Freight Advisory Committee
November 5, 2020, 8:00 a.m.
WebEx Virtual Meeting

<table>
<thead>
<tr>
<th>Attendees</th>
<th>Committee Member</th>
<th>Organization</th>
<th>Attendance</th>
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<tbody>
<tr>
<td>Ed Emmett, Chair</td>
<td>Rice University</td>
<td>Present</td>
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<tr>
<td>Ron Beeson</td>
<td>East Harris County Manufacturers Association</td>
<td>Present</td>
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<tr>
<td>Russell Boening</td>
<td>Texas Farm Bureau</td>
<td>Not Present</td>
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<tr>
<td>Randy Brogoitti</td>
<td>Brogoitti Construction</td>
<td>Not Present</td>
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<tr>
<td>Paul Cristina</td>
<td>BNSF Railway</td>
<td>Designee Present (Megan Shea)</td>
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<tr>
<td>Drew Crutcher</td>
<td>Landgraf, Crutcher &amp; Associates</td>
<td>Present</td>
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<tr>
<td>Michael Dyll</td>
<td>Texas International Freight</td>
<td>Not Present</td>
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<tr>
<td>John Esparza</td>
<td>Texas Trucking Association</td>
<td>Present</td>
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<td>Roger Guenther</td>
<td>Port Houston</td>
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<tr>
<td>Luis Hinojosa</td>
<td>Uni-Trade Forwarding, LLC</td>
<td>Not Present</td>
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<td>Judge Clay Lewis Jenkins</td>
<td>Dallas County</td>
<td>Not Present</td>
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<tr>
<td>Carson Landsgard</td>
<td>H-E-B</td>
<td>Not Present</td>
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<td>Sean Strawbridge</td>
<td>Port of Corpus Christi Authority</td>
<td>Present</td>
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<tr>
<td>Clint Schelbitzki (and Paul Rathgeber)</td>
<td>Union Pacific Railroad</td>
<td>Present</td>
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<tr>
<td>Kevin McIntosh</td>
<td>Kansas City Southern (KCSR)</td>
<td>Not Present</td>
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<tr>
<td>Jeff Moseley</td>
<td>Texas Association of Business</td>
<td>Not Present</td>
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<td>Rolando Ortiz</td>
<td>Killam Development, Ltd.</td>
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<td>Keith Patridge</td>
<td>McAllen Economic Development Corp.</td>
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<td>K. Alan Russell</td>
<td>The Tecma Group of Companies</td>
<td>Not Present</td>
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<td>Carlton Schwab</td>
<td>Texas Economic Development Council</td>
<td>Not Present</td>
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<td>Todd Stewart</td>
<td>Gulf Wind International</td>
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<tr>
<td>Jack Todd</td>
<td>Trinity Industries, Inc.</td>
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<td>Member Name</td>
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<td>Vacant</td>
<td>Alliance Texas</td>
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<td>Vacant</td>
<td>Governor’s Office of Economic Development and Tourism</td>
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<td><strong>Ex-Officio Members</strong></td>
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<tr>
<td>Christopher Evilia</td>
<td>Waco MPO</td>
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<tr>
<td>Erin Ford</td>
<td>Retired-Houston County</td>
<td>Not Present</td>
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<tr>
<td>Clark Greer</td>
<td>Coca-Cola</td>
<td>Present</td>
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<td>John LaRue</td>
<td>United Corpus Christi Chamber of Commerce</td>
<td>Present</td>
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<tr>
<td>Rep. Armando Martinez</td>
<td>Texas House Member, District 39</td>
<td>Not Present</td>
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<td>Rep. Sergio Munoz Jr.</td>
<td>Texas House Member, District 36</td>
<td>Not Present</td>
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<tr>
<td>Mayor Pete Saenz</td>
<td>City of Laredo</td>
<td>Present</td>
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<td>Gerry Schwebel</td>
<td>IBC Bank</td>
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<td>Sean Stibich</td>
<td>Port of Victoria</td>
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<td>Danny Smith</td>
<td>United Parcel Service</td>
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<td>Paul Treangen</td>
<td>TNW Corporation</td>
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<td>Matt Woodruff</td>
<td>Kirby Corporation</td>
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<td><strong>Texas Transportation Commissioners</strong></td>
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<td>Alvin New, Commissioner</td>
<td>Alvin New, Commissioner</td>
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**Count of Ex-Officio Members Present:** 8  
**Total Count of Committee and Ex-Officio Members Present:** 18

**Cambridge Systematics Consulting Team**
- Monica Castellanos: Cambridge Systematics
- Paula Dowell: Cambridge Systematics
- Adam Danczyk: Cambridge Systematics
- Alice Marecek: Cambridge Systematics
- Dan Stock: Cambridge Systematics
- Hannah Santiago: Cambridge Systematics
- Isabel Victoria: Cambridge Systematics
- Elizabeth Welch: Cambridge Systematics
- Michael Williamson: Cambridge Systematics
- Sebastian Guerrero: WSP

**TxDOT**
- Caroline Mays, AICP: Director of Freight, Trade, and Connectivity Section, TxDOT
- Pete Alvarez, P.E.: Pharr District Engineer, TxDOT
- Michael Chacon, P.E.: Director, TxDOT Traffic Safety Division
- Brian Barth, P.E.: Director of Project Planning and Development, TXDOT
- Roger Beall, P.E.: Deputy Director, TPP Division, TxDOT
- David Salazar, P.E.: Laredo District Engineer, TxDOT
- Tucker Ferguson, P.E.: Austin District Engineer, TxDOT
- John Speed, P.E.: Odessa District Engineer
- Jessica Butler, P.E.: TPP Division Director, TxDOT
<table>
<thead>
<tr>
<th>Name</th>
<th>Agency</th>
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<tbody>
<tr>
<td>Sondra Johnson</td>
<td>TxDOT</td>
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<tr>
<td>Loretta Brown</td>
<td>TxDOT</td>
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<tr>
<td>Kale Driemeier</td>
<td>TxDOT</td>
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<td>Casey Wells</td>
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<td>Akila Thamizharasan</td>
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<td>Eduardo Hagert</td>
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<td>Yvette Flores</td>
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<td>Roberto Rodriguez</td>
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<td>Elias Rmeili</td>
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<td>Melba Schaus</td>
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<td>Dan Harmon</td>
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<td>Francisco Almanza</td>
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<td>Melanie Alvord</td>
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<td>Noah Oaks</td>
<td>TxDOT</td>
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<td>Megan Kenney</td>
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<td>Gabriel DeOchoa</td>
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<td>Jarred Shaffer</td>
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<td>Joseph Hunt</td>
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<td>Travis Milner</td>
<td>TxDOT</td>
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<td>Darran Anderson</td>
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<td>James Kuhr</td>
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<td>Paul Truban</td>
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<td>Eduardo Hagert</td>
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<td>Giacomo Yaquinto</td>
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<td>Andy Mao</td>
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<td>Zeke Reyna</td>
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<td>Marty Boyd</td>
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<td>Emily Clisby</td>
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<td>Curtis Jones</td>
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<td>George Villarreal</td>
<td>TxDOT</td>
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<td>Mary Anne Griss</td>
<td>TxDOT</td>
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**Other Attendees**

- Anant Dinamani, Deloitte Consulting
- Andrew Canon, Rio Grande Valley MPO
- Anthony Jones, U.S. Department of Transportation
- Bruce Mann, Port Houston
- Cameron Walker, Permian Basin MPO
- Carlos Lopez, HNTB
- Clifton Hall, Alamo Area MPO
- Collin Moffett, NCTOG
- Dan Seedah, Jacobs
- Darrin Willer, HNTB
- David Coronado, City of El Paso International Bridges Department
- Debi Hays, Judge, Ector County
- Eduardo Calvo, El Paso MPO
- Georgi Ann Jasenovec, FHWA
- Gretchen Ivy, HNTB
1. Meeting Overview & Introductions

Chair Ed Emmett, Rice University, opened the Texas Freight Advisory Committee (TxFAC) Meeting at 8:10 a.m. He took the first few minutes to go over housekeeping items, such as, staying on mute when not speaking, only having one device logged in and what to do if experiencing technical problems. He also mentioned that the meeting will have a full agenda with a lot to cover. He deferred to Caroline Mays, TxDOT, and Casey Wells, TxDOT, to kick off the official roll call for TxFAC members present. The attending members are outlined in the table above.

Concluding roll call, Caroline introduced notable TxDOT leadership on the call, including Jessica Butler, TxDOT Transportation Planning and Programming Division Director. Jessica provided a quick introduction and her appreciation for being invited to the meeting.
Caroline continued to discuss the first agenda item and mentioned that TxDOT is in the process of refreshing some of the TxFAC member seats due to lack of attendance for an extended period. TxDOT will be making those new committee member decisions in the next couple of weeks. She reminded everyone that committee member attendance and input are vital to the planning process and work efforts.

Caroline and Chair Emmett recognized TxDOT Commissioner Alvin New was on the call. Commissioner New provided a brief welcome statement.

Caroline then turned the meeting over to Casey who went through the remainder of the TxFAC meeting agenda.

2. Review of Sept. 3, 2020 TxFAC Meeting and Ongoing Freight Planning Activities

Casey Wells, TxDOT, provided a recap of key discussion topics from the Sept. 3, 2020 TxFAC meeting. In addition, he discussed ongoing TxDOT freight planning and studies (i.e. the Rio Grande Valley Freight and Trade Transportation Plan, Freight Planning Tools, Freight Infrastructure Design Considerations, Economic Role of Freight in Texas, Truck Parking Study Implementation, the I-10 Truck Parking Availability System, Weigh-in-Motion (WIM)/Vehicle Classification Strategic Plan, and the Texas Truck Congestion Analysis Tool) as well discussed other TxDOT efforts of interest (i.e. the Texas-Mexico Transportation Master Plan, Ports-to-Plains Interstate 27 Feasibility Study, and Impacts of Panama Canal Expansion). Casey opened the floor for questions about the ongoing work that TxDOT is doing.

Caroline Mays, TxDOT, commented that a lot of this work is ongoing, and a lot of this work has come from the Texas Freight Mobility Plan that the TxFAC helped craft. She additionally opened the floor to any other questions on any of the ongoing work. Moreover, Chair Emmett encouraged feedback on these plans, and hoped that folks on the call provide input at that time.

No comments were made.

3. Freight Network Technology and Operations Plan Overview

Casey Wells, TxDOT, provided an outline for the Freight Network and Operations Plan (FNTOP) Overview presentation. He additionally discussed the foundation of this Plan which included TxFAC Policy and Program Recommendations from the Texas Freight Mobility Plan (TFMP). He continued to discuss the purpose of the FNTOP.

Casey then turned the presentation over to Michael Williamson, Cambridge Systematics.

Michael provided a detailed presentation on the background of the FNTOP, technical analysis that supported the effort, the stakeholder identification and engagement process and outcomes from that engagement.

He then introduced Adam Danczyk, Cambridge Systematics, who presented on the proposed strategies for the FNTOP which include:

1) Safety Warning Detection System
Adam noted that six of those strategies (specifically #1 - #6 noted above) were advanced to the concept of operations (ConOps) phase and got into more detail and focus as part of the FNTOP. The others (#7 - #12) noted above are still being considered strategies but are not advancing to the ConOps phase at this time. TxDOT is looking at these final six strategies as part of other endeavors.

Adam went through each of the six strategies that moved forward to the ConOps stage. These strategies were presented in detail, one by one, and were surveyed live by the TxFAC members using Menti polling software. Details on how to access the Menti poll were provided before the strategies were presented to allow the TxFAC members time to prepare on their internet devices. At this time, it was confirmed around 18-19 current or ex-officio TxFAC members were on the call and available to take the poll.

The first actionable strategy up for discussion was the Safety Warning Detection System.

**Strategy 1: Safety Warning Detection System**

Prior to the polling, an overview of this strategy, its needs, and challenges were presented. The following questions were asked via Menti for this strategy:

**On a scale from 1 to 5, with 1 being strongly disagree and 5 being strongly agree...**

- Does the Safety Warning Detection System Strategy add value to the Texas Multimodal Freight Network?
- Is the Safety Warning Detection System Strategy likely to succeed in Texas?

**Menti Poll Results:**
Overall, there was agreement amongst TxFAC members that it did add value to the Texas Multimodal Freight Network and that it would likely succeed in Texas with both questions scored at 4 out of 5.

**Strategy 2: Statewide Traffic Operations Center**

Prior to the polling, an overview of this strategy, its needs, and challenges were presented. The following questions were asked via Menti for this strategy:

**On a scale from 1 to 5, with 1 being strongly disagree and 5 being strongly agree...**

- Does the Statewide Traffic Operations Center (TOC) Strategy add value to the Texas Multimodal Freight Network?
- Is the Statewide Traffic Operations Center (TOC) Strategy likely to succeed in Texas?
Menti Poll Results:

On a scale from 1 to 5, with 1 being strongly disagree and 5 being strongly agree...

Overall, the results trended positively toward agreement the strategy added value with 3.5 out of 5, and 3.4 out of 5 stating they agreed it would likely to succeed in Texas.

While this question was being polled, in the chat box, Chris Evilia, Waco MPO, asked, “As a state we don’t have many (any) crash investigation sites for fender benders to move out of traffic lanes. Could these be a part of this strategy?”

Adam Danczyk, Cambridge Systematics, replied that it was not envisioned that way because it is more focused on the operations center itself. That would likely come through another infrastructure improvement, like a roadway expansion effort.

Caroline Mays, TxDOT, mentioned that Mr. Evilia brought up a good point that the focus is on operations and although it is infrastructure related, it targets operation improvements that can facilitate accident investigation sites. Other states have this capacity so this should be noted.

**Strategy 3: Smart Freight Connector**

Prior to the polling, an overview of this strategy, its needs and challenges were presented. The following questions were asked via Menti for this strategy:

On a scale from 1 to 5, with 1 being strongly disagree and 5 being strongly agree...

- Does the Smart Freight Connector Strategy add value to the Texas Multimodal Freight Network?
- Is the Smart Freight Connector Strategy likely to succeed in Texas?
Menti Poll Results:

On a scale from 1 to 5, with 1 being strongly disagree and 5 being strongly agree...

- Does the Smart Freight Connector Strategy add value to the Texas Multimodal Freight Network? 4.4
- Is the Smart Freight Connector Strategy likely to succeed in Texas? 4.1

To summarize, most TxFAC members strongly agreed to both questions, ranking the first 4.4 out of 5, believing this strategy adds value to the Texas Multimodal Freight Network, and 4.1 out of 5 on the second question, strongly agreeing it would likely succeed in Texas.

While this question was being polled, Clark Greer, Coca Cola, commented that road signs are needed in the last mile before the truck stop location exit. The signs need to be far enough away to provide enough advanced notice, because if there is no parking for trucks it is hard to turnaround. The road signs also need to provide more notice to where there is other available truck stop parking, etc. He believed this should be part of the process and asked if it was being considered.

Adam responded that Mr. Greer made a good point and the goal with these intelligent transportation systems is to help drivers make informed decisions and provide alternatives. He mentioned there is probably not a cookie cutter solution. There could be opportunities to keep the signs closer to that last mile connection, but if there is one staging lot and then a truck stop at 10 miles away, that sign would need to be closer upstream of the truck stop so you can provide that alternative.

Mr. Greer responded that in these areas they must have viable turnaround locations. He continued that sometimes in the last mile it is hard to find turnaround locations. Especially in old parts of towns, trucks have to go through neighborhoods just to get back to the lot. There is a big problem with that type of environment for trucks and businesses.

Michael Williamson, Cambridge Systematics, added that one of the key considerations for many of these strategies is making sure you can install these technologies at locations where alternative routes exist and where turnaround locations exist. He continued that the technology
provides that information in a timely, real time manner so drivers can make a change in time to make the information useful.

Mr. Greer asked that when trying to get real time communication, one of the things discussed previously is, how do we talk directly to certain drivers? He advised that we must limit driver distraction. His company (Coca Cola) and others do not allow drivers to be on devices. He mentioned he was thinking about talk to text and text to speech capabilities to help communicate to drivers.

Adam responded that there are discussions to try to keep communications with drivers compliant with the Compliance Safety and Accountability (CSA) enforcement program for different applications in order to keep drivers distraction-free by providing voice notifications.

**Strategy 4: Blocked Rail Crossing Traffic Management System**

Prior to the polling, an overview of this strategy, its needs and challenges were presented. Michael Williamson, Cambridge Systematics, added this is one of the strategies that has impact on other critical users (such as emergency response, school buses and other users).

The following questions were asked via Menti for this strategy:

**On a scale from 1 to 5, with 1 being strongly disagree and 5 being strongly agree...**

- Does the Blocked Rail Crossing Traffic Management System Strategy add value to the Texas Multimodal Freight Network?
- Is the Blocked Rail Crossing Traffic Management System Strategy likely to succeed in Texas?

**Menti Poll Results:**

On a scale from 1 to 5, with 1 being strongly disagree and 5 being strongly agree...
To summarize the Menti Poll, there was an overall strong agreement that this strategy added value to the Texas Multimodal Freight Network and was likely to succeed in Texas with average ranking at 4.1 and 4 out of 5, respectively.

While this question was being polled, Curtis Morgan, TTI, via chat said “We (TTI) are working on a TxDOT research project with the Port of Beaumont to implement a remote sign that would divert trucks to a Port-owned parking/holding site when the port entrance gate is blocked by a train. Kind of a combo of these two strategies. Project continues through this next FY.”

Adam Danczyk, Cambridge Systematics, replied that they are aware and that is a standard practice. That practice helps facilitate ideas of expanding to other opportunities statewide so he is looking forward to seeing how that research project goes.

Via the chat box, Rolando Ortiz, Killam Development, Ltd., asked “Is there a way to have an automated notice announcing to the truck driver what the safety warning detection system is wanting the driver to be aware of? Something like an Amber Alert, where the truck driver does not have to respond to the announcement or pick up a device.”

Adam replied that currently they have flashing beacons which are consistent with other message signs used. There is a thought that this could broadcast the message directly into drivers’ cab. He concluded that yes, that it highly likely to occur.

Clark Greer, Coca Cola, added a verbal comment that they are developing an app to connect with government entities like those used with the Amber Alerts. The private companies will have to help the government and develop a product. He continued that he would love this concept, but it is a bigger picture issue. Organizations like Coca Cola (or others) can start going to trade shows and asking for things like this type of app, and by doing that, it helps to spark private companies feeling this is a good tool to help sell a product.

Paul Rathgeber, Union Pacific Railroad, via chat, “There are changeable message board options for advanced notice of trains. Blank ot signs work well also.”

Chris Evilia, Waco MPO, commented via chat “RR xing project requires a lot of coordination with locals regarding alternatives and making sure, those are well signed. Big concern right now with trucks using streets locals don’t want them using as a result of web-based apps.”

Collin Moffett, NCTCOG, commented via chat, “The CV broadcast from this type of system would also be useful for automated trucks to make better routing decisions.”

Via chat, Casey Wells, TxDOT acknowledged that Mr. Moffett made a great point and several of these strategies will coordinate well with Connected/Automated Vehicles(C/AVs).

Adam additionally acknowledged the three other comments mentioned above via chat and that they were all good points and opportunities that could be used.

**Strategy 5: AV Infrastructure, Connected Signing & Data Strategy**

Prior to the polling, an overview of this strategy, its needs and challenges were presented. The following questions were asked via Menti for this strategy:

**On a scale from 1 to 5, with 1 being strongly disagree and 5 being strongly agree…**

- Does the AV Infrastructure, Connected Signing & Data Strategy add value to the Texas Multimodal Freight Network?
• Is the AV Infrastructure, Connected Signing & Data Strategy likely to succeed in Texas?

**Menti Poll Results:**

![Menti Poll Results](image)

To summarize the results, most respondents strongly agree that this strategy will add value to the Texas Multimodal Freight Network with an average of 4, while there was a bit more variation on agreement on whether it would succeed in Texas with an average ranking of 3.5.

While this question was being polled, Commissioner New commented on the call that the challenge is going to be on maintenance more than construction because maintenance workers go out and fix something that day, so there is not nearly the same amount of coordination or communication that same day that construction is going to occur and take “X” amount of time. That needs to be added to this issue if you move forward.

Adam responded that yes, longer term construction zones are one thing in terms of notifications, but shorter-term could be different and more challenging. If you have a beacon on the side of the road about a construction zone, it may be enough information for the AV (Autonomous Vehicles).

Via the chat box, Chris Evilia, Waco MPO, commented, “While the challenges noted are an issue today, eventually the technology will overcome these issues. The real challenge is will this be 5 years, 10 years, 20 years, further?”

In response, Adam agreed. It is something the states are discussing but have not determined how to solve. Texas is looking at where the problems exist and thinking about ways to provide information.
**Strategy 6: High-Resolution Freight Traveler Information System**

Prior to the polling, an overview of this strategy, its needs and challenges were presented. The following questions were asked via Menti for this strategy:

**On a scale from 1 to 5, with 1 being strongly disagree and 5 being strongly agree...**

- Does the High-Resolution Freight Traveler Information Strategy add value to the Texas Multimodal Freight Network?
- Is the High-Resolution Freight Traveler Information Strategy likely to succeed in Texas?

**Menti Poll Results:**

![Menti Poll Results](image)

To summarize, most TxFAC members strongly agreed to the first question with an average ranking of 4.1 out of 5 believing this strategy adds value to the Texas Multimodal Freight Network. The second question was a more average level of agreement, ranking 3.5 out of 5, saying it would likely succeed in Texas.

Adam moved on to the next and final question which asked which of the six strategies that are being advanced should go first for deployment.
**Rank the Suggested Priorities for Development (Menti Poll Results):**

![Suggested Priorities for Deployment](image)

In summary, safety and warning detection system was the top scoring answer amongst the TxFAC members, with high-resolution freight traveler information system falling last for deployment priorities.

Michael Williamson, Cambridge Systematics, continued with the remainder of the slides for the FNTOP presentation. He presented on what will be included in the FNTOP (Section 1 – The State of Freight Transportation Technology and Operations in Texas, Section 2 – Texas Freight Transportation Challenges, Needs, Opportunities, and Strategies, and Section 3 – Taking Action to Address Freight Transportation Technology and Operations Needs in Texas). In addition, he delved into the action plan for implementing the strategies discussed previously in terms of immediate action tasks, medium-term tasks and long-term tasks. In conclusion, Michael relayed the key recommendations that have come from the FNTOP, which included conducting an FNTOP Implementation Planning Study with supporting actions, such as, continuing collaboration within TxDOT divisions, facilitating site opportunities for pilot deployment and developing regional champions, expanding external public sector transportation agency and private sector involvement, coordination with TxDOT on funding and formalizing an FNTOP working group.

Caroline Mays, TxDOT, provided the opportunity for the TxFAC to ask questions or provide comments or non-committee members to provide comments in chat.

Chair Emmett mentioned that he wished the meeting was in-person as the in-person format tends to lend itself for better discussion. He continued that the presentation was efficient with a lot of information and those decisions are what this committee needs to/must make.

No other comments were received.
Casey Wells, TxDOT, thanked everyone for their participation and moved to the next agenda item.

4. Freight Transportation Panel: Connecting Texas Freight

Casey Wells, TxDOT, introduced the moderator and panelists for the Freight Transportation Panel, Connecting Texas Freight portion of the meeting.

**Moderator:** Darran Anderson, Director, Strategy and Innovation, TxDOT

**Panelists:**

- Michael Chacon, P.E., Director, Traffic Safety Division, TxDOT
- David Coronado, AICP, CNU-A, Director of International Bridges, City of El Paso
- Rasheq Zarif, Managing Director, Deloitte Consulting LLP
- Robert Brown, Head of Public and Government Affairs, TuSimple

Darran Anderson, TxDOT, provided a quick introduction of the purpose of this panel, which included identifying what is the meaning of the freight technology plan and strategy, and where do we focus – is it safety, congestion traffic management? The goal is to provide safer solutions to make freight operate more efficiently to integrate better with the system/users of the systems. He continued that technologies are enablers of that goal. The focus of this effort is meeting the people and freight community needs to enable safer movement of freight, not just truck traffic but intermodal traffic. He provided a quick overview of the panelists specialties and thanked them for their time. From there, each panelist provided a quick introduction of themselves and how their specialized area of expertise can provide helpful information on freight technology. Summarized backgrounds of each panelist can be found on the Nov. 5, 2020 meeting agenda posted on the TxFAC website, [https://www.dot.state.tx.us/move-texas-freight/committees/freight/meetings.htm](https://www.dot.state.tx.us/move-texas-freight/committees/freight/meetings.htm).

Darran asked his first set of questions to each panelist.

**Question for David Coronado, City of El Paso:** In thinking through those six strategies mentioned earlier in the presentation, please elaborate on how is technology being used right now? How is it being used to improve freight transportation and safety, and how do you see that technology changing or improving with some of these initiatives overtime?

**David Coronado:** For context, El Paso ranks third in truck traffic through the ports of entry locally between Juarez and El Paso. There are four bridges within the city limits and others outside of the city limits. Through these crossings the City gets about 3,000 trucks commuting back and forth on average per day. El Paso traffic is unique and is different from places like Laredo where there are more long-haul trips. El Paso has more back and forth trips internationally. Many of these solutions being discussed are really good ideas to help improve the infrastructure and improve freight and travel. Locally within the bridge system, it is a different dynamic because El Paso has many stakeholders at the local, state, federal level, and many properties within one port of entry. There is a lot of overlap amongst these entities making it difficult to implement some of these solutions. He added the COVID-19 crisis has had a major impact on truck traffic, decreasing activity by 40% during April 2020. Trade has since recovered. The V-shape, quick economic recovery on trade in this area has been great for El Paso and surrounding regions. But right now, El Paso is getting prepared for another possible decrease in truck traffic and
trade due to a resurgence of the COVID-19 virus. There are ongoing discussions about scaling down production and getting ready for that impact.

Right now, El Paso is working with TxDOT to implement Information and Technology Services (ITS) enhancements within the Bridge of Americas and Zaragoza bridges, which are the two bridges that carry commercial truck traffic. These enhancements will align perfectly with these strategies presented. El Paso has ITS technology, digital message signs, data collection devices, drive by readers and additional camera systems to improve visibility within the ports of entry and adjacent streets. The City is trying to install cameras near the border to look into Juarez to alert travelers of traffic concerns (not only trucks but pedestrians and vehicles) so that they can make wise decisions on which ports of entry may be best to use before they leave the origin. El Paso is in the process of getting these plans designed for all these elements and are working with stakeholders (TxDOT, CBP, City of Chihuahua, City of Juarez, etc.) to meet their needs. El Paso has completed a Concept of Operation (ConOps) for El Paso and Juarez that will assist in trying to understand future disruptions, accidents, etc. These issues are being worked through locally with limited resources with some progress. The City is trying to treat the bridges not as a “cash cow” but reinvesting back these dollars to improve structures and technologies. The City of El Paso is also working with stakeholders to add more open lanes on the cargo side to reduce wait times. Overall, the six solutions are fantastic, and they are really going to help the State of Texas to improvement the movement of trade and freight. Locally, (not just in El Paso, but also in Laredo or Brownsville) the solutions must be tailored to be applied within the ports of entries themselves. The key is to have these solutions implemented, not only in the center of Texas, but also within each of the border regions.

Darran thanked Mr. Coronado and recapped that El Paso is the gateway to and from the west and is a huge trade partner with international partners in Mexico. He continued that it was great to hear that at a local level everything the City of El Paso is doing is complementary to what was laid out in this plan. He then segued the discussion to Rasheq Zarif, Managing Director for Deloitte Consulting.

**Question for Rasheq Zarif, Deloitte Consulting : How are you implementing technology changes right now? What are some of the things you heard from the plan that you feel would complement what you are doing?**

**Rasheq Zarif:** There is not a one size fits all solution but there are synergies on commonalities and what was in the presentation earlier does highlight areas of focus. Deloitte is looking at implementing computer vision technology when we look at the movement of freight. There has been development of connected devices to either the trucks, the trailer containers, or the packages, as well as trying to track that along the process. Deloitte is working with a major tech player on utilizing current Closed Circuit Television (CCTV) footage and developing Artificial Intelligence (AI) machine learning capabilities on the back end on Edge on Site Software and removing cloud servers which requires a lot of upload/download. They would then convert that to analytics to reduce the number of man hours needed to observe video footage. Those analytics would be used to observe freight movement patterns and reduce the amount of monitoring through better software. Deloitte has been working on and developing this Proof of Concept (POC) and will announce later this year.

Alliance, Texas is an interesting area because you have 26,000 acres with intermodal rail, an industrial airport, and manufacturing and distribution facilities, etc. with highways that go in between. In addition to camera technology, we are looking at 5G technology. One of the biggest
issues seen when talking with emerging tech players is that they are focused on improving and developing their technology to be specifically concentrated on scaling movement of goods and have hit a roadblock. That roadblock being the availability of advanced infrastructure to support the technology, including 5G connectivity. The question is how to set up a business model where 5G can be localized with better control to better capture data. The data can be utilized to be more efficient in managing the ports/region in the movement and forecasting/planning of what is coming down the line.

Mr. Zarif continued that while the focus is on technology, the other key part is building relationships. For technology to exist and succeed in an ecosystem type setting, it’s important to maintain connections between public/private partnerships, stakeholders and various entities, and emerging tech company and support the emerging of tech for movement of goods.

Darran added to the conversation by stating that the public may assume that the freight industry is still full of older model vehicles with very little technology, but the truth is there is a large amount of automation in modern cabs and data and analytics relating to the movement of the system is incredible. He agreed that the 5G challenges was a good point and that there will be a lot of focus, both on the state and federal level, of broadband needs.

Darran then moved onto the next panelist.

**Question for Robert Brown, TuSimple:** Some of these strategies related to you as an operator in this system in hauling freight for different elements/business partners, how many of these strategies better enable what you do?

Robert Brown: replied that autonomous trucks are incredible and the technology is exciting but the nature of it (what is called Society of Automotive Engineers (SAE) level 4 – no human interactive required) will be a tool in the freight toolbox. Our partners view autonomy as an opportunity to outsource their shuttles. Their core competency is with their customers, their drivers are not only drivers but customer service agents for their customers. The technology for autonomous vehicles can be an extension also for the intermodal folks such as railroads as well. New markets can be opened for those rail markets making for new business opportunities. The trucking industry can start competing with long-haul trip options such as converting air-travel to truck-travel, especially when using autonomous vehicles; when removing the human driver element, you remove restrictions like hours of service. This technology will be incremental, likely starting with the Southeast, such as I-10 area first. In the next 5 years, that technology will start there and work its way out.

Rasheq Zarif, Deloitte, commented that Deloitte has done extensive analysis on looking at freight volume, lane management, state regulation, and the adoption model of autonomous trucking. Autonomous trucking is not a question of when, but where and how it rolls out. I-10 and I-20 routes and the Texas Triangle areas are the priority to focus on first. Starting in these areas will be necessary to set the infrastructure and scale the Automated Vehicle (AV) technology for rolling out across the state. So many AV trucking companies that are coming here and expanding their presence in Texas know that it will be a big part of the industry in the future.

Darren segued from that reply to the next panelist.
Question for Michael Chacon P.E., TxDOT Traffic Safety Division: How are you already implementing solutions or building the conditions for those implementations across the state relative to each strategy?

Michael Chacon: responded that technology is something that will make Texas roads more efficient and safer. In some areas, there is no more capacity or means to expand or improve certain roadways, so technology will be relied on for improvements. In the near term, trucks operated by the freight partners will receive more timely, accurate information about traffic and roadway conditions that affect safety and mobility of freight. Drivers will also experience benefits from smart traffic connected intersections around their distribution centers which will enable vehicle interaction, signals to reduce stops and idling time and emissions which helps the environment. Some current projects can be transferred to other highway corridors where other safety and mobility challenges exist. The Texas Triangle (San Antonio, Austin, Dallas/Ft Worth, Houston, and portions of Laredo) is roughly 865 miles of project and will be the largest deployment of connected vehicle technology. This aims to make a significant reduction in the number and severity of crashes, reduce congestion on major interstates that serve the state and nation, and reduce fuel consumption for freight trucks. Connected vehicle technology on highways and in trucks that communicate routing information to the driver with the goal of reducing emissions and improving safety will be demonstrated on this corridor. That is an ongoing project and TxDOT has already completed the first phase.

Another project is the Truck Parking Availability System (TPAS). This 4-year project implements a truck parking availability detection and information dissemination system at thirty-seven public truck parking stops along I-10. The idea is to provide real-time information to truckers who are driving I-10. When they come to the point where they need to rest, it is hard for them to find a safe place to park trucks and rest. With TPAS, they will see signs in advance where the next parking location is, and how many spots are available which will help them get the rest they need. In addition, TxDOT is working on a I-35 connected work zone project, a FHWA funded project in the Waco area, to provide advanced travel information regarding work zones. It will provide opportunity for commuters to determine alternate routes based on construction congestion.

Darran Anderson, TxDOT, did a quick round of questioning for each panelist that asked, “What is the number one strategy that supports what you do?”

Michael Chacon, P.E., Director, Traffic Safety Division, TxDOT, answered safety and traffic management.

David Coronado, AICP, CNU-A, Director of International Bridges, City of El Paso, answered high-resolution freight traveler information system, which would be ideal for bridges and ports of entry. It would help the City be able to work with CBP and add additional officers to help with queuing and wait times. It would assist greatly with operations throughout.

Rasheq Zarif, Managing Director, Deloitte Consulting LLP, answered the smart freight connector. Throughput needs to be improved for truck drivers and autonomous vehicles to move sufficiently through the network.

Robert Brown, Head of Public and Government Affairs, TuSimple, answered warning signals because trucks must handle those dynamically and this would be a path to truly scaling this technology.
Darran then opened the floor for discussion and questions from TxFAC.

Chris Evilia, Waco MPO, through the chat box wrote “I can verify that the Waco info project has been very helpful for our travelers in route planning through our I-35 reconstruction project. Hard to get specific numbers, but it's probably greatly reduced the number of secondary crashes within and approaching the construction zone.”

Michael Chacon, TxDOT, answered that there is no information on that, but TxDOT has seen a lot of benefits with that and is something they are pushing a bit more from a statewide perspective. Mr. Chacon said TxDOT would look into this further and provide any additional information.

Eduardo Calvo, El Paso MPO, asked via chat, “What are the biggest regulatory challenges (i.e. roadblocks) for the successful implementation of these new technologies?”

David Coronado, City of El Paso, answered that a challenge is that there are many layers and stakeholders involved. Having different interests and priorities makes it hard to intervene at a local level. It cannot be done alone. Not only implementing projects but making sure projects and improvements (such as data collection efforts) are consistent and compatible across different entities and stakeholders.

Robert Brown, TuSimple, also replied that from a state perspective, Texas is in a good position regarding regulations. The Southwest and Southeast are looking strong, but areas like California have restrictions on technology. From a federal perspective, the Federal Motor Carrier Safety Administration (FMCSA) provided an interpretation of the driver being an automated driver, which was a big moment for the industry. From there an explosion came to the industry, with many getting into the autonomous freight program.

Clark Greer, Coca Cola, commented non-technological improvements can be implemented. One of those solutions could be toll road changes. Providing incentives and discounts to truckers to help with traffic flow through cities, like Austin. Those are things that need to be considered to help with crashes and efficient travel to get trucks off the major highways.

Darren answered that issue could that be addressed in some of the freight strategies. The trade-offs in terms of extra miles traveled to use an alternate route like a toll road could still provide value to companies that want to use them, and this is important to consider.

Mr. Greer emphasized that travel time signs are helpful, but if they also advertise that there is a discount (for instance 80% off) on the toll road, truckers may utilize the toll roads more and help ease traffic congestion, etc. There is a benefit to using those signs to provide that information.

Chair Emmett responded that if we know that I-35 traffic is bad in Austin, for example, why are we discussing an 80% discount instead of truckers commuting for free on toll roads?

Mr. Greer replied that 80% was just a number he threw out, but yes, free access to toll roads would be a good option to provide a benefit.

Collin Moffett, NCTCOG, asked a question “For Rasheq and Robert: what type of local government and MPO support is most valuable to what you do as it pertains to private sector freight operations?”

Robert Brown, TuSimple, answered that it is simply just public affairs. How will local government and first responders interact with truck drivers, is a good example. Currently, our law
enforcement interaction and safety officer at TuSimple is working with state and local law enforcement on how we learn to interact with trucks that do not have humans driving them. How does a robot handle those types of human touch points, and how can we learn together so that there is an ethos and ecosystem of collaboration?

Rasheq Zarif, Deloitte Consulting, reiterated that a sense of collaboration and relationships with various authorities in Texas is important. Other states can be more transactional. Having the initial conversation is key and being open minded to finding ways to collaborate, which will lead to understanding and alignment on vision across multiple stakeholders to set the right policy and tone to support actual implementation and execution for whatever the initiative is. Funding is another important component.

Darren asked a question to Michael Chacon, TxDOT, how are some of these efforts going to help rural communities and their needs?

Mr. Chacon responded that we have to use technology in those rural areas as well. That is where Texas has more wide-open spaces and gaps where they will need to have break options. How do we notify them to park and rest, such as the TPAS project? The technology is going to be used in those areas to provide breaks for them and with traffic congestion. Congestion, weather conditions or other freight mobility issues are also problem areas in rural communities.

Darren replied that it is not just dynamic message boards, but other technology like Waze and other mapping tools used by drivers are important. The TxDOT Information Technology Division is looking to utilize those tools for that data as well.

Mr. Chacon noted TxDOT is looking at working with Waze for real time live data. It is valuable and need more of it.

Chris Evilia, Waco MPO, asked via chat “Are there corridors that Texas should focus on making 'CAV Friendly' such as minimum standards for pavement condition, pavement markings, signage, etc.? Also, what things are important to make a facility ‘CAV Friendly’?"

In addition, from the chat, Gerry Schwebel, IBC Bank, asked a question for David Coronado, City of El Paso, “Is El Paso Bridge System studying the driverless vehicle issue as it relates to crossing the bridge?”

Mr. Coronado answered that the City is not looking into that right now. It has been discussed with stakeholders before, but it poses some challenges with security inspections and requires changes in infrastructure, policies, etc. So, it is a much larger endeavor to undertake. However, the City of El Paso has discussed a dedicated freight channel system that would be an AV type structure and is on the local Metropolitan Planning Organization list.

Darren added that Embark (who builds self-driving trucks) is picking up on El Paso side and hauling freight from Mexico after transitioning into Arizona. He asked Robert Brown, TuSimple to confirm.

Mr. Brown replied that he believes so. Border crossings would not be the first go-to-market strategy for AV trucks, as David eluded to. He mentioned there is interesting application for AV trucks based on conversations with the DPS in the border crossing areas because you remove the human component; there is less traffic, less wait time and more safety features (e.g. 360 camera view around the trucks). There is a great use-case for AV technology but deploying to those areas would be more of a 2.0 (or second phase) deployment.
Darren then opened the conversation to Commissioner New and/or TxDOT leadership.

Commissioner New mentioned that he had no questions. He wanted more information from Chair Emmett and Clark Greer regarding the tolling issue. The tolls are not owned by TxDOT and he would have to understand that concept more clearly offline to understand the suggestion.

Darren agreed and mentioned that bond holders for the toll roads have their own rules and TxDOT would have to work through what that means and its acceptability to see if it is a viable option.

On the call, Darren asked Rasheq Zarif, Deloitte Consulting, about how data (such as oil transmissions) are moved around and if they are implementing infrastructure for this in regard to 5G.

Mr. Zarif answered that this has been challenging and Deloitte is currently trying to determine what the right mix of infrastructure (i.e. telecoms/broadband providers/public and private partnerships) is. Questions such as, what are the different components, what are the different towers that are needed, what are the hardware components, who is providing broadband connection to those towers, who would be providing the network coverage, do we rely on public network from carriers or do we go private, etc. need to be addressed. There is an upfront cost for infrastructure development and service coverage. A question would be are there also ways of optimizing data and insights for ports or regions where there is a lot of industrial movement through multiple parties, for instance. It has not been figured out completely, but some demonstrations and test case scenarios that are compatible with both major carriers and tech providers are underway. There are many specifications required that are not the same across the board. An example is 5G connectivity within a warehouse, different from connectivity between warehouses. So, what are the bandwidth latencies and use case requirements? Need to understand the spectrum on what is needed and upfront cost to have a platform that can be adaptable. When looking at freight, it touches a lot of different carriers. The chain of command and carriers shift through the process and it is hard to find synergy of how goods are moving across the network. If you have better visibility of things coming down the line that helps to manage infrastructure on roads or managing traffic levels. Predictive analytics will be a key element to the answer.

Darren Anderson provided a concluding statement for the panel.

There was a 7-minute break following the panel discussion.

### 5. Freight Planning Tools Project Update

Caroline Mays, TxDOT, introduced the next item in the agenda and transitioned the conversation to Sondra Johnson, TxDOT, who continued the introduction on updates to the Freight Planning Tools. She specifically discussed the Freight Flow Forecasting and Scenario Planning (FFSP) tool.

From there, Paula Dowell, Cambridge Systematics, presented detailed information on the FFSP tool that will be able to account for the impact of uncertain futures, develop robust strategies and investments, integrate freight into future forecasts in the statewide analysis model (SAM), facilitate updating of commodity flows between data purchases, and raise awareness of the
importance of freight. She continued to discuss how traditional freight forecasting works and current downfalls of that system. With the freight flow forecasting tool, she discussed in length how it can be forecast and tailored to “plausible” futures. She went over the overall forecasting approach of the tool. From there another round of Menti poll questions were provided to TxFAC to answer.

**Question 1: What are potential disruptors to future freight flows?**

The TxFAC used Menti for responses and non-committee members were encouraged to comment via the chat box.

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**Slide 1 Potential Disrupters**

- Government imposed trade restrictions
- Limited funding for connectivity
- Decreased utilization of hydrocarbons and petrochemicals
- Policies and procedures companies have to follow. Cost vs savings
- Tariff increases or decreases. Transition rate to EV from traditional vehicles
- Home delivery vs brick and mortar retail
- Different patterns of living. More facilities outside of urban areas. Definitely change in sourcing. More e-commerce as opposed to brick and mortar stores.
- Supply chain design
- Ease of use? People want easy and effective.
What are potential disruptors to future freight flows?

The disruptors mentioned (as visible above) were as follows: 1) government imposed trade restrictions, 2) limited funding for connectivity, 3) decreased utilization of hydrocarbons and petrochemicals, 4) policies and procedures companies have to follow – cost vs. savings, 5) tariff increases or decreases, transition rate to EV from traditional vehicles, 6) home delivery vs. brick and mortar retail, 7) different patterns of living, more facilities outside of urban areas, change in sourcing, more e-commerce as opposed to brick and mortar stores, 8) supply chain design, 9) ease of use – people want easy and effective, 10) poor local planning by local agencies and developers (i.e. not following access management guidelines, not developing roads to match growth, etc.), 11) change in demand for various products, 12) increased freight traffic/congestion, 13) type of transportation used for last mile – is drone vs. ground based on autonomous vehicles.

Paula took time to elaborate on each of the potential disruptors as they came through the Menti poll. Paula then asked if anyone would like to elaborate on the “cost vs. savings” disrupter.

Clark Greer, Coca Cola, commented on the call regarding cost vs. savings, that if it costs a company too much to do something, they are going to make a conscious decision of whether the costs outweigh the benefits of that particular project or flow. It goes back to the point of putting a certain production facility in one area vs. another. All of those decisions have a big result. Policies and procedures prohibit drivers from touching phones, so those technologies on how we communicate to drivers is an issue.

In the chat box, others provided additional thoughts on this question. Michael Bomba, University of North Texas, typed the following disruptors, “temporary or permanent inundation of coastal roadways due to sea level rise, subsidence and tropic stores, lab produced animal protein vs. ranching, feedlots, and farming, and drone delivery.”

Additionally, by chat, Eduardo Calvo, El Paso MPO, typed other disruptors in the chat box including, “lack of funding for needed infrastructure improvements (e.g. 5G, roadways, ports, etc.).”
Chair Emmett contributed that a change of sourcing would be another disruptor.

From there, Michael Williamson, Cambridge Systematics, typed all of the previously contributed disruptors and grouped them into themes to be added to another question for the group. The next question asked for input on the disrupters, specifically to rank the potential impact and probability of occurrence of these disruptors. The results of that question are below:

![Diagram of Input on Disruptors]

Paula recapped the responses stating that there was a variety of agreement on the order of magnitude of each disruptor’s impact. With that, having a tool like the freight flows forecasting tool will be important for TxDOT to look across the spectrum of plausible futures to test the robustness of their investment strategies going forward. In addition, she added that respondents felt that each disrupter would have at least some moderate to high level of impact, and moderate to high probability. She continued that there was one exception which is “Changes in Agriculture” which is more of a moderate impact. This will be helpful in terms of being able to finalize this tool. Paula thanked the group for the input and noted the goal is that at the next TxFAC meeting they would be able to demo some of the tools in addition to the freight flow forecasting tool. She described that the freight network identification and needs assessment has been developed for beta testing, and further described that that tool built of input that the TxFAC provided during the last Statewide Freight Mobility Plan (2018), where they had designated the Texas Multimodal Freight Network and assessed needs across that. This tool will be used during the next update of the freight plan.

Paula continued to describe several more tools under development, including a stakeholder engagement tool which helps to not only track freight stakeholders throughout the state, but also all of the input activities and input for all of the efforts can be tracked and summarized, and streamlined while reducing stakeholder fatigue. The next tool she covered was the freight investment assessment and prioritization tool, which will help with identified needs and projects, of which are prioritized from a freight perspective, then scored against the overall prioritization and investment projects from TxDOT. This tool is to ensure that freight is more fully integrated into TxDOT’s investment decision making process. These tools will be delivered over the next
30 days and TxDOT will be putting together beta test groups to try them out. Once beta feedback is received, they will be available throughout TxDOT for use.

Paula offered an opportunity for feedback. No feedback was provided at that time.

Contact information for questions regarding freight planning tools was shown for Sherry Pifer, TxDOT, Sondra Johnson, TxDOT and Paula Dowell, Cambridge Systematics.

6. Economic Role of Freight in Texas Project Update

Paula Dowell, TxDOT, continued with providing an overview and findings of the Economic Role of Freight in Texas. She described the purpose of the study which was to analyze and document the economic role of freight and communicate and promote the findings to raise public awareness on the importance of safe and efficient freight transportation. In addition, she delved into the process of collecting data, the methodologies, and economic analysis. She delved into the key study geographies included in the economic analysis, directed freight transportation impacts in Texas, the economic impact of the freight transportation sector on the Texas economy from 2018, economic impact by district from 2018, economic impact in the Texas Triangle from 2018, freight intensive industries in 2018, combined impact of freight in Texas from 2018.

From there, Paula turned the presentation over to Sebastian Guerrero, WSP, who is on the team leading the business analysis from the modal perspective. Sebastian continued with presenting a few slides that summarized the overall modal economic impact which included: modal employment impacts (on trucking, rail, ports/waterways, pipelines, warehousing/distribution, and air cargo), modal intensive industry employment, and the combined modal economic impact (for employment, GSP, and income).

Paula noted that the modal impacts are not exclusive. A lot of the freight intensive industries depend on one mode. It takes a full multi-modal network.

Paula opened the discussion up for questions or comments. No questions or comments were received at that time.

Paula covered upcoming key milestones and schedule for the Economic Role of Freight in Texas project. She then reviewed the primary points of contact for the Economic Role of Freight in Texas project, including Sherry Pifer, TxDOT, Kale Driemeier, TxDOT, and Paula Dowell, Cambridge Systematics.

Chair Emmett mentioned that we have the final agenda item to discuss but due to limited time, it would have to be a more high-level discussion, but can be reviewed in more depth at the next meeting. Chair Emmett introduced the next segment which would review the impacts of the Panama Canal Expansion.

7. Impacts of Panama Canal Expansion

The last twelve minutes of the meeting included a high-level presentation by Katie Turnbull, Ph.D., TTI, on assessing the Panama Canal expansion on Texas ports and landside transportation infrastructure. She preceded her presentation by asking that the group think about additional people that TTI could communicate with/talk to while they are getting feedback on this project.
Katie then provided a brief outline of the project objective and impact of the three-year operation. She provided a quick background on the TxDOT Panama Canal Stakeholder Working Group (PCSWG), current project activities, data on total transits through the Panama Canal over the last four years, Texas benefits from the expanded Canal, LNG imports and LNG exports through the Panama Canal; container imports and exports through the Panama Canal; Roll-on/Roll-off imports and exports; agricultural products, processed foods, and beverages; and individuals interviewed during the process. Katie concluded her presentation by asking for comments or feedback.

Chair Emmett said he looked forward to diving into this topic in more detail.

A question via the chat box from Eduardo Calvo, El Paso MPO, asked “is the canal operating at full capacity?” Chair Emmett replied yes.

Roger Guenther, Port Houston, commented that this has had a tremendous impact in Houston, and they are somewhat limited of what can come through ports until the channel is expanded. He continued that getting to and from the ports is critical but moving freight efficiently to and from their destination origin cannot be underscored while doing it efficiently without congestion. He added that from 2016-2019 the container industry growth was about 50% which was about double-digit growth every year for four years in a row. Katie agreed she would update the presentation to reflect that data.

8. Next Steps and Wrap Up

Chair Emmett wrapped up the meeting and asked if Caroline Mays, TxDOT, or anyone else at TxDOT had anything to add. He reiterated again that he wished for the meetings to be in-person for the next round, if feasible.

Caroline mentioned that the next meeting will be sometime in late February, early March 2021 and asked if that would work. Chair Emmett agreed that timeframe would work.

Chair Emmett thanked everybody who joined and participated, thanked the panelists, and looked forward to more engagement with the committee moving forward.

Meeting adjourned at 12:03 p.m.