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## TECHNICAL MEMORANDUM

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

**DATE:** July 15, 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:** Freight and Delivery Subcommittee  
June 17, 2020 Meeting Notes

#### Attendees:

Aidan Ali-Sullivan	Nuro
Andrea Chavez	Grace & McEwan Consulting, LLC
Andrea Gold	UT CTR
Hanna Barron	Austin Transportation Smart Mobility
Beverly West	TxDOT Strategic Planning
Brent Skorup	Mercatus
Brian Swindell	HDR
Caroline Mays	TxDOT
Captain Steven Rundell	Texas DPS Highway Patrol
Chelsey Tanaka	Ike Robotics
Corey Clothier	Stantec
Daniel Corey	AECOM
Daniel Goff	Kodiak Robotics

David Millikan	WGI
David Ruth	Motogo, LLC
Dr. Michael Walton	UT CTR
Jeff Dailey	CTRMA
Jeff DeCoux	ATRIUS
Jimmy Archer	Texas DMV
Jordan Coleman	Kodiak
Kristie Chin	UT CTR
Laura Weis	Michael Baker International
Michael Sanders	Lone Star UAS of Excellence and Innovation
Monika Darwish	Embark Trucks
Melisa Froelich	Aurora (Stand-in for Gerardo Interiano)
Morgan Avera	UT CTR
Duane Murdoc	DMV OSOW (Stand-in for Jimmy Archer)
Alex Payson	Austin Smart Mobility
Steven Smith	McKinsey & Company
Thomas Bamonte	NCTCOG
Beverly Kuhn	TTI
Bob Brydia	TTI
Andrea Chacon	TTI

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

- Zeke welcomed the group and thanked them for participating in the meeting.
- Zeke took roll call of all attendees.

**II. Co-Chair Welcoming Statements – Daniel Goff, Kodiak Robotics and Dr. Michael Walton, University of Texas Center for Transportation Research**

- Daniel gave brief introduction of Kodiak Robotics and their collaborations in Texas. He then thanked everyone, and is looking forward to what comes out of this forum.
- Michael discussed the importance of strategic discussions on freight. He mentioned that two other members of UT CTR, Andi and Kristie, have created an outline for the white paper for discussion.

**III. Subcommittee Scope and Mission – Zeke Reyna, TxDOT**

- Zeke introduced the scope and mission.
  - Mission: To identify what are specific needs, challenges, and opportunities for freight movement that CAV solutions can address.
- Seven topics came out of October 2019 meeting:

- AV freight needs
- Connected freight needs
- UAS integration and use cases
- Rail CAV needs
- Personal delivery devices and mobile carrying devices
- Port CAV opportunities
- Goods movement

#### **IV. Overview of Draft White Paper Outline**

- Co-Chairs sent out call for additional topics to be sent in. Those were then compiled by UT CTR.
- Kristie Chin discussed overview of outline draft.
  - Audience: Put forward to governor's office and state legislature, as well as state and public agencies, general public, or industry trying to understand TX landscape.
  - Top 5 issues to watch:
    - Acceleration of freight and delivery due to Covid-19 pandemic.
    - Workforce displacement.
    - Changes in land use
    - Changes in real-estate (teleworking perspective)
    - Issues 4 and 5 left blank for input and discussion
  - Freight ecosystem: long haul, short haul, last mile delivery, ports, and rail.
  - Other themes to watch: data security, deployment opportunities, and education. Could liaison with other SCs for things outside scope of this SC.

#### **V. Important Topics and Feedback on White Paper (Round Table Discussion)**

Open discussion for items in outline (expanding of topics):

- Management and management of curb space.
- Building out sidewalks for freight delivery.
- Using V2X to help bots cross signalized intersections.
- Managing human/robot interactions.
- Consider capillaries as well as major highways.
- Focus collaboration on I-10 and connected corridor.
- Need to be aware of freight vs delivery
- Inventory of types of vehicles in freight (sidewalk delivery, autonomous trucks, etc.).
  - Unmanned air considered as well (drone delivery services)
  - Keep in mind difference of moving people vs goods
- For unmanned air – demarcated aerial corridors, right of way and air space easements.
  - Texas right of way airspace above state and local roads/real estate air easements.
- Review of current freight demos and projects throughout state, country, and internationally.
- Hazardous materials (fire arms, alcoholic beverages) or things subject to hi-jacking/stalls and crashes.
- Reduction of food deserts.

- Relationship between autonomous and connected.
- Signal priority for trucks
- Warn ahead systems (Drive Wise from INRIX).
- Truck parking (middle mile switch to human operator).
- Ports (last/first mile issues).
- Impact of AVs on carrying capacity of highways.
- Near term obstacles to autonomous commerce (eliminate barriers).
- Infrastructure development and investment.
- Management of jurisdictions (interactions with bike lanes, etc.).
- Automated truck inspection protocols/programs.
- Multi-modal system for freight/package delivery.

**VI. Selection of Top Priorities**

- Dr. Walton discussed revisiting top priorities after forming subgroups.
- Comment made earlier about splitting ecosystem into sub sectors.

**VII. Next Steps (Schedule and White Paper)**

- Meetings decided for every four weeks for now.
- Possibility of splitting into sub groups/task groups as needed for further focus.

**VIII. Closing Remarks – Daniel Goff and Dr. Michael Walton**

- Co-chairs thanked everyone for their participation and good discussion topics.