Statement – Darran Anderson, TxDOT
- Greg Winfree could not attend, so Darran Anderson thanked everyone for participating.
- Restated goal to refine what will be first in white papers for legislature and governor, facilitating through website and informing what education means to leaders.

III. Candidate Audiences for Next Few months Identified – Zeke Reyna, TxDOT
- Two near-term priority audiences were selected
  - Public
  - Legislature
- Two follow-on audience groups were identified as
  - External stakeholders
  - Operating agencies
- Three additional audience groups were identified as
  - Researchers
  - Policy makers
  - Private companies

IV. 27 Issues Were Discussed – Zeke Reyna
- These were identified through brainstorming last fall, during the June 2020 Education Task Force meeting, and through discussion at the July Task Force meeting.

V. Topics Highlighted as Candidates for Task Force Efforts– Zeke Reyna
- Attendees were invited to offer suggestions for content for each of the four highlighted topics by adding sticky notes to each one.
- Four topics highlighted for focus during next few months
  - **Value Proposition**
    - Listing of current opportunities (public and private). Would include all CAV procurements, grant initiatives, testing and development, employment opportunities, etc.

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- Why is it important to invest tax dollars in connected vehicle infrastructure?
- CAV technology and how it ties to building equity.
- When budgets are being cut, why should any agency be spending any $ on CAV infrastructure? Just mentioning this because I get asked this by our leadership and board (and finance team). What does investing now do for us? What is the value today in doing this? Establishing your agency as a leader in this effort is considered a lame response!
- Benefits to different users/ stakeholders including drivers, parents, commercial freight, govt officials, general public, etc.
- Why this matters/ current body of research that shares expected positive benefit.
- Locations of active testing. How to test ride/touch and feel.
- Timeline for CAV rollout and penetration of CAV in marketplace to support the question "why invest in CAV today at all".
- Opportunity to provide better understanding of the technology.
- State example use cases of what we have thought of today.
- I think there is an opportunity for myth-busting here.
- How can this build jobs in Texas and support our economy?
- Emphasis on use cases is important. AV is very operational design domain (ODD) dependent.
- Locations of active testing, how to test ride/ touch and feel.

- **Public Outreach**
  - Ongoing polling/ longitudinal research about public attitudes re: CAV, ideally coordinate with PAVE to compare to other markets, national norms.
  - Case studies, VR, etc. of how AVs work provided by companies, partnerships, etc.
  - Terminology and definitions CV, AV, EV, ADAS
  - Perhaps, do a review of public research across US regarding acceptance, attitudes, behaviors and home in outreach to counter beliefs or behaviors that aren't consistent with the gains we might see with CAV. For instance, shared mobility (willingness to share a ride), and reduce VMT. Not sure I'm making this clear.
  - Could this be incorporated into training?
  - Roles and responsibilities.
  - Platform for active engagement/ feedback on experience.
  - What is happening in our state vs other states and why that matters.
  - Current regulations.
  - More demo days with the public and policymakers, perhaps in conjunction with Texas Mobility Summit
  - Basic technology overview (how does it work).
  - Discussion and education of the new and different technologies and their differences for public understanding.
  - A place where can I see/ touch/ interact with the technology map finder.

- Place to submit your stakeholder group POC for future collaboration, or to ask for a presentation.
- Links to other organizations with information (i.e. PAVE, AV TEST, etc.)
- Myth-busting. There are so many myths out there!
- Discussion, Stats or info showing how peoples, confidence/acceptance etc improves after exposure to and riding in an AV
- "Ask the Expert" where someone can ask a question and can expect to receive a valid response from a team of qualified experts (Post who they are and their qualifications)
- what is the best way to engage local news outlets?
- What its not...begin dispelling myths...set expectations.
- Community engagement opportunities/ best practices.

- **Education and Training**
  - Driver/passenger experience for CV (HMI demo) and for AV from SAE levels L1 to L5.
  - Work with cycling and transit advocates. True multimodal education.
  - A coordinated effort between different sectors of industry and high schools/ technical schools/ colleges on training needs.
  - Connect with DMV, licensing, high school and other drivers ed programs. Continuing ed requirements for drivers?
  - Interaction with other mobility modes like scooters, bots, etc.
  - Human to Machine and Machine to Human Experiential Learning.
  - Training for freight industry, partnering with community colleges for new curriculum
  - Connect AV readiness to vision zero goals, safe streets for all modes (lower speed limits, better striping, protected bike lanes, etc.)
  - Curbside Management, accessibility
  - Reaching out to law enforcement and EMS to begin talking about how CV, AV can change how they do their work. Does it create new types of needs for them to help the public?
  - What job opportunities does CAV bring? How can I get trained in those jobs if interested?
  - Do drivers need to react differently in anyway when there are AVs on the road "Bully Driver" issues, more conservative stops, or gaps etc?
  - Connect with Middle and High Schools to generate interest in STEM careers
  - List of new job types the tech is creating, not necessarily a link to jobs apps, but titles
  - Crosswalk existing automotive tech certs/ training.
  - Internship opportunities.
  - TIM training for 1st responders.
  - Work to update / review curriculum (starting in pre-k) to ensure or improve alignment between what is being taught in schools and jobs/training/understanding the technology around us.

- **Current State and National Laws**

- What is the impact/ purpose?
- What laws present obstacles?
- How can laws facilitate, generally?
- Are there specific situations that require unique laws?
- How can I share information on suggesting modifications to the laws?
- May also list laws under consideration, a summary. We can have TxDOT government affairs staff work with my team to do this.
- What are other states doing?
- Voluntary safety assessment publications.
- Pros and cons of current Voluntary Safety Self-Assessment (VSSA) system.
- Are there lessons learned from other states/ governments?
- How would some of this work differ from or build on past TTI work (under the TTI Policy Center) educating the TX legislature? Let's be additive and not redundant.
- What are the community specific laws/policies that will be needed for future?
- In which cases can legislation unlock opportunities? In which cases does it muddy the water/ create uncertainty for investments?
- Insurance requirements.
- Clarity on licensing and registration.
- Agree with this comment. That work was detailed analyses, at that time, and we don't want to re-do that.

VI. Next Steps – Zeke Reyna
- Zeke thanked everyone for their time and announced the next Full Task Force meeting, as well as the next Sub-Committee meeting the 2nd -3rd week of August.

VII. Closing Remarks – Darran Anderson
- Working across platforms. Might not have full access with tech. Trying to stick to basics with web application. TxDOT went through ransomware attack. Still periodic wonkiness with network as they refine/clean up impacts. Appreciates patience with getting through issues. Safety and education top two important groups. Appreciates experience from others on national scale. Wants us to be on par and at forefront in leading for state, and help all agencies work together. Education key part of that.