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# TECHNICAL MEMORANDUM

## TxDOT IAC – Technical Support to the CAV Task Force

**DATE:** November 5, 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  
October 6, 2020 Meeting Notes

### Attendees:

Andrea Chacon	Texas A&M Transportation Institute
Andrea Gold	University of Texas Center for Transportation Research
Beverly Kuhn	Texas A&M Transportation Institute
Bobby Cottam	Burns and McDonnell
Brad Stertz (PAVE)	Audi, VW Group and PAVE
Bradley Wheelis	TxDot Austin
Brian Moen	City of Frisco
C Michael Walton	University of Texas, Center for Transportation Research
Charlie Leal	Governor’s Office
Darran Anderson	Texas Department of Transportation
Ed Seymour	Texas A&M Transportation Institute
Greg Winfree - CHAIR	Texas A&M Transportation Institute
Hannah Baron	Austin Transportation

Jeff Peterson	First Transit
Jordan (Alex) Payson	City of Austin
Katie Herbek	Ford
Krishna Satti	Michael Baker International
Kristie Chin	University of Texas Center for Transportation Research
Morgan Avera	UT CTR
Rachelle Celebrezze	Cruise
Robert Brydia	Texas A&M Transportation Institute
Stacey Bennett	EasyMile
Tina Geiselbrecht	Texas A&M Transportation Institute
Zeke Reyna	TxDOT

**I. Opening Comments/Roll Call – Zeke Reyna, TxDOT**

- Zeke welcomed the group to the 4th Education subcommittee meeting.
- Appreciated everyone participating and eager to hear thoughts shared
- Will continue to use Mural today as the meeting is recorded

**II. Chair Welcoming Statement – Greg Winfree, Chair, Texas A&M Transportation Institute**

- Thank you for your time, attention and expertise in this important subject matter
- As we review this first draft of the White Paper, please engage as we want this document to be reflective of the spirit of the committee.
- We need this to be the collective voice of the committee so that it can provide information and substance to our legislators should they request and require it

**III. Review of Task Force Web Site – Robert Brydia, Texas A&M Transportation Institute**

- Want to allow each sub-committee a chance to view and give feedback on the structure and information accessible via our new website developed by TxDOT and TTI which we hope to go live later this month.
- Preview website’s four aspects
  - Activities of the Task Force
    - Information about each Sub-Committee
    - Future home of White Papers
    - Meeting Minutes (notes are kept broad – feel free to review)
  - Public
    - What is CAV?
    - What does it mean for them?
    - What does it mean for Texas?
  - Industry (for those new to Texas)
    - For those coming into Texas who want to start CAV trials
    - How do they do that?

- How do they get information to start?
  - Call out to those who want to share information to enrich others
  - Announcements in Texas
- Research
  - Map of Deployments Across Texas
  - Agencies involved in doing research (linked)
  - Continually developing resource
- Have FAQ section cross-linked and indexed (continuing to develop/living and active)
- Website is not fully populated yet.
- Please review current website and provide feedback to make this the best it can be
- Please do not share or forward this link.

#### **IV. Review of White Paper Progress and Next Steps**

- Initial Meeting
- Topic Discussion
- Voted on topics
- Developed an Outline
- Received Feedback on Outline
- Draft White Paper
- Under Review: this is where we are today
  - We want to ensure that we get your feedback on the elements that included in the White Paper and how we can refine this document, enduring that it meets the objectives that were set out when we determined this topic
  - On the Mural Board, you will see the main topics of the White Paper (Level 1 Headings)
  - We will start with Introduction, as the front matter is fairly self-explanatory, and the Executive Summary will not be finalized until the rest of content is complete. But, do not feel that if you have a comment, we need to go in order of the headings.
- Opportunities

#### **V White Paper Draft – Facilitated Discussion**

- Acknowledgements
- Disclaimer
- Texas CAV Task Force Charter
- List of Terms and Acronyms: will be consistent across all the papers
- Executive Summary
- Introduction
- Background
  - While document mentions pilots and demonstrations (p8), need to include "first-time business use" to show importance of research, business use, etc. (avoid the term deployment)
    - Like Nuro, Argo, Ford
    - Even AV Freight

- If a company is generating revenue, when does a project move from a pilot to a true use?
      - Starship?
      - DriveAI?
  - On page 10 there is a comment on AAA advocating for a standard naming convention of all ADAS. Should this task force consider supporting this action?
    - Might want to work with Auto Dealers Association and PAVE to determine what is needed in terms of education with the consumer about their vehicles with ADAS?
    - Still personal responsibility (need to read the user's manual)? What is the approach and climate for the task force moving forward in this regard?
  - Discussed this at the outset of the committee, yet we are still stumbling over the accuracy around the terminology that is used. E.g., some features are available now which are “autonomous” features which are intended to assist the driver. But if we are talking about self-driving cars, those are “automated.” As we start to roll this out to the public, we need to be explicit and have a nomenclature, industry-wide that is precise in the language that we use. (ex: are we the connected *automated* vehicle or are we the connected *autonomous* vehicle committee?)
    - This was brought up a year ago. As the subject deepens and technology advances, might need to revisit this with all members of committee
  - Need to confirm that PDD is included in freight delivery (2nd paragraph in Connected and Automated Vehicles and Mobility section).
- Gauging Public Perception
  - In initial paragraph (p12 “*These data align with findings from surveys from the Drive.ai pilot in Arlington.*” (agreement of results): the transition between the two surveys is awkward in this section; possibly revise.
    - Less knowledge about connected technology; will send info to expand that text and open the discussion to make more comprehensive
    - Related to research related to cost being a barrier, is there any research on a service model rather than ownership and willingness to adapt to that different model?
      - Some individuals might be more interested in use as a shuttle rather than self-ownership
      - It’s essential to draw a clear understanding of the difference between ownership as a model of autonomy and mobility as a service (MAAS). People think they will sit in passenger seat and the car will take them to work and that is not realistic. There needs to be a clear understanding that you can have a good service that gets you to from point A to point B that is not the car in your garage.

- With the DriveAI project / Milo, etc, the results might be more palatable if presented by an independent entity rather than the private company; with Frisco, they felt that the independent research was more robust
  - There might be specific reasons in terms of how the “favorability” results were impacted
- We need to lay out technological steps so that people have a clear understanding and are not confused, but rather see the continuum of the mobility which offers a solution that matches their desires.
  - Need to illustrate how the connected technology can benefit pedestrians and bicycles, etc. before we even get to automated tech.
- In 2014, industry was focused on CV, then Google came out with self-driving car and everyone focused on the future and jumped to the automated side; we need bring everyone back to where we were at that time and how the continuum will advance.
  - Post of diagram and results that the public is interested in more pilots and demonstrations; recognize that this is new and would like to see more testing. (see page 15)
- Education and Outreach
  - Regarding the Questions (top of p17): If we include this section and don't have the answers to these questions, we might actually be taking away from the intent of that section. Perhaps roll these bullet points into higher-level discussion rather than to present specific unanswered questions. Don't want to send a signal that we don't have the answers for Texas.
  - From perspective of White Paper writer: the intent is that education will need to focus on these types of topics. It will depend on who the audience is (who is asking the question). It's ok to say we don't know the answer to all the question, but that's WHY we are doing research and pilot testing.
    - These are good to be included as FAQs as we are able to answer them. There are others that no one has answers for. Could use this as guiding questions for future discussions for the task force.
    - We could summarize that there will be questions we have answers to, and some we still don't as examples.
    - Answering these questions is part of the mission of the committee.
    - This should be a living document as we advance through the roll-out of these technologies and systems; concur with point associated with where we go from here.
  - There has been so much that has been done in ITS to get us to this point, it might be worth documenting the results thus far and what has been accomplished; where we are, identify the issues we need to move forward from here, early demonstrations, etc. (evidence)
  - With regard to PAVE, Texas could be a test lab for these sorts of communication efforts and alignment to ensure there is no duplication of efforts across entities. Texas could be a leader in testing and pilot projects to the public.
  - In discussion with dealers, PAVE has as one of its key issues; challenge with each dealer being independent business; ways to engage the Texas Dealers

Association to work as a partner in the Task Force activities; good way to engage them.

- With respect to jobs, there have been some reports that we might be able to point to without endorsing the conclusions included therein.
- Moving Forward in Texas
  - Need to own the discussion on the engagement strategy; something that this task force will do to develop that engagement strategy and to execute over time.
    - Want to make this a positive experience
  - There is a role for local agencies / communities to be a stakeholder in this engagement; take the experience with testing and demonstration forward by reaching out to with community-level with dialogues so that people can feel that they know what is on the horizon.
  - Public engagement related to pilots and deployments; engagement
    - what does each stakeholder do with respect to public engagement?
  - Need to establish a strategy to have educational resources and materials available to educators across the state; need to have young Texans familiar with these technologies to help educate their parents and then be familiar as the next generation of drivers;
  - The idea of reaching out to educators has been at the top of PAVE's list as well; also, there are different levels of education (general, in-depth, govt); they have different questions that need answering with respect to the audience and different levels of expertise
  - Need to be able to educate the various partners / stakeholders / agencies (e.g., fire, police, ems, etc.) about what the laws are and background information that they can integrate with their operating procedures, practices, etc.
  - In Austin, the electric utility has success with the electric vehicles for every education program in the schools; STEVIE (goes in dinosaur costume) who interacts with children;
  - Is there a role for a bigger state agency to establish the baseline awareness and communication message?
    - Idea is that the Task Force would serve as that forward-facing entity with broad representation to establish the mission of the Task Force and to set the baseline message.
  - Something that is all-encompassing and sets the tone is that this website and task force will be educating everyone, even those who think they might never own or engage with a CAV. Need to make that clear that we are trying to educate everyone operating in the mobility ecosystem, not just future drivers, vehicle owners, etc. Set that tone.
    - Set out what this report is and what it is not.
    - Set out why we are taking this journey along the continuum
    - May want to add as an intro on website, too
    - This is a journey for the public, tech companies, operating agencies, etc. Require consistent education and learning.
- Resources
  - Make sure we cross-pollinate these in the website

- Make the website the place for all of these resources
- Note that the website is part of the engagement strategy; encourage the audience to check out the website
- References

## **VI Next Steps – Zeke Reyna / Beverly Kuhn**

- We will start modifying the document with these comments. We expect it to take another 3 weeks of writing.
- If you have additional comments, please email them so we can look them over as well.
- Once we prepare the next revision, there are two possible paths, based on what the subcommittee would like to do:
  - Send out revised version via email, subcommittee can review it, submit final thoughts, and accept it in the way in which it was written. We can then finalize it and get it into editorial review, 508 compliance production and give it to the Task Force
  - Or, if you feel that there are enough changes that warrant another meeting, even if it is brief, we can schedule that.
- Once it is agreed upon, it goes to the Chair who presents it to the Full Task Force.
- While we want the committee to all see the next draft and have input, cannot foresee another meeting and will most likely utilize the second option

## **VII Closing Remarks – Greg Winfree**

- Thanks to everyone for their time, attention and expertise.
- This all for the benefit of the great state of Texas as we take a leadership role in adopting these technologies.
- Some of those key points that we made today regarding how to roll this out to the public, how to be most effective, and how to get folks to understand the continuum of technological innovations that are coming their way and that it's a suite of choices rather than end choices will be helpful.