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# TECHNICAL MEMORANDUM

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

**DATE:** August 14, 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:** Full Membership Task Force  
July 21, 2020 Meeting Notes

### Task Force Voting Member Attendees:

Brian Moen	City of Frisco
Brian Steiner	Cisco
Captain Rundell	Texas DPS
Chris Miller	Uber
Daniel Goff	Kodiak Robotics
Darran Anderson	TxDOT
Dr. Michael Walton	UT CTR
Greg Winfree	Texas A&M Transportation Institute
John Esparza	Texas
Kellen Puecher	Panasonic
Leighton Yates	Alliance of Automobile Manufacturers
Mark Worman	Texas Department of Insurance
Mike Sanders	Lonestar UAS Center of Excellence & Innovation

Shelly Mellott	Texas DMV
Stacey Bennet	Easy Mile
Tom Bamonte	NCTCOG
Tony Reinhart	Ford

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

- Darran thanked everyone who has been participating
- Zeke took a roll call of all attendees.

**II. Review of State of Transportation Technologies in a COVID World – Darran Anderson, TxDOT**

- Each subcommittee met last week to focus on highlighted areas, considering state of emerging tech relative to CAV and COVID impact on industries.
- Considerations as to how tech is applied now and, in the future,
  - Keep public in mind with positive impact and betterment of quality of life.
  - Streak of fatalities continues since Nov 7, 2000 (End the Streak). CAV could help alleviate with focus on mission toward potential reduction of accident fatalities.
  - Emerging tech: hard to predict what future will hold.
  - COVID Impacts slide:
    - Internet, 5G, Wi-Fi, Broadband - increased usage
    - Big data - solutions and analytics
    - e-bikes / shared bikes - increase
    - Electric vehicles
    - Hybrid and alternate fuel vehicles
    - Connected Vehicles – both positive and negative
    - Space X
    - Pedestrian tech - connected
    - Unmanned Aerial Systems - deployments increasing
    - Advanced freight and shipping - delivery up
    - Early Autonomous Vehicles - public view, personal delivery
      - passenger vehicle - moving forward
      - freight – advancements / investments
    - Airlines - suffered, move to package delivery
    - Shared mobility services
    - Scooters
    - Transit
    - Connected tech
    - Global positioning - FCC rulemaking efforts
    - Smart phones sales - down
    - Hyperloop
    - High Speed Rail.

**III. Task Force Subcommittee Updates**

- Data, Connectivity, Cyber Security and Privacy – **Brian Steiner, Cisco**

- Overview of July meeting:
  - 30 topics pared down to 3-5 for focus. Avoid things being developed by other bodies (FCC standards and CV tech adoption), and some specific standards bodies. Figure out how to adopt broader strategies for something TX specific.
  - COVID-lens shaped other discussion. Leaned into freight (safety). Further develop workforce (new normal).
  - Long term: specific CV tech (DSRC, 5G, etc.) need to stay flexible, logistics of data (storing, protection), and standards and pieces in flux.
- Explained five SCs of standout items. Conversations started in June. Pause between each section for voting members to discuss.
  - Data needs (what info, standard sharing, etc.),
  - Network, framework strategy and architecture,
  - Needed infrastructure,
  - Security and privacy
  - Role of agencies and private sector
- **Education, Communication and User Needs – Greg Winfree, Texas A&M Transportation Institute**
  - Overview of July meeting:
    - 27 issues discussed (from last fall and June and July meetings). Distilled into 4 topics:
      - Value proposition
      - Public outreach
      - Education and training (maximize benefits)
      - Current state and national laws (avoid border by border approach)
    - Mural board stickies exercise (75 notes of content and suggestions).
  - Degree of organizations that need to be engaged. Stakeholders list grew. Value proposition being drafted for next meeting. Website underway.
  - Recognized COVID challenges with providing information/opportunities
- **Safety, Liability, and Responsibility – Captain Steve Rundell, Texas Department of Public Safety and Dr. Michael Walton, University of Texas Center for Transportation Research**
  - Overview of July meeting
    - Mobility statistics and information overview
    - 36 topics discussed - good discussion and lots of ground to cover. Related to primary issues but need to bring focus.
    - Vote on areas group felt were most important and relationship to primary topic:
      - Top tier (2): Freight operations and operating agencies.
      - 2nd tier: passenger vehicles and transit operations.
      - 3rd tier: Sorts of AV transportation less related to vehicle (water, ports of entry, rail, and air).

- Five central topics:
    - Three specifically related: safety data, analysis of safety cases, and terminology. Really one topic.
    - Infrastructure needs (statewide and locally)
    - Liability
  - Mural stickies: everyone had info to offer (vehicle liability, mitigation of liability, insurance coverage, insurance rates (AV vs not AV).
  - Primary topics of discussion:
    - Agencies struggling (current financial situation due to COVID will lead to cutbacks with agencies and funding)
    - Shuttle transit services (safety and application in urban vs rural districts, services provided in smaller jurisdictions like campuses)
    - Uniformity (value in uniformity if cities and municipalities develop systems).
    - Development of infrastructure will help with data and safety.
    - Not a lot of reporting requirements in TX. State has hands off approach. Largely been voluntary.
    - Liability and operating agencies managing systems.
    - Fed policy will bear heavily on opportunities. FMCSA say on things related to freight and interstate commerce. Rules from FMCSA and USDOT tend to be adopted by state. Guidance for intrastate.
    - Liability not too far into insurance requirements. Good for future discussion. Will be guided by learning from safety data.
    - Coordination by industry and agencies could determine whether CAV is safer than human operated.
    - Safety data: agencies could maintain data through reporting (TxDOT crash forms, DPS, etc.) shifts burden of maintaining safety data.
    - All vehicles must abide state laws, be registered and insured (safety regs).
    - DPS set as administrative agency for adopting codes beyond legislative session.
    - Texas wants to remain open but consider what will be affected.
  - Lots of cross over: opportunities for collaboration and input from other SCs.
- **Licensing and Registration – Shelly Mellott, Texas Department of Motor Vehicles**
  - Overview of July Meeting

- Started with 5 topics and narrowed down to 2/3. One topic wasn't really an issue.
  - First topic encompasses education and awareness of where we are already. Lack of education, awareness, and knowledge among many groups:
    - Different types of AV and what that means,
    - Driver control vs no driver control,
    - Current statutes,
    - Terminology, and
    - Licensing (state vs federal)
  - Registration and titling
    - Who can title vehicles,
    - Should they be marked and identified,
    - Identifying if manufactured AV or after-market, and
    - Difference of registration process for commercial vs non-commercial.
- **Freight and Delivery – Daniel Goff, Kodiak and Dr, Michael Walton, University of Texas Center for Transportation Research**
  - Overview of July meeting
  - Clarifying: Freight SC is focused on all tech that move stuff instead of people. Includes self-driving trucks, vans, personal delivery devices, and unmanned aerial systems, and infrastructure dev for these areas.
  - Narrowed down categories to focus on 2 core issues
    - CAV Freight (long haul and first/last mile delivery)
    - White paper focus (use cases and investments in infrastructure)
  - Grouped topics into five key areas:
    - Infrastructure (connectivity and physical like truck parking, transfer hubs, and intermodal)
    - First/Last mile through COVID- lens (build statewide policy, speed of vehicles, crossing roads using sidewalks, staging areas)
    - Deployments (inventory and know what is happening now, guidance to cities to prepare and facilitate)
    - Processes (update current practices to enable AV freight, vehicle inspections, law enforcement interactions, legal, workforce, and air space management).
    - Roadside environment (integrate technology)
  - Turn ideas into outline by next meeting to build out white paper.

#### **IV. DriveTexas Presentation – Brent Eastman, TxDOT**

- Resources - real time road and travel conditions useful for route planning
  - road closures
  - weather
  - construction
  - congestion
  - traffic cameras

- present and future conditions
- Data available via API to integrate into system.
- Designed with EMS in mind.
- Could have value for CAV community.
- Main system is all TxDOT verified.
  - Focusing on improvements to make underlying infrastructure more flexible to share and bring other sources
  - Waze is only current partner. Looking to expand in future.
  - Feed is just one-directional. Want to be able to import data from private partners.
- Working on better system to share video. Have 3000 traffic cameras. Video requires bandwidth. Piloted system to repress for sharing. Want speed and conditions and other vehicle data.
- All data on road closures is verified by TxDOT employees. Road condition and end time for that. Requires manual intervention from employee entering data.

## V. **Federal Transportation Update – Melanie Alvord, TxDOT**

- Beyond line of sight - awaiting FAA to finish rulemaking for Remote ID of
- INVEST Act H.R.2 (reauthorize nation's (land)surface transportation system
  - Active transportation connectivity grants - support infrastructure investment
  - Funding for transportation technology research programs
    - TID program
    - ITS program
    - SEMST (new version of ATCMD: CMAC)
  - Establishes national clearing house (university to be chosen by USDOT) to research impacts of highly AVs and mobility innovation
  - Directs USDOT to study how AVs will interact with road users
  - 21st century smart cars - minimum performance standards (ADAS)
  - Requires clear and concise information about capabilities and limitations of ADAS be provided to consumer
  - Reporting of Testing and Operations of Automated Commercial Motor Vehicles on Public Roadways – could create barrier
  - Technology demonstration grant program
  - Leveraging crowdsourced data - aimed to improve traffic management and transportation planning
- AV legislation
  - Close to having bill. Last year House and Senate worked to draft own bills. Efforts failed.
  - Liability and preemption held up bill (licensing and regulatory actions)
  - Work continues to try to reach an agreement.
  - NHTSA has moved forward and issued NFP of Rulemaking for Occupant... (nontraditional seating).
- Spectrum policy:
  - FCC actions that could negatively impact future of Connected / Automated Vehicles
    - Reallocation within the 5.9 GHz Spectrum Band
    - Ligado Decision (low frequency band)

- Argue that “loud” signals from Ligado’s high-power terrestrial transmitters will overpower “soft” signals from GPS satellites, potentially disrupting military operations.
  - Any industry or device reliant on GPS could be threatened by this action.
- Grant Programs
  - ATCMTD Notice of Funding Opportunity recently issued deadline of August 31, 2020
  - Current highway bill (FAST) authorizes most of USDOT grant programs and expires Sept. 30. No new agreement to replace this year.
- Next 90 days
  - Both House and senate scheduled to be in session until early August.
  - Remainder of July filled with 12 funding bills for 2021 (House).
  - Consideration of the National defense: chance to undo Ligado decision.
  - Another COVID-19 Relief bill (Senate)
  - The Water Resource Development Act of 2020 - 2 year bill moving in House, authorizes projects for core of engineers.
- September Congress will seek to act on expiring authorizations
  - Surface Transportation Programs (FAST)
  - National Flood Insurance Program Authorization
  - Conference reports on the National Defense Authorization Act
  - Confirmations of judges – Senate
  - Likely several non-controversial bills
- October - out of session due to November election
- How we see impacts to current initiatives.
  - Tech advancing and concerns now could be alleviated in next years. Immediate, concerning issues. Impact of GPS and AV solutions. Goes across spectrum and machine guided systems. Greater concerns than AV. Loss of spectrum to do work.
  - Fourth element of GPS is timing signal. Part that’s inculcated in modern society. Things tied to GPS timing signal. Positioning and navigation key, but timing issue is bigger.

**VI. Introduction to the Texas Innovation Alliance - – Kristi Chin and Andrea Gold, University of Texas at Austin Center for Transportation Research**

- Core components of task force is connecting stakeholders with local municipalities and those who can work together on successful and safe deployment of Autonomous Vehicles.
- Working closely with TxDOT on technology initiatives.
  - Tech changing quickly and population booming. Agencies focused on day-to-day. Keep longer term planning in view. Quick reaction first.
  - Overview of programs: alliance focused on 1-3 years, different public agencies, purpose is knowledge sharing and implementation.
  - Origin: USDOT smart city challenge (grant 2016). Austin was finalist and worked with TxDOT. Call to action to other metro areas to help jumpstart regional teams. Catalyst for alliance. Look across common challenges for

- cities (safety, congestion, and equity). Network to share lessons learned and develop common solutions.
- 4 major activities
  - knowledge sharing and tech transfer
  - coordinate grant applications (TX competing against itself/statewide opportunities)
  - tap into expertise (universities and research)
  - connect with potential partners (regions, connections, and opportunities).
- Org structure: 9 regional teams, 40 municipalities.
  - Team lead (executive level), city, transit agency, MPO, COG, TxDOT districts, County, Houston port, SA military.
- Knowledge sharing
  - team lead calls (vulnerable road users, CAV, slow streets/healthy streets)
  - Summit
  - Communities of practice (10 TX and 10 national): way to stay at forefront AV for aging/disability data management, gentrification and displacement).
- Engagement opportunities: AV Spotlights, Demo Days (virtual this year), and Texas Mobility Summit
  - Website: Texas Innovation Alliance Website: <https://www.txinnovationalliance.org/>
    - Contacts: state agencies (policy and regulations), legislative (drafting legislation), and policies summary.
    - Map showing deployments
    - Learning hub: compilation of plans and papers (insights), and lessons learned for communities of practice.
  - AV Spotlights (<https://www.txinnovationalliance.org/learning-hub-publications-pdfs-whitepapers/automated-vehicle-spotlights-2>): resources for AV deployments (overview, barriers, lessons learned, and keys to success). Conversations on collaborations, planning info, operations, data management, and community engagement.
  - Partnership profiles (<https://www.txinnovationalliance.org/repository/learning-library#Partnership-section-id>)
  - Texas Mobility Summit: 3-day event: <https://www.txinnovationalliance.org/texas-mobility-summit-2020>
    - Day 1 – Demo day
    - Day 2 – formal program (speakers, sessions, and workshops)
    - Digital this year (expo hall as well)

## VII. Next Steps and Closing Remarks – Darran Anderson, TxDOT

- Beginning work on white papers to be rolled into Annual Report that will be given to governor’s office.
- Helping prepare legislature and public. Work is continuous.



- Thanked participants and gave quick overview.