

Thursday, August 1, 2019, TxSTIC Meeting Austin, TX

Welcome and Introductions

Darran Anderson, TxDOT Director Strategy and Innovation

James Kuhr - Thank you for joining us this Thursday. Our next TxSTIC meeting will be held on December 5th, 2019. FHWA is looking to hold a Peer Exchange that is on Valued Capture and on tax increment reinvestment zone. That will be happening in Austin, I believe the day before is when they're going to schedule it, however we will send information out around that time. Our first presentation will be from Darran is going to speak a little bit on the CAV, the connecting automated vehicles or cooperative.

Texas Connected and Automated Vehicle Task Force Update

Darran Anderson, TxDOT Director Strategy and Innovation

I will cover where we're at internally to TxDOT. We've been talking about the advancement of connected and autonomous technologies for several years. There are number of efforts that have organically grown and happened within TxDOT that are preparing for what this may mean in terms of mobility, and also in terms of how they affect the way we either provide and maintain infrastructure and operated, or just how we interact with them. We have an enterprise, what we call an enterprise governance system in the department, where we establish a number of work groups. And the requirements of those work groups are needed to look at cross cutting issues in a department kind of flesh out activities or initiatives related to those cross cutting areas, and then bring those up as they require decisions or additional resources, are there questions that they that only senior levels of management can really answer for them. So In this case, we establish that connected and autonomous vehicles working within a department to bring those issues forward and help us to begin to shape our strategy as it relates to those within the department. The goal is, again, to help us formulate our overall strategy and make that move forward. We should be getting an update from him at the executive level at the end of August.

What does that mean, at the state level? What are the things that we need to be addressing and preparing for as these are coming in? We already have personal delivery devices in Houston and they're looking at being in San Antonio. We have autonomous free operating on several of our interstate highways now. They are not fully autonomous, but they intend to be there in the next five years. We have to be aware of that on how that impacts us. But also, what does it mean, in terms of insurance? What does it mean, in terms of healthcare? What does it mean in terms of licensing, and police operations? There are those questions that several state agencies need to begin to focus on and ask the hard questions, and ask what that means in terms of regulation or in terms of understanding how it may impact their industry, or the industry that they represent, and oversee. And likewise, several components of that those industries, they want to know how to reach out and engage Texas. We have a very open set of laws that is encouraging them to come and test and deploy in Texas, as long as they do it safely. And as long as they meet the current federal standards or any future federal standards.

C - I would just say I think another strength of this task force, given its charge, will be the ability to influence national policy and regulation, just given the sheer size, influence of Texas, as certainly modes within USDOT for example, look for input on what they should be looking at for national policy. I know midsoles

continually doing that for vehicle infrastructure, motor carriers, as well for trucking, FHWA, and others. So I think it's timing wise as well. It's positioned well.

So Christina, Andrew, you're going to update you on the upcoming Texas mobility summit? Is that right? Awesome.

Mobility Summit Updates and Initiation

Kristie Chin & Andrea Gold, Center for Transportation Research - UT

Angela Gold - We just had the technology Task Force meeting on Tuesday of this week. Looking at advances in freight and logistics, bringing a number of points of view looking at automation, connectivity, robotics, and remodel facilities and block chain. The other topic that we explored more in depth was data sharing around privacy, security agreements we're just going to talk a little bit about how those all work together; the task force, the Alliance, and Darra spoke about the CV Task Force.

Kristie Chin - I think something that we've seen is that there's really this convergence of challenges that the state is facing, our traffic fatalities are continuing to increase. We are trying to understand the role in which technology can play to address.

And lastly, there's a number of economic opportunities. I think, as people continue to make more and more purchases online, how do we think about the goods delivery and the process in order to attract some of these companies into Texas in order to tackle these problems? And so through the number of initiatives that Andrew mentioned here, and this one with the Alliance, we try to look at how technology can play a role in each of these. How can we think about the world that connected automated vehicles and plan? How can we think about data sharing across public entities, roster distinctions between the public and the private sectors in order to identify safety hotspots in order to address this predictive payments considerations? And then on the congestion space, how do we look at being able to provide an array of options beyond just driving in order to alleviate our roads and provide people with greater access to opportunities.

The Alliance is a new partnership model, trying to look at how any of the stakeholders which have an impact and influence on the transportation system and come together to work through these challenges. In particular, one of the areas which we're trying to help with outreach between now and summit, trying to do further outreach to the TxDOT districts. One of the highest value items that we find is a knowledge sharing and technology transfer mechanism.

Andrea Gold - We have a partnership with the communities of practice with the Smart Cities lab, which is based out of Washington, DC. And it's got 10 cities at the national level that it brings them to work with the Texas cities that we have in the Alliance. And we work to have planning calls or strategic calls to figure out some of the programming for communities of practice. And we have deep dives on that as well. Some of the topics that we have covered in the deep dives over the past couple of months are automated vehicles for Aging and Disability populations, trying to understand some of the unique needs of some of those populations and understanding how automobiles, The connected automated ecosystem can be designed to help us some travel for some of those communities. We've also taken a look at some of the

topless mobility, safety and just tracking mobility in general, since it's changing so quickly, We were able to talk to CDC to understand some of their methodology and findings for their study they did in Austin on security, single payment platform peace, were encouraged to talk with a number of public and private agencies to understand what compression is a coordinating Some of the single payment integrated payment across transit. And then some of the teams use or other mobility services.

So going beyond transportation, we're really trying to make sure we understand the intersection of transportation and energy or transportation and housing and transportation and land use transportation and equity. And then also looking at investing in Texas. And then we'll have some breakouts on several different topics. Some of the topics we're looking at this year; our data sharing, connected automated vehicles, freight logistics, scenario planning, mobility as a service, and then emerging technologies. And by that we mean what are some of the more far out radical ones, like Hyperloop, or some of the Uber elevated flying cars.

Q - Is there a cost for the summit? And then also, what was the normal attendance?

A – Last year, we had about 300, folks, but 12,150 on Demo Day, and I think for the two days that the conference was about 300. The cost varies for public sector, it's about \$150, early registration, and maybe about \$200 for late registration, and then for industry inside the \$350.

C - So you might ask yourself the question, what does it have to do with research? What does cap Task Force and to do with research?

The Point is they're all complimentary of each other. This effort throughout researching this, I think the point really what they're doing in innovation Alliance, and what the mobility summit represents, in terms of an annual wrap up and when it comes to emerging technologies and advancing those across the state. And enabling the concepts, at least the smart transportation concepts that the cities want to do. This is where it's happening. This is where the discussions are happening. This is where sharing successfully is being participated.

How does that tie into last mile mobility, multiple multimodal solutions, and ultimately, parts of the system that we enable is important to us as well. So very positive in the in the other part of it is there are things that are identified by the city teams in the university or research teams that can come back into our research activities within department things are the questions that aren't really answered yet. We need some time, you know, in some real research done on them. So we bring that knowledge back to our research program. And that results in sometimes problem statements for the universities to address. So they do complement each other. In a similar way, what we're doing with the cap, the connected autonomous activities, both inside the apartment in the larger department, we see both of those pointing back to research for those things that we really know are much longer range questions that we haven't answered yet and telling us what kind of research Do we need, and also helping us to look across the nation at whether or not that research has already been done by somebody else.

If you have more questions or if you think of people that are where you're from, it might be interested. Let's get them in touch with Christie and Adrian in for that matter to participate and see where they're at, because they are making a lot of headway and caught so much attention. I mean, they showed on that one, I think they showed a slide that it's not just Texas cities anymore now that we belong to what's called a smart cities lab. But the reality is, I think there's about 20 cities of it, and 10 of them are from Texas. So

our innovation Alliance is a core asset to that large effort nationwide. And we're very proud of the fact that we are able to maintain coherence. We haven't had all this division amongst in cities fighting each other for grants and things like that. And they're keeping us on a path that in spaces like data sharing, which is very technical and very difficult to make happen. We're all working together to try and come up with a solution I think in Texas can come up with a solution for that as it relates to IPS solutions and traffic management is going to greatly influence what happens in the nation because nobody has a solution yet, As an example of the kind of things are working on.

Q - What's the pitch to the rural areas that at least keep an eye on these technologies so that they see them coming?

A - We started with Corpus Christi, as one of the members in the group, what I am right on the cultural been team now. They realized that it was more than just their city, they realized that regionally the things that they were thinking about, were not just about, you know, an urban solution, but in some cases, more rural parts of that area and how they dress some of their challenges. So there are activities that they're looking at, there's discussions about paratransit and how is that changing? And with the advent of emerging technologies, how can we improve those services out in the rural areas? And how can we get medically especially emergency medical care out in a much more efficient and rapid manner than then currently they can do? You know, and the other part of it is, there's a lots happening as it relates to automation that's been going on in the rural areas long before the urban areas, because, you know, last time, you know, it looked in on agriculture lately. I mean, it's very robotic at this point. So how what doesn't happening there and tie into what's happening on a larger scale within those regions? And what can we do to you know, tie that into mobility and things like that, you know, maybe automated combine needs to know how to operate one arm on our farmers market roads in a more effective manner and not interfere with truck traffic, for example, and maybe that's a tech solution that we can look at is, is the book aspects of things. So there's a lot of opportunity, I do think that in the rural spaces, if they can team together and bring large regions together have common issues. That's good, isn't we're talking to them all at once, as opposed to, you know, ones, etc. and we can really understand what is a big challenge and is we're always encouraging, Don't tell me what the tech solution is, tell me what the human challenges that you're trying to solve. And then we can all work together as a community to address it.

C - And just echo during the sound, the variety of the topics that are up there. And we said, not everybody's going to be dealing with scooters. But some of the rural areas we are seeing automation advanced, especially with the one called trucking. And then the paratransit as he mentioned, I think there's a little bit of something for everybody. And you don't have to participate every single Community of Practice if it's not something you're dealing with, but you are welcome to if you just want the awareness. So this year, it was brought up by Bryan College Station last year that we do need to engage the rural communities a little bit more. So we're working with them to figure out exactly who to bring in and how to engage them. And again, as Darran said, we like to take the approach of figuring out the challenges first, and then we'll work towards the solution and identify the technology. So they don't have ideas in mind of where they want to go. But they can at least come talk about their common challenges, then we can go from there.

Texas Connected Freight Corridor Update

Jianming Ma, TxDOT Traffic Safety Division

Darran just mentioned the emergency transportation technology plan and there is a foundation that connected a network to support these. So basically, this water project has shown benefits and demonstrated in how these connected the infrastructure will help us on adjusting some of the challenges we're facing. So our population has been growing based on the population projection, so we're going to reach to about 39 or 40 million people. Our vision is using the connected vehicle technology, what is coming this way, through the connectivity enabled by the communications. Your vehicles can talk to infrastructure and can talk to others. So they can disseminate information, and real time information with others to help improve the journey experience. Our goal here is trying to work with the triangle, Texas triangle, which we call the Texas triangle as from Dallas, Fort Worth area, I 35, all the way to the border to Laredo, then the I45, from Dallas to Houston, and I10, from San Antonio to Houston. That's the area that we're focusing on. Once it's proven successful, we're going to scale up to other interstates in other states.

Q - So why are we doing this?

A - Yeah, that's a good question. Technologies have been researched and tested for quite a while, since 1999. FTC advocated a ban, the frequency to transportation for traffic safety use, but how we're going to do this, and that demonstrated the benefits of this, especially in Texas. We have done a lot of research and looking at the different options on what exactly this technology will kind of bring to us. We didn't have a lot of actual deployment. This deployment will show us some of the benefits of these applications. For example, I'm speaking of the ITS, traditionally, when we look at our collagen with a larger audience and real time information, like travel time. We decided with that information through traditional ways, like, electrical boards, and we call it the dynamic, the master science, if you will, And, websites, even some apps, however with this kind of work like the vehicle technology, we are able to disseminate that information in food and a customized to talk to truck drivers to the transit public. With this project, I can help us learn what kind of workforce development that we need, and what kind of skills that we're going to need, in order to scale this up to a large scale of deployments. Previously, we don't deal with a lot of them, we have dealt with some of the industry, for example, the equipment suppliers, but we don't deal with a lot of design mobility suppliers and other like vehicles, but in this real world, we have to work with them actively. So we don't want to wait on that. That probably would help us get prepared to foster that partnership with them. And the things that So, one, Again, why is in any case, because this is in the heart of in a massive research project for us, I mean, it's hidden in the terms of a grant from the federal government.

C - But this is all about research, what is going to work and what a good idea is not really. In isolating each one of those different capabilities, so that we can really focus in on the successful ones and not it's a small expense. I mean, yeah, actually, I mean, days where I was, we were putting more toward in the bargain for more. But the idea is, whatever is successful, you know, to rapidly scale that, at least on the triangle is not statewide. But the bigger picture, and this is about improving safety, and in truck mobility and efficiency, freight mobility efficiency across the entire state of Texas, we're a pivot point for freight movement in the entire nation and all of the connected vehicle grants, from our perspective, over the past few years have really been passenger vehicle focusing on the thought was, that's where connected technologies, we initially really had an impact and also be brought to us but because of arguments over what, what mandate when we mandate the use of them, and what is the waveform that's going to be

using that that whole effort is kind of been slower than more we thought in the last five years. In the meantime, though, Texas has a continuing growth and freight movement, especially in the triangle. But certainly also I attended I20, out west and then up through the interstate is it runs through Loving, 2727. There's a lot of interaction with passenger vehicles, obviously, in this triangle and in a lot of impacts on congesting and things like that, that, that from our perspective, if we can, if we can identify those technologies that would help frame move better and at the same time be safer. So avoiding long queues where they have to bring far in advanced or otherwise or an accident and, and letting them know about work zones in advance. And maybe they can find another route. And how that information is transmitted either directly into the cab or the directors in transmitted into an operator is speaking to all the text, whatever the solution is, getting that information and sharing that information across the entirety of those corners, we think is very valuable to that movement. And we thought that that was a value to the nation when we propose this dream that it was an approach to connected solutions that had not been looked at before. There's challenges I mean, the technology that we're talking about does not exist on board in the cabs right now we're going to have to put some of that in, in the discussion this week, I think was that could we transmit that same type of, you know, data into their existing electronic system. And so we'll have to look at that I don't think he was probably designed to consume that. But you know, maybe the fans are going to future that might be the way the freight industry handles that.

So it's extremely valuable to us. And it doesn't stop us in the triangle. And I'm in Jianming show it is sending me corpus, but we also look at Laredo, and that quarter you major chord or for traffic coming out of Mexico. And then like I said, along, all the East western states are also very valuable, valuable, important to us, in really understanding which ones are useful to pray helps us deploy it, you know, at scale, but without wasting a lot of money on ones that will be useful technology. Because that's always the argument on all this technology stuff is it going to be used for five years from now? So it's extremely important research projects into this, the department the whole into the states of honor, really, it's been, you know, all the federal boundaries on what should be used Regarding check. And we do believe a lot of these things have secondary benefit to passenger vehicles as well. So it's, it's a, it's a win win for us if we find ones that are that are useful.

Jianming – Thank you. I want to thank you, Darran, for your support, if on that institutional level you provide a lot of guidance and you are basically the sponsor from TxDOT.

C – I just recently was talking to someone from IT about sound hound, state parks numbers therapy protocol that AT&T to advance are connected via the website. So there's a potential measure here, wherever we know what type of bandwidth this requires, is working on especially right now to money and investment, we're kind of doing for some of our partners for very long term. So the benefit advances that networking with sharp earlier and it goes all blue, where geographically dispersed among empty area.

C - And I know I had a conversation with Jeff, specifically with the autonomous vehicle trucker who was talking about, you know, they're going between Dallas and Houston. They don't touch Austin, because like 35, but obviously, CTR may provide throughout in the cities, I think there's a lot of opportunity for collaboration, you know, not just the major texts, highways are run through via, you know, other routes that some of these truckers do want so that they avoid some of the more congested roadways.

C - Just a reminder is I know that the City of Dallas is looking to submit, we have an open rate period right now. That had been extended to August 5th, so anyone who's looking for an HTC MTD grant, you can go to grants.gov and search on HTC MTD. Again and close on August 5th, so you got a few days.

Darran - Oh, yeah, I just want to follow up with what James was saying that we actually opened up the South Interim. In The North northern, we have miles this week, get northbound South opened up today. But a year from now, you know, then that full route will be open. And that can be you know, I35 coming up. That's definitely you know, we're all in we're trying to work on the Austin District here to work on a dismal plan rollout as well as we're all coordinated. Plan for RTS and forecasting as well. So we're all in on that.

C/Q - Something I wanted to say my wife and my two girls coming here. She grew up in Dallas. And we've been driving down in Austin quite frequently the last few months. And she said, yeah, it's been miserable. She asked me she said why don't these agencies make it easy for everyday common users not as traffic engineer because folks are familiar with the websites where to find a lot of this data, but make it easy so that users like my wife, is not a web savvy super web savvy, can find reliable data on when the travel down. You know, of course those speakers avoid but there's got to be a way to say you're going to travel this way looking at previous traffic information, this is the best time to travel and I think people will try to find a better time to travel and try to avoid I35.

A – That is part of this exercise. We're going to work with the FHWA a different data initiatives for example in the works on data initiatives because I know other states there are a lot of construction work zones, they could be an inconvenience to the traveler. So how can I relay that information to an out of state traveling colleague and also go one step further? We have a lot of this data that we can share with a third party and others whoever wanted to try the services so they can develop all kinds of applications,

C - Yeah, actually, I sat in a meeting to this on Monday. It was amazing to me how Coca Cola and truck drivers they do not let their drivers touch anything in the cab after they get going. So the beginning they get a route and if they turn on ways at the beginning they can put it there and leave it there but they can't touch it and that was their company policy through so I think that that routing you know, they already have their store data apparently ability with three to make it up impound Texans going to do it. But I think that was very powerful for a lot of people and certainly something that can come with this.

BREAK

James Kuhr - I will ask that if any of the STIC organizations, if you have something innovative, you would like to share perfectly with a federal connection, please let me know and we can see about you on the agenda. One of the things that I've kind of been watching, I'm super excited about is that CTRMA, was watching the presentation on the wrong way driving, and they actually are implementing some of the wrong way dropping stuff down on some other facilities. And so they'll be telling us about that next time, I believe. And so we're excited to see that sort of critical mass and these ideas as they move forward. And we always appreciate hearing from you all.

Virtual**Public****Involvement**

Linda Alvarado-Vela, Alamo Area MPO

C - Linda Vela is our planning and public involvement Program Manager at the MPO San Antonio, I know a lot of you may not be familiar with MPOs, but we are planning organizations that are tasked with involving the public and transportation planning within the region. And that deals with shortening and the long range plans. And so it's often difficult to engage the public on a planning process opposed to an actual project. So we're always looking at innovative ways to do that. And I know this may not apply to everybody around the table, but all in all of you are probably have these tasks with marketing and with public engagement in some form or fashion. So hopefully, you'll get something out of this presentation that have done this presentation for the BBC in Orlando and Baltimore as part of the everyday accounts initiative for FHWA. And so we're happy to make this presentation to you today.

Linda Vela - Linda Vela, I've been in public a moment, my entire career, which is now over 20 years, started as a consultant spent 18 years as a consultant did a lot of work for the Texas Department of Transportation all over the state. I say that to say that I'm going to talk a lot about virtual public a moment, because it's important for us to realize that there's new tools in the toolkit. This presentation is really focused on virtual publican moment, because they Every Day Counts initiative, is focus was focusing on that particular aspect. The big thing to know is that all these new tools that I'm going to talk about, don't eliminate any of the old tools. So the grassroots public involvement, the public meetings, the face to face meetings, the one on one meetings with stakeholders, Those are all still part of the token, they just keep adding more tools. And as a public employment practitioner, you it's important to stay up to date on those. So I'll be talking today about a couple of the things that we're doing, specifically social videos. And I'll tell you what I mean, like social videos, online public meetings, which you're probably all familiar with customized solutions that we're using it the MPO and cost effective tools.

So over 65% of the US population uses a smartphone. We know people just looking at my own metrics for our website, that people are not accessing it on a desktop computer. They're accessing it on their phones. Some of you might be accessing websites right now. So not only do we have to have technology, but it needs to be mobile friendly technology, and then engage. We need to engage with populations who might not otherwise come to public meetings. What I learned was and you have to keep up with the trends because Facebook algorithms change practically like three or four times a year. And Facebook has done a lot of research. And they are still the premier platform for social media that they have the greatest number of users. And what they found is that people aren't watching for more than 60 seconds, a lot of them are watching for even less. So back in the day, we used to spend so much money doing 5, 10, 15 minute videos, teaching people all about a subject, No more 60 seconds or less, 60 seconds or less. That's the attention span of the folks that you're trying to reach. And if you don't believe it, just look at yourself, and how much time you spend on any given site. So keep them short. And the other thing is you subtitles, probably somebody scrolling through their Facebook feed right now. And if there's a video, you're not going to click on it. So you subtitles, people are accessing it when they're not supposed to sometimes, and that's okay. But we have to provide the information and a way that they can access that. And then the last thing is use movement. So Facebook research has shown that you have about 30 seconds to capture someone's attention on whether or not they're going to stop and actually view your video three seconds. So you want a lot of movement in your videos.

So I want the people that experienced this online to have the exact same experience that everyone else does when they come to a public meeting, I don't want you to feel like you got shorted like you didn't get the same information, any of that. So to review any of the documents that we present at the public meeting, whether it be exhibit boards, whether it be handouts, whatever, all of that goes into my review, buddy, and three participate. Typically, that's going to link you to some kind of survey, you know, we use Survey Monkey. There's many tools out there, there's a number of tools, Sometimes we even just use Google Forms, and we've been able to customize those and do a lot with them. And then this particular one, we had a fourth step, we're asking them to rank. Sometimes that fourth step is the results. And I'll show what that looks like. But be consistent. Also be consistent. Again, I want them to have the same experience as if they came in person to my meeting. So this particular thing here, that looks just like the boards that we have a public meeting, same information, except we added interactive maps. That was a little plus, right. But the comment space at the public meetings if you can as a public meeting, you use a sticky, you put it in that box. But online, you could do the same thing.

Q - How do you engage audiences that may not speaking and/or multiple languages?

A - Sure, and I'm going to I will address that a little bit later. But typically, as for our area in Spanish, primarily, we are starting to see a greater percentage of Asians in our community. So the languages that we use might grow in the future. But everything we do, we try and do bilingual. On that site, there would typically be a button that says click here. Or if sometimes I'm realistically, sometimes we're on a short time frame, and we don't have time to translate everything. And in those situations, there's a Spanish comment where they can contact me or my bilingual public involvement officer and she and I can talk to them directly. But the thing is, and this is something that we're still working through, you know, one of my ongoing projects and the MPO. Like we do everything in Spanish, but what did you do to get the word out to people in Spanish. So we are working on building a Spanish language, e newsletter, and then also collecting emails from Spanish language participants. That happens and is happening through our ongoing face to face meetings. So we do boons that community events, we worked with some organizations on the near west side of San Antonio, which is where we have a lot of our Spanish speaking community, and collecting, keeping those Spanish emails separate from our English email so that we can start building that list. But it's an ongoing project. It's not, I would love to say that it's launched, what we did launch this past year, which was a big thing for me, is a Spanish language landing page. So previously, if you went to the MPO, there was a lot of Spanish language content, but it was sprinkled throughout all the English. And I just thought to myself, you know, if my mom wanted to come and get us some reason, there is no she wouldn't be able to navigate through all the English content to find the Spanish. So we last year launched a Spanish language landing page, it's not a full replica of the entire site, because that gets very hard to sustain. Right, we make changes to those websites all the time. And it gets hard to contract. But any of our major documents, we translate, for example, we just did our up WP executive summary, that's going to get translated. Same thing for our Transportation Improvement Program. Same thing for our Metropolitan Transportation Plan. Those are on the landing page. All our Spanish rack cards are on that landing page of our Spanish infographics are on that landing page. Anything that's in Spanish is all there in one location. So now I have a URL that I can get my Spanish speakers. And they're going to go there and only get information in Spanish. So some of it is thinking through that as well. Because it's not enough to just have it in Spanish if people can't find it. And so we're, that's an ongoing process. And the next step in my mind after developing that page is OK, now we get Spanish emails. And now we get a Spanish e-newsletter. And that starts growing. We're at about 100 names right now, it's not that big. But we want

to get it bigger, and we know that they're out there. So but that's going to be a lot of face to face interactions, collecting those emails, and then doing that outreach.

Q - I'm sorry, what one quick question and progress, you're going to get to it. But I'm curious about reaching out or engaging, particularly in public meetings, online meetings. Those with hearing or visual disabilities, how a lot of what you guys do will affect them.

A - And that's a tricky one. In fact, I just got, I was just contacted by someone that's working on an NC HRP study. And they were asking me about just that. They said, Linda, we're having issues because people are doing videos, and they're saying it's very costly to do subtitles. And I was like, well, I have a different problem, I don't even have words, I have all subtitles. So then yes, if someone can't hear, they could read it. But then if they can't see, they wouldn't be able to get it. So I think that's an ongoing challenge that people are struggling with, I will say we have several people in our community that do take advantage of the translation services that we offer and some of the other services for hearing impaired. And that typically will come through a call to our office. So there's always that kind of disclaimer on all of our outreach materials. If you need some kind of translator, if you need some kind of additional service, please contact our office. And that's typically how we get those participants. You know, one thing I've noticed on TxDOT, and their new branding, all your photos are tagged. And that's great, because that's one of those challenges. If you don't know, one of the things about making things a DA compliant, is that everything within it needs to be able to be read by a tool. And so when you think about that, that means that it's not just enough to have a pretty pictures, but now you have to have someone that goes in and tags them all. And the tag needs to be descriptive enough so that that audio reader can tell that individual what it is they're looking at. And I've noticed that about TxDOT's running great job on that, like all the photos that I see that you guys are using within your templates have that. So that's something that we're still working on. We do have smaller stuff. But it is important, and it's a challenge. And I think kind of art kind of catch all is if you can't participate, call me. And if I have to go sit with you one on one, or if we have to do something special with you one on one, we're going to make sure you're part of that process. So we don't haven't quite figured out is the honest answer there. But we're working towards it.

Linda Vela - And I would love for FHWA. I think that would be a great resource and assistance and how to do that and do that well. But apparently they're working on it, seeing as I was contacted with that very same request. These are customized solutions. So these aren't necessarily as cheap as some of the ones I've shown you. At the MPO we've been able to make use of a tool called Tableau. Probably several of you are using Tableau. It's a very versatile tool. There's other tools now. I think our GIS just came out with something called insights. And it's helping to bridge some of those data. The viewing leads, if you will. So we are everything is now performance based, right? We're doing performance based planning. That means we're collecting a lot of data, how do we share that with the public in a way that's user friendly, at the MPO. Our GIS professionals have cross trained and trained themselves on how to use Tableau and insights and are helping us create dashboards that are really helpful in terms of conveying information.

Q – How is the procurement timeline? What kind of constraints do you operate within? Yeah, if you wanted to go out and get Canvas for everybody to use. You want to make sure it's secure. You want to make sure it operates in your architecture, you want to make sure you're not putting data up into the cloud that is no longer in the control, it seems live and all those things are considerations are happening. How does that play in your flexibility to grab apps?

A - Thankfully, I have a great boss. It has given us quite a bit of flexibility. I will say that, for example, with Canva we're not doing anything that is sensitive. So we're not necessarily using it for anything sensitive is primarily outreach. If there is anything, Tableau is the one that would probably have the greatest impact. But there are safety measures that they have in place, and that we haven't placed on our end to help prevent that. But it's also one of the reasons we're switching to insights because with our GIS, There's one there's a lot more we can do in terms of integrating. They've also added a survey tool, if you don't know our GIS is out of the survey tool. And so now you can integrate the data that we get through our surveys right into the mapping, and it's working out much better for us. But as an MPO, we probably do have a lot more flexibility and then something definitely to consider. But for camera and vitals. We're not putting any sensitive information up there. It's usually information that would be available to the public anyways.

Q - Yeah, I was just wondering, so you've been there for a couple years. And I was curious about how long it took to get to this point, to have all the systems in place and the processes is a couple year thing?

Linda Vela - I mean, I might let Sid answer that.

A - We had a social media presence before that, Linda's really great and really social media savvy and obviously very, very good at public engagement and public involvement. It started from the ground up, but she's taken it, 10 months or 10,000 steps forward. But she's been doing this for three and a half years.

Linda Vela - You know, yeah, big time in something new each year. And this is just the public of moments. Stuff we're doing. We're also doing things on the planning side. That's a whole other presentation. We just started up a travel demand management program called Alamo Commutes. So I would encourage you to visit that site alamocommutes.org. We model it modeled it after several programs across the country, but most closely to the one that move ability Austin has here. So lots of things since I've started the MPO with minimal staff and minimal budget, which is why it's called cheap tricks.

C - For virtual public the moment was excellent presentation. And we've done some targeted virtual meetings and all that, but you're taking it to another level and this is excellent.

Also, I will say I'm very fortunate that before I got there, we had our own website analysts, people that already had some of these skill sets. So when you talk about procurement, I was lucky that I didn't have to procure some of this stuff I was able to use in house staff. So for any agencies, one of the things I do people tell people across the country is cross train your staff like BMP. Alamo area MPO has one of the best cross training programs I've ever seen. It's emphasized in every performance plan. And because of that, we have people now that can do things that before they probably outsourced.

Reducing Rural Roadway Departure

Stephen J. Ratke, FHWA Texas Division

I'm Steve Ratke, I'm one of the three people in the office that split second duties, it obviously is very important to us all, Very well time, given the commission reason the doctrine of our zero by 2050 a goal. And it will talk a little bit about how urban partners are a huge chunk of our fatality issues here in Texas and across the country. And so while we're focusing on rural road partners, we know 35,000 plus modalities the last few years here in the United States, half of those are world and so happen outside of urban areas. And 34% of that total number of fatalities is worldwide partner infections. And so we can get more ever done on our ruin Patrick rushes earlier as we can make a huge dent in our progress towards

zero and focusing on those fatalities. And so just a reminder that every day on average 30 people will you know, people are brothers, sisters, wives, husband, coworkers are coming home because of roadway departure crash. So when you look across the country, you can see that Texas is right about the average in terms of presenting robotic departure fatalities around 33% of the average is 34%. So you can see we varies a bit from how earlier nerve in your state is with Texas is very typical. And you can see here because Texas is such a large state that does add up to a very large number. And you can see it's actually larger than a state. And so this is certainly a place we can put a lot of focus and talk about what we can do to roadways to be safer.

Collision Avoidance, you might have things with other vehicles on the road. And of course, there's the driver error. And so understanding that there's multiple factors of why these crashes happen. And so many people have seen mentioned of drivers are responsible for 9390 to 94% of crashes. I think people see that a lot. How many of you think that means that the roadway and other factors are only responsible for 6%. There's a lot of people who do think that but those are not exclusive categories. And you can see here, our robots are doing an income for 34% of the rationalization and being able to convert 12%. So understanding that, But 94% is not an exclusive number. And then certainly a lot of the driver errors that happen are due to iRobot conditions. And you can see how these are overlap here where you know, about 40% of those crashes have multiple causes, not just one cause. And so understanding that humans are the biggest link in that in that issue. And we need to understand how we can design around the human failure, we expect humans to make mistakes. That's what they do, how to make those mistakes and not failed. And so when you think about where you spend money, we want to focus on fatal crashes.

A lot of things we have we always talked about how much data we have we have all these data sources. How useful is all that there?

Our answer is do what you can with what you have where you are, you know, we don't be a perfect data, We would love to have all of these other data sets, we don't always have to have them. There's always something we do with the data we do have. Sometimes it can be very qualitative, rather than being quantitative, but still come on the prioritization process. And so you need to come up, you know, good, fair or not so good. You know, high, medium low, figure out what those risk factors are, at least giving a subjective take on an image don't have perfect data. Now, and some things are going to be qualitative no matter what you do

Q - On a vehicle miles traveled basis?

A - What you mean by vehicle miles traveled, but as you look at crash rates by the MDI rover lights have higher crash rates than urban facilities? Typically.

Q – World rural road crashes?

A - I think some of them may be in a future conversation financially. And so I'm double thing there for some Texas data. And there's nothing certainly we can figure it out and give it to you.

Q - Quick question on your presentation – I am curious on what data you have to come up with the percentages?

A - And so you're asking about the injury factors from the 93 and 2034 for that one. So that actually dates back to the study in the 70s. There's not one fresh date on that. So those data are largely I think there were two or three studies from the 70s. That data reverse.

C - I think Jianming's asked because we get grilled the data. Unfortunately, there have been recently failed studies, it's probably a good one to do.

Q - On the local road safety plans only one in tech, this shows that on local government things that you support?

A - So that the DOD there was specifically from federal highway systems where we had a contractor on board to help the county's coming on board set a plan. Certainly at the county wants to do it on their own, we can provide them information on how to do that. Or we have our directory where our consultants will do some of the work for them. And so the \$1 we had for Warren County was connection, it was made at a NACE national meeting. We also have a lot of information just on how to do that, putting that infographic in a lot more detail guides as well.

Q - So I guess I'm really asking if this is kind of the candidate for the LTAP.

A - Yeah, actually taking a note on that to get with you Steve because I feel like that we could use the LTAP to push that information out.

C - Yeah, and that's something where I could probably do more of a train the trainer session for LTAP staff, and then you guys can go out and provide that type of assistance in the counties and regulate it

Q - And then I guess, you know, the other takeaway I got is traffic division and TxDOT districts are working very hard to implement a lot of these activities now? So it's good news story.

A - Yeah, there's a lot going on. I think there's a lot to be said on TxDOT emphasis on Safety, especially in the last year and a half a year where it's really ramped up.

James Kuhr - Steve kind of talk about these trading cards, and they are actually very neat to print out and see these trading cards.

LUNCH

EDC Project Updates

1. Weather Responsive Management Strategies – Christian Claudel, Center for Transportation Research
2. Advanced Geotechnical Methods – Seyed Mohsen Shahandashti, UT – Arlington
3. Automated Traffic Signal Performance Measures – Srinivasa Sunkari, TTI

James Kuhr - So one of the benefits coming to this meeting, obviously, we at TxDOT will get these great ideas from federal highway called everyday counts initiatives. And some of them will go directly into our divisions and districts to work on some adaptations to be used in the state of Texas. And so the research program will often be keyed up, we will contract with universities to work with us to make that adaptation, and hopefully in with standards and specs and stuff that we can then use to share wiping throughout Texas. So Currently, there are three of these EDCs and research programs is working through and we're going to get a quick 10 minute update these from our researchers and we're joined by a great set of universities and got TTI, TR, UT, and UTA.

Weather Responsive Management Strategies

Christian Claudel, Center for Transportation Research

I'm going to report on the 0707 development levels, management strategies. This is managed by Ken Perrine. The objective of this project is to carry on from BBC for so we had the seminar with at the projects in DC4 which was about Mediterranean weather, and the metering the interactive weather How to mitigate that impact on people. So the three key crimes at home server floods, ice and wildfire. For this. For the EDC; now we are focusing specifically on icy because we think that it's a very interesting program, they are very interesting types of sensors that we can cover. And we can probably make a very interesting management system that was a request data from during the context of some sorts an excuse me data here. Our objective is to deploy some before the winter, to make sure that we can collect enough data for this first year. And once we collect enough of these data will be able to have a better idea on how to design the stable platform for the second year, starting the next week or so the 2021 winter, if you want to have more information, you can go to our Project Manager, Ken Perrin.

Darran Anderson Q/C - So is our information management division tied in on it architecture fees? The reason I'm asking is we've got an effort going on with our Emergency Operations Center in terms of the ability to using a common math platform in the department to bring data from across the department about what's happening in emergency operations. And we're also adapting the same math platform to a number of applications across the firm. So it'd be fantastic if we make sure it is bringing that that back to the back end to this. So as they develop out and test it out, and what and what would be good for use, you know, in the department will tie that in and so they naturally progressing straight forward into. And ideally, you know, we're going to afford all of what's going on in that arena into what we call DriveTexas.org, which is our external website about road conditions. And these are systems that we ultimately intend to make that available on road conditions for every single round in the state to put things like flooding in not just ice. And we've got an API already set up to make that available to people like Waze and all that's already been established. So as this gets built out that naturally can flow right into TxDOT's operational side, but out to the public through our web capabilities or, you know, other publicly available one. So this is great.

Q - You're thinking about maintenance, right?

A - So the maintenance of the infrastructure, the infrastructure is an issue. Here, our objective is to help as many people as possible and also some sources are as cheap as possible, so that you don't have to reinvent and then you can just add a certain lifetime.

Advanced Geotechnical Methods

Seyed Mohsen Shahandashti, UT – Arlington

The first part of you're going to explore more methods, not just an electrical, job physical methods, and we are going to we're going to explore them and compare them with each other Specially having in mind the characteristics of our 25 districts in Texas And we are going to create flow charts papers that we can use in order to evaluate which one of these vendors would be useful for us in takes us. And the second phase, you're going to implement electrical resistant the different violent or real projects And we are going to create manuals for to use by districts.

Q - Is this focus just on roadways? Or is it applicable as well to where you might be putting a new bridge?

A - One of the things that we had in mind was applications. So this project that we did in Paris district it was for a broken project. I'm working with another engineer now. And hopefully I can get a bridge installed. I'm working on another project for TxDOT, which is basically a scope of everything very validating. And so we had applications in mind. But there's so much we can do. And the limited amount of tests we can do.

James Kuhr – I am the RTI project manager on this not stressed two things. One, I would like manuals and specs and stuff that I can hand to an engineer and some far flung region of the state they can do it. And then additionally, I'd like to try to track the cost benefits that come out of this project. Because I feel like this might be a really easy area for us to justify research funding in terms of TxDOT, so most of the updating us on that as it goes forward.

Seyed Mohsen Shahandashti - This is it, In fact about two comments that you had, absolutely, I will go. So I'm working with the engineers industries, into several projects, including this project, I'm working with the districts, and make sure that engineers in the districts responsible for these kinds of projects can use our manual. This is my goal, I evaluate that after creating that sensitive about it. So it can be short and can be used. And above the second thing that you mentioned about cost benefit analysis. So this project that we did for Paris districts, I have the report format, so I can ask the engineer and I can estimate it myself how much cost they spend on that. And I can estimate how much cost it spending on that for the rest of the provider getting a head to head comparison. And I can scale it up to what we're doing in Texas.

Darran Anderson Q - Just want to make sure I understand. It's not just that this might be able to determine differences in geology, but it could it also detect, potentially such as caves and tunnels?

A - Yes, because they have different resistance. And as we have our receivers and sensors sending electrical waves, it should be able to detect this. But there is limits to the accuracy of what technology can provide. And we are going to this is the reason we are testing. And this is the reason you're testing that different soil characteristics to make sure that we observed as much as we can.

Automated Traffic Signal Performance Measures

Srinivasa Sunkari, TTI

What are automatic traffic signal performance measures? Basically, it consists of three things. The first one is a suite of performance measures that go and address various user needs. And this performance

measures are generated using from data collection tools. And third with all the data that has been collected, we have some analysis tools that are being generated by third party folks and other I'm including folks that are generating this data. And this primarily to support an agency around the provenance of support various users, but ultimately, to support an agency to how to manage an effective traffic signal program. We are actually working with USDOT for a project generating the effectiveness I hope is embedded in the program. And this is one of the tools that goes into that. Well, the last few years, with numerous projects that were sponsored by TxDOT. Subsequently, we develop a toolbox that we could leave installing a single controller cabinet for a few weeks. And then we could cross across the data to identify various performance emotions. One way behind is illusion data is the data that is coming out of this is a logging of every event that's happening in a single controller cabinet 10 times a second, every event things change a single status. Now, this is an awful lot of data. And this data is then analyzed the various entities. One of the first one that was generated by was use this data was the used by Indiana. There are other entities like Mile Vision, who how Women's Business of using the collecting data and Academy critical component cabinet and then generating performance metrics, not just the primary thing that they do. And then we have other players that have already in the cabinet like Intel, like kind of like traffic control and traffic wave and Siemens classical controllers, were these other controllers that are actually having all this data with them and listen to their own performance analysis tools. And then there are other entities like DDI, which are detectors of a cabinet that also have government the so there are a whole host of analysis tools. And the objective is to see which one suits our agency best. Before we go in and just want to see why is it that we are doing this, on the left side, we have the historical way of how we operate and maintain our systems and split this into traffic signal system, what triggers is a phone call or a complaint. And that then goes into every three to four years, we go through the process of returning signals, we collect data, we develop signal Tomic plans, we implement them fine tune them and then evaluate them to see if they made any change. And that is based on the output that we have is the typical time in class.

Closing Remarks –

C - I want to thank all the presenters today, I thought the information was outstanding and successful meeting. For me, I'm certainly met and exceeded that I learned a lot. One of the things reminds me particularly, as we're learning about what's happening with the latest, the EDC 5. TxDOT only recently went back and is now going to adopt or break into there. So that's the something from EDC 1. And that's the safety edge, which things directly and described earlier, it's simply putting a nice, A tempered edge along an asphalt pavement that would otherwise have a one or two inch drop on it. And so as folks, if they were to run off the road, they don't overcorrect and flip the vehicle. And so it's just a good reminder that while we're taking advantage of some of these technologies now, to maybe take a look back at some of the things that weren't done in earlier iterations, to see what else we might be able to pick up on a lot of experience of states that maybe have done things that we haven't gone through a lot of the headaches of putting it on paper basis.

Darran Anderson - We will have follow ups to this. The main membership as well as all the strong visitors in bringing pertinent information to you that not only is useful to TxDOT, but is useful to you. And if you have ideas of topics that we should bring in or ask has this research already been done in this area, and then we're happy to address that. There's a ton of research being done all the time, not at the national level and multi state and we are very, very strong within our research division to pull all of that into the seat. There's several Transportation Research Library and make that available. I like everybody else

doesn't have time to look at all the great information websites all the time, there's so much of it. So boiling that down, there was a value to us is important to us.

Thank you.

Meeting Adjourned!