

Texas AAM Advisory Committee Meeting - 043024

George Kivork

0:07

Still our timeline, the goal with this exercise was more to get the air traffic control familiar and comfortable at the airport. We don't anticipate needing to do any additional requirements or any additional sort of checklist for us to do those flights. It's more for air traffic to be ready for when these aircraft are coming to integrate in this space. So, we don't anticipate needing any additional sort of diligence.

Kimberly Williams

OK.

Thank you.

Dan Dalton

0:35

Excellent. Well, George, I think you did a great job for Eric. In fact, we should tell Eric he should be worried about you taking over his job, but appreciate it and tell Eric we said hi.

George Kivork

0:47

Thank you.

Dan Dalton

0:50

All right. Next up I think is Patrick.

Patrick Yee

1:09

All right, Patrick E from Relis. I have about 40 minutes, right? OK. I would have done the slides a little bit different if I knew what everybody was briefing. So I'm going to kind of go over what RELLIS is, who we are and what we have out there in the aviation capabilities. So Relis is an old Army Airfield from the 1940s turned into Air Force Base in the 1950s for the Korean War. Air Force sold it to the Texas A&M University System. 2016 The Chancellor turned into his vision as an applied research campus. Since 2016 we just hit \$1.2 billion into the campus mostly infrastructure since most of that infrastructure is 1940s 1950s infrastructure. So it's a collaborative ecosystem built to foster Advanced Research, technology development, testing and evaluation, higher education, hands on career training.

It's not a standard campus college campus. We do have a small academic presence with mostly Blinn College has about 4000 students. The Academic Alliance has about 400 students. That represents 10 of the A&M Colleges. So A&M Commerce has a presence there. A&M West TX, every college except main campus has a presence here at RELLIS Chancellor Pope's vision is for to ensure that world class facilities there at RELLIS help ensure the next generation of Texas will benefit from everything that's tested out there. So he's Texas centric there.

We also have state 8 state agencies on campus there, the Texas A&M Transportation Institute that does a lot of the crash tests. They work with neurology doing toll tag testing. We have TEES, the Engineering experiment station. They do a lot of a lot of their engineering footprints out there, Engineering extension services, TEEX. They have a law enforcement...out there. They have a drone program and the ITSE, the Infrastructure Training Safety Institute. They also have a drone program for the Linesman Academy. We have Agrilife out there, Vet Med, Tetum is new They just built their District Eight headquarters on our campus, It's a pretty large facility. And then the Texas A&M Forest services, they just got a new UAS coordinator a few weeks ago there in college station, They're going to be

coming out next week and checking out our facilities to start doing some testing and drone operator training out there. So what we have out there as far as aviation goes, we do have a full airport system, 5 runways, two 7000 footers three 5000 footers, A taxiway system that encompasses the whole campus, about 2300 acres in total. We have 3 Koas 1 to below 1000 ft. and over 400, over 55 pounds, And then we recently got a BVLOS COA Part 91 corridor that spans about 12 miles in One Direction. Those are all independent of each other, can't be used together. The BVLOS, what we designed it for was for two things. We have, at the end of it is the Aggie Farm which is about 1400 acres and then the TDCJ Buffalo Ranch just gives us access to remote farmland and controlled access on the on those properties. Similar to what Pendleton does on a on a lot smaller scale they have a lot more farmland out there than we have.

So, the second part is we have a lot of requests for counter UAS operations. So, launching from the Aggie farm TDCJ flying into RELLIS where we have some sort of device out there that tries to see how far they can detect the small UAS out there. We just got a letter of authorization from AFS 700 waving the remote ID requirement for aviation-based research. We have some hangars out there that we're building, 3000 square foot hangars. We have 3 built, two currently being built and five proposed. So just workspace for everybody. We have a private 5G network that companies and researchers can test against and test on, millimeter wave CBRS and C band. And we also have spectrum management. We have a CACI guard system that has four spectrum analyzers and we're able to either get the footprint of what's out there, We've had a few instances where drones are, the signals being jammed somehow and we're able to detect what that what's being interfered with. One of them was the toll tag reader that was interfering with one of the UAS systems. So Yep, that's about all I have.

Dan Dalton

6:22

Any questions in the room, questions online? All right. And I know that we had two other, Thank you, Patrick. Appreciate it. Two others that are not on the line yet. Yeah. Any questions or comments in the room before the others join? They're gonna join in 6 minutes. So no. Yeah. Or we could just break. Let's go ahead and do that. So yeah.

So we'll take a break for about if you folks Could try and be back in here around 10:30.

That would be great. And then we'll start up again. Thanks so much!

Kimberly Williams

10:48

Andrew, This is Kim Williams from Houston. They're taking a break right now, I think about 5 minutes, and then they'll be back. Oh, you're on mute. Andrew, you're on mute.

Andrew Chang

13:58

Hi, this is Andrew Chang. Just testing. You can hear me OK.

Kimberly Williams

14:05

Yes, we can hear you.

Andrew Chang

14:07

Great. Thank you. I see Tom Anderson as well from Archer. Great. Thanks.

Tom Anderson

15:19

Are we waiting on something in particular or are we good to go?

Andrew Chang

15:33

Tom I think they were on break, So we're waiting for people to come back from break.

Tom Anderson

15:37

OK, Thanks. Appreciate it.

Dan Dalton

18:09

If we can get, if we can get folks to head back to their seats, that would be great.

Dan Dalton

18:27

All right, everybody.

Dan Harmon

18:32

All right, folks. We're just about ready to rejoin.

Dan Dalton

18:40

Oh, it's good, It's good. Thank you. Appreciate it. Takes two Dans to quiet down this crowd. All right. Andrew, you are up.

Andrew Chang

18:50

OK, great. Thank you. Good morning, everyone. Appreciate the invitation to participate in this round table. I'm Andrew Chang. As a reminder, I lead our corporate development and United Airlines Ventures practice for the broader United Airlines. Just want to take a step back. Our interest in AAM broadly is, is from an innovation perspective and the potential to enhance the customer travel experience and we're trying to extract those learnings to deploy in our broader decarbonization goals and that's why we're very interested and want to participate in these kinds of discussions. We united are not necessarily looking to be-

Dan Dalton

give them a few seconds and then Tom, you are on deck.

Andrew Chang

19:42

Sorry, can y'all see and hear me? Someone removed me from the meeting.

Dan Dalton

19:45

There we go. Yep.

Andrew Chang

19:48

OK. So, we're not looking to be an owner and operator necessarily, which is why we partnered with companies like Archer Aviation, whom we've invited to join us to share some remarks. Just as a friendly reminder, United and Archer are both public companies. So, we really are limited to what we've disclosed in the public domain. And likewise, we are myself, I'm making remarks on behalf of United. Tom Anderson is joining here. He's making remarks on behalf of Archer. We are not necessarily speaking for one another, but back to the original 5 topics, I think maybe I can kick off around the community engagement or integration aspect. That is probably where United is most active and most influential of those five call outs. We recognize that we have a lot of in-house intellectual capital. There's a lot of hard infrastructure and relationships that we recognize utilizing the global consumer brand that we have as well to effect change. So with respects to the community aspect, it is both internal and external efforts. Externally it is mostly around awareness and education with multiple groups. We are speaking and engaging with Chambers of Commerce to build support. We are speaking with the airports themselves, United with our IH hub, one of our seven hubs.

We're speaking with IH in the in the broader Houston airport system. We're also speaking to the local and city governments and bodies as well. That's the external facing piece. If you look at it internally, there's probably five or six different groups within United that are engaged. We are looking at flight operations, finance, commercial air traffic control, real estate all of that supporting and bridging what we have in house to sort of the education piece externally. In our discussions with the airports, I want to highlight two pieces, the air traffic control piece and the real estate. Those are probably the two more challenging aspects of the operations, and frankly longer lead times as we introduce this new sector to our to our core operations. And it's also worth highlighting, we are not looking to disrupt the existing core operations, right. It needs to be maintained and preserved. We are looking this to be a supplement and enhancement of our existing operations to our customer experiences. It's also why we are particularly interested in Texas and Houston a relative to other deployment opportunities, you know the geography and the weather. It's also more conducive to you know beginning this, this, this new aerospace market that we're that we're looking at. In terms of collaboration, collaboration with Archer, There's a regular meetings and engagement across the business units that I spoke with previously also including government affairs and advocacy. That's a big part of it as well. It is a mutual bilateral discussion of you know where could the customer demand and customer request be looking for near term and then longer term and how does Archer take that sort of customer marketing from information and help dictate and define their own strategic execution and and plans.

I also will mention you know we do think this is a broad sector. There's a lot of market participants. Archer is just one of one of our many relationships. You know we also have an investment in EVE which is backed by Embraer. So having a large corporate backing there is helpful as well. And so we do believe that it really does take a coalition here. So maybe with that I'll turn it over to Tom Anderson of Archer Air. He is the COO there and Archer Air will actually be the eventual part one-Five operator of the Midnight EVTOL aircraft that that Archer is planning to produce. Tom joined Archer after serving CEO of Breeze Airways and also has a lot of airline experience at other airlines as well. Tom, over to you.

Tom Anderson

24:12

No, no, thank you very much. Maybe we'll move on to the next slide. So if you think of Archer, simplistically, there's two companies. One is design, certifying and manufacturing the aircraft and the second one being the, you know, operator of the aircraft of which you know that's where my role kicks in. And then as an operator of an air of the aircraft, you can think of Archer deploying aircraft on behalf of, you know, our partner and investor United and operating aircraft on the United brand and serving the various United hubs. But then also Archer flying to and from points that are not, you know, connected to a major airport. And so a lot of what we try to do is follow best practices and best practices laid out by the FAA. So the FAA has put out a community engagement manual and we've been following the best practices in the community engagement manual when we engage in looking at where we're going to operate the aircraft and how to bring the, you know, communities along in the journey.

FAA also put out a document on AAM integration and if you look at page 28 of this document, it's got a very useful checklist of what are all the stakeholders that need to be engaged, what are all the things you need to think about in prospective operations. And that's very much you know what we've been following in our regular engagements with you know collaborators. When you think about how this could all, you know, play out and you look at the, you know, the slide there, a lot of what you see in the trade press is more along the sore end of that continuum with you know, uncrewed automated operations. But we are very clearly focused on the part on the left side of the slide, which is utilizing the tools that are in our toolbox already today to operate aircraft. So we're talking VFR, we're talking about using current operating procedures. We're talking about relatively low volumes of flight activity and we're talking about leveraging existing aviation infrastructure. And you know as Andrew alluded

to, we always focus on making sure that the EVTOL aircraft are deconflicted from existing airline or traffic by design.

And then once we get up and running and we develop some operational cadence then we start to move towards you know what we call the walk phase where there could be you know VFR and IFR still leveraging current operating procedures, obviously ramping up the volume as we gain experience, starting to have more bespoke letters of agreement with the FA that articulate how we work with ATC in a more you know streamline fashion, looking at designing specific routes that accommodate EVTOL aircraft and more looking at new or bespoke infrastructure. And then when we look at the, you know, run phase, now we're looking at you know, bridging towards more autonomous type operations are those still piloted and ramping up the volume. And so our key message we try to articulate is we're here to work and collaborate with communities that we aim to serve. We want the communities to see that what we're doing is being positive and that it's giving them additional mobility options, additional ways to get to and from where they want to go in a more, you know, timely and enjoyable fashion.

The service we're providing is quiet, it's safe. It's allowing you know employment and workforce development opportunities in the communities we serve and that you know we're operating on behalf of you know partners and investors like United where we're actually making it easier for people to get to airports or easier to get around you know places where they desire to go today. So, we're very fortunate that we're a public company. We've, you know, raise sufficient capital, get through certification of the aircraft and put it into operation. And you know, we're very honored to have a chance to, you know, present our story to audiences like this and you know, very pleased to have United as a partner. So back over to you.

Dan Dalton

29:08

Any questions in the room, questions online? All right. Tom, just really quick Curious what have you found, what are some lessons learned that you've found as you've been working with airports and communities? Would love to hear kind of your thoughts of, you know, word to the wise, so to speak for this, for this audience.

Tom Anderson

29:23

Yeah. I think what we've learned is that we tend to go through a few loops of integrating different elements of the overall design. And by that, I mean we look at OK, if we're fine to and from an airport, for example, Houston or Dallas, where do people, where are they located and what are the best places to serve in order to support, you know, the airports? OK, well, then where on the airport might we put the operation? OK. Is that location convenient to get in and out of the terminal? OK, Is that location, How does that interact with the existing airspace around the airport? And then how do we integrate all these things so that we come up with a safe, elegant solution? And frequently we end up going through some loops to try to optimize the different elements of what we're doing and look at you know how connecting Aga airport to a major US airport.

A lot of times the great news is the GA Airport's got a fantastic little terminal, it's got facilities, doesn't require a lot of retrofit and the GA airport is maybe under appreciated by the local community. And so then we what we learn is that we really need to kind of spend time on the ground getting to understand all the stakeholders, get all their different perspectives and then kind of stitch this all together in a coherent hole that you know, brings everyone along in the journey and allows everyone to see how this is, you know, positive and beneficial. So I think on a high level, that's what we've, you know, learned as we've leaned into and engaged in different places, whether it be Texas or California or or you know, other parts of the country.

Dan Dalton

31:23

Excellent. All right. Thank you now.

Tom Anderson

31:26

Appreciate the opportunity to present.

Dan Dalton

31:30

Yeah, absolutely. So, I think that is all of our speakers excellent. So if folks were holding off on questions now would be the time to raise those. I've jotted down a few, but wanted to see if there were any in the room before I go, OK. Any were there any online that we wanted to hit before we go? OK. So, Jason, you had mentioned that there were a number of other states kind of bringing it back to Texas. Now you had mentioned that at, you know, at a recent conference there was a number of other states that had individual booths who were who was behind that booth for that state? Was it an economic development organization? Was it the state governor's office? Who was that?

Jason Day

32:22

So I'm talking with them and if anybody has any other information that if you talk to any of the other large organizations, please check in here. But it was kind of a variety of depending on the state, some of it was through the state's economic development teams and then they got with both public safety, whatever test site was in that state and then in private sector and academia, right. It was kind of those four general groups there that were all kind of working together as well as some of it was like even sponsored by some of those private sector companies. I know Wing was at the Virginia. Yeah, so you know they had big Wing banner at the the Virginia space and then some of it was all just through the test sites themselves. Those test sites are pretty well funded and they're able to kind of herd the cats, right. Well, OK, well they can find funding mechanisms I guess for these things. But I mean they're the problem is in Texas DPS we had a booth at a UVSI, we have one at HAI, we'll have one at Apscon coming up here in Houston. But as a public safety agency, right, there's only so much money we can devote to that kind of thing because conferences are expensive. These kinds of large events are expensive. The, the booth like Virginia or Ohio, whatever, it's probably \$50,000 for that space for the week and then you got all those people and stuff coming in. So it has to be that that collaborative effort. So, it's a much smaller lift for each entity. But I think it's, it's really incumbent upon you know the governor's office, that economic development team to start kind of pushing this forward for all of us.

Dan Dalton

34:11

Oh, that's that's super helpful.

Michael Sanders

34:14

Yeah, I was just going to say this is you're absolutely right. We're gonna be there in Houston. We'll be hosting a booth ourselves. But this is I think a great opportunity to coordinate, put the message together and say, hey, Texas is open for business. These are all the things that we are doing right. And I think this, this could you know and - Dan stepped out of the room, but this gets to this larger point in, in my perspective is what are we doing to help coordinate and leverage these types of efforts because because the sum of the parts are going to be greater than the whole. Now I can't, I mean I can't host something on behalf of the state of Texas because I'm representing my university and the test site. But, but we're all trying to do the same thing which is Texas is open for advanced air mobility. So but no, no and I no, but just just to say that I'll I'll volunteer Joe Henry to help coordinate some of this activity. But yeah, I don't, I don't have a better answer Jason, other than to say we're going to plan our guide on there anyway.

Jim Perschbach

35:35

So yeah, this, this same topic became a frustration for us within the MRO industry. I would go to these Aviation Week shows, 15-20 thousand people for years and I would see Oklahoma and Florida having these massive booths and they cost well into the six figures 'cause you have to get them built, you have to get them manned, you have to put the content in and for better and for worse, great people in Texas, we're just not set up to do that. So, what we've done is we've gone out, we've bought a booth, and we are thrilled to host other people if they are within our industry circuit. This year in Chicago, our organizations spent as a public meeting, but probably close to \$250,000 on building and renting that booth out. We managed to get a location that was right next to Boeing right off the main drive down from Standard Arrow. And if what we're doing is we're showcasing the value of AAM not just as aviation but really as an economic development entity because it connects people to jobs in rural communities, suburban communities and urban communities, then I think we can justify that. What I can't do is I can't go back to my board and say I'm going to drop \$250,000 and bring everybody in. But it is probably easier to work with us and to bring the state into that conversation than it is trying to figure out how we're going to put money into Texas economic development and get them to do this. If there's somebody smarter than me who can legislate that, great. I'm just worried that an earmarked legislation like that just might not get us where we need to be.

Dan Dalton

37:17

No, it's a good point, the mechanics of how we do it, I think. But I think even for aviation writ large across Texas, it would be good for us to start thinking about how we drive that. And then there could be various companies that are driving, you know, whether it's Georgia or it's AAM or whatever, but all of it in Texas. But you know I think you're you're probably right that going through the the industry 1st and then bringing in the state would probably be the easiest way. I'm sure my friend here would say the same if he was here. OK, good. Any other comments on that? All right, Ernest, the next one was for you. On the platform that you folks have, does it actually allow you to take in weather from your, from the drones that are participating? Or in, in a sense, can you actually have a distributed weather sensor network via the drones?

Ernest Huffman

38:05

Could we if that's technologically feasible? Yeah. And these, these systems are designed to integrate any API that you can imagine. We have 7 weather, high fidelity weather radars in our region that we're going to integrate the data into. So, we won't necessarily need the drones to do it, but that's an option. If there were companies offering up that solution and they wanted to pipe allow us access to that data, we'll take it.

Dan Dalton

38:34

Excellent. I think there are. We should talk. Tony, this one was for you, Umm, you know, with Paul and DFW at one end of the spectrum in terms of how they're driving forward on the Vertiport. Uh and Jim, you're welcome to respond to this one too. But what is - from a Texas airport perspective, what are some things that you would like to see from the state to help you kind of, you know, be the dog that caught the car and get after this AAM challenge?

Tony Nevarez

39:01

Yeah, I think the great thing about Texas is that there are so many communities doing great things and people want to come out here. But it's also the double-edged sword because everybody's working independently. You kind of forget about what El Paso is doing. We're operating independently than San Antonio, Houston, DFW. And there's a lot of things I think, sure everybody in this room, you've heard this problem. You may already have a solution to that.

But we're just not talking. So coming together as a state is going to be the really big thing. And you know, I know we talked about and I'm, I'm with you, Jason, I've been to airport conferences where you know North Carolina is hey, come to North Carolina, we're ahead in advanced air mobility. Come to Florida, come to Oklahoma. I've been trying to send Jennifer as many things as I can on other States and how they're they're they're just passing us up and so to get that continuity between airports is is really important. We're competitive. We all want to stay competitive. But I think at some point we all need to work together if we're going to, you know, uplift the state.

Jim Perschbach

40:17

Some level of funding or a mechanism for how we monetize it. The advantage that we have at our location is if we can avoid having to build roads, highways, bridges, parking garages, and we own all of that on our campus, I can justify it back to my Board of Directors. But I can see communities having real problems with the costs that are going to be put into building these Vertifords without a clear mechanism for how it's going to be funded by the industry or the users. And that's something I think that needs to be addressed at the state level.

Dan Dalton

40:46

Well, were there were others that were thinking kinda along the same lines what airports might need? I I kinda think I'm hearing one, but I I guess a little bit of a foregone conclusion maybe. But it sounds like there might you know, to kinda Tony's point is, if there was an AAAM council of Texas airports or something like that. Nothing, I admit it probably doesn't have to be very formal. In fact, it probably does not need to be legislated, but something that allows airports to kind of share those best practices and kind of how they're moving along. So yeah, we can we can talk about it.

Andres Carvallo

41:23

Is there a, there is, you know, all these associations, there are nonprofit associations there. You know is there such a thing that unites flight in Texas, like the Texas Flight Association but it it doesn't. They're not talking to DPS or they're not talking to they're they're only airport centric, right? They're not the whole the whole thing. So maybe the creation of some nonprofit Texas Something association that unites airports, UAAS, AAM, I'm making that up, and speaking out of turn.

Jim Perschbach

42:10

There is a ton of value in airports. I love airport people. I love airplane people. I encourage us as an industry to think much broader than just airports because the value of this is not just going to be an extension of the aviation industry, it is going to be that economic mobility. And if we can add that into our legislative fix, it makes this so much more valuable to the state.

Andres Carvallo

42:36

I want to share. So. So my vision is Andres Carvalho, President of Texas, San Antonio guy, I would love to see 10,000 vertiports in Texas. That's how you pass China, that's who we're competing with.

Dan Dalton

42:59

All right. And then last thing I noted was just that, so next time we're going to have the FAA, they're going to come in the Southwest regions and come in and brief, I think it might be good to also have at least ERCOT and maybe some of the Metropolitan Yeah, utilities. I haven't enough coffee today. The utilities from each of the major metropolitan areas might be good too because they are clearly going to be part of this conversation as Saba was kind of hinting at.

Andrew Chang

43:33

There was a question in the chat from Kimberly Williams around for those that have done community engagement, what stood out as big concern - maybe I'll just expand a bit more - I commented earlier around sort of air traffic control and airspace, right. I think it's a broader concept, right, which is this is a new industry, but we kind of don't necessarily have a clean slate, right. Greenfield are we building Greenfield Vertiports necessarily anytime you're you're you're trying to strong arm a new development you're going to get some pushback. And so, if anything you know we've we've heard some of those voices and to the extent that you can repurpose or expand and leverage existing infrastructure, there's common earlier made about spending, right? It addresses spending as well to the extent that you can repurpose existing real estate infrastructure, roads, access points things that are conducive to a vertiport already where you're not starting from scratch and and getting some of the local community opposition. And then also it's it tends to be more expensive that's something that we've we've taken note of.

Dan Dalton

44:50

Yeah that's a really good point. Yeah, you know there is it's a good idea in terms of is there a way to create a better community. But I think you know I think building upon maybe some of the existing environments, their venues that are there maybe versus kind of creating a new one because I do think that we we also need to make sure that we're not seen as this thing that's off separate and alone. But more actually to to Andrew's point, it's kind of integrated into the broader airspace and also the broader business side of this and mobility is Jim's point. So yeah and yeah, go for it.

Matt Pantuso

45:28

I'm just reiterating a question from Kimberly Williams from the chat. She asked for those that have done community engagement, what stood out as the biggest concern?

Dan Dalton

45:42

Who would like to go? Kendall. Perfect, Kendall, then Tony.

Kendall Prosack

45:53

Safety and privacy, I think you could guess those things given this is Texas. So, for us we have a really easy answer because we don't actually have a live feed or a camera on our vehicle and just telling people factual information about your aircraft and then what makes it reliable as well as safe. What waivers do you have? What testing have you done? I think the more you're able to decouple what people have in mind of what a drone is or an eVTOL is, that is really helpful because typically people think of them in two manners, One - their neighbors, DJI or two - warfare, and we Wing are neither of those things. Our aircraft was built specifically for package delivery. So once you start talking to them and often times they'll come up to you and they don't even know what they're looking at, they don't know what to talk to you about. So just like give them a carrot and they'll start to grab on. But once you start to talk to them about that, you can see like the - it starts to demystify in their eyes. We'll also bring our aircraft everywhere. That's a luxury for us. Ours is 11 lbs. It's foam. It can fit in the back of my car. That is not the reality for many people in this room. They can't bring their eVTOLs or their aircrafts most places with them. But for us, if it's a more of a show and tell moment, we have found that that makes it a lot more approachable to individuals. So, any visual you're able to give to people is also really helpful.

Tony Nevarez

47:31

So for me in Texas and El Paso, I think our community has a real challenge with - it's a low-income community. So, a lot of people's only knowledge of drones is the news and like she said it was, it's big,

bad, scary drones, impossible cross-border what they see in Israel and Iran and everywhere else with the drones. So, engaging those kids, you know we spend a lot of time with kids, but even the adults that are with their children, we can show them, OK, look, it's really flying over your house. The same rules apply. We get with PD and you know the the you can't look into somebody's backyard. Police can't go in there and look at your backyard and see if they can see, then they can see. But if they have to climb a fence, it's the same kind of search warrant that you have to do. But we've also worked with fire departments. So traditionally, fires are kind of fought. You just throw a, you know, stream of water over a building, especially a tall building, and you kind of look for the smoke and you're guessing. So we've worked with the fire department and we have great photos of you know how you can look for those hotspots and how that helps instead of, you know it's not a bad thing anymore. It's actually a good thing. We've helped fire departments save a historic building in El Paso, really cut down the time and how fast that fire spreads. But again, just getting that information out to everybody else, there's a really cool video that Jovi has it we just found online for the environmental impact that shows a helicopter. So, a lot of low-level helicopters were by Fort Bliss and we've got National Guard obviously on the border. So, these big loud helicopters flying over your yard, you know, that's a big concern, but you know, we will go up, we'll throw a drone up, even a quadcopter a couple 100 feet and then, you know, a couple 100 feet away, 100 feet up, and you can't hear it, you can't see it. So that environmental impact, we we make a difference there. So, there's a lot of things that we just really have to fight against what they're watching on the media, 'cause that's really what gets the clicks.

Matt Pantuso

49:46

For the benefit of those in the room, they can't see the chat. Scott Shtofman mentioned -

Dan Dalton

49:47

Looks like Ernest is just going to hop on that last one.

Matt Pantuso

49:52

I think this is the same. This is a comment about that.

Dan Dalton

49:54

Oh, OK, sorry.

Matt Pantuso

49:56

"They run into preconceived notions about how operations will work, the impact, the communities where they plan to deliver service, who will be served and what the aircraft are actually being used for."

Ernest Huffman

50:08

And that ties right into what I was going to say. I know for Paris Olympics 2024 Volo copter is looking to do advance their mobility operations. I know the big public pushback they got was the fact that the public had an outcry on the funding being used for this, these particular projects. Why would the funding be used for advanced air mobility and not to enhance their existing transit, which might not be an issue we have here in Texas where folks have an issue with our existing transit not being rehabbed, right? But what we need to find is what will be that issue that folks would rather us spend our money on. We need to mitigate against those discussions before we begin, and it can be a plethora of things. But I know in Paris that's what they dealt with. And I imagine once we start this where the money comes from, what we're using it on will cause some folks to come out and and complain.

Dan Dalton

51:01

Excellent. All right, go far.

Matt Pantuso

51:09

My apologies from Paul Puopolo, He's told that "Florida dot is coordinating AAM across the state. They're working with FAA airports and cities to define locations and airspace issues and that has attracted OEMs. Is that something that this task force will do TxDOT?"

Dan Dalton

51:32

TxDOT, do you want to answer that?

Dan Dalton

51:37

So I think there is a, a, a general recommendation that kind of looks, there's a few actually that we're looking at this from different perspectives of how we coordinate better on this topic, whether it's state led or industry led or some combination of both. So, so yes is the short answer. I think there will, and I would say if if folks this afternoon don't see what they're looking for when it comes to recommendations around coordination then yes, please speak up and let's make sure that we're, we're capturing that.

Rebecca Davio

52:10

I would add that Dan Harmon has mentioned in one of the subcommittee meetings that he is making a request for additional staff to have an AAM presence at Texas DOT.

Paul Puopolo

52:24

Hey excuse me this is Paul. Can I just jump in here real quick since I asked a question through the chat? Thanks. I'm just FYI, you know I'm on, I was on an FAA call, they do an AAM FAA call, and I think which caught me by surprise was that they, the FAA in DC is putting out their kind of their message on how to handle AAM. And you have the Florida dot person on the call, you have Orlando airport on the call. You've got you know OEMs on the call, and you've got the FAA. And so, you've got an entire group of people talking about something and it's Florida and and I'm just, you know, being competitive, I'm just like holy cow, how are they getting all this moving. And that's why I asked the question And and when you got the FAA kind of endorsing it, the airport is just one node. But obviously I can't be one node. I need multiple nodes. And I agree with the gentleman who said 10,000 vertiports across Texas, I'm on board with that. But we're just one node. But Orlando Airport is just one node. But they're not worried about everything else because the dot is coordinating the next where those other locations are going to be. So, I'm just throwing that out there as an FYI. It's a call that people can go to. I think Scott, I think you're, I think you're on that call maybe, yeah, you're on that call. So, I'll defer to him, but I just wanted to give you some color on, on why I asked that question. Thank you.

Scott Shtofman

54:03

Sure. It's a great place to speak to it. This was an FAA Webinar on community integration that was held about a week and a half ago, I believe. We were working with Colleen who's the Northeast Regional administration from FAA and they brought in a couple of stakeholders from Florida. If you look on the FAA website there, you can see that information there. I think they just try to bring in stakeholders from places that are leaning in on AAM. They also had Jason from Kent State University in Ohio. And it's not that Texas is behind, it's just that I think Florida has been very visible with their working group report that they put out last year And so I I think something like the work that's being

done here being pulled together with industry, with other, you know, aviation stakeholders with the state being involved will bring some of that spotlight towards Texas as well. So, the FAA is paying attention. They're just trying to make sure that those that are leaning forward and this is basically also what Paul was running into last month or earlier than that with the Interagency Working Group, the FAA wants to talk to States and operators and airports that want to do operations sooner rather than later. So, I think that the state of Texas is doing a lot of good things and and this is a great start and to move forward from where we were with the last advisory committee. And so not behind, but good questions to ask.

Dan Dalton

55:25

All right. So I'm going to hand it over to Dan Harmon now, who who just coincidentally walked into the perfect moment. It's like Paul teed you up. The conversation actually was kind of struggling around what does coordination look like for Texas going forward on AAM? You know, obviously, you know, between Representative Cook and others driving this, the creation of this organization is the first big step. UAM last year was also a big step. But now kind of how does the state see this going forward? Just some of your ideas, Yeah.

Dan Harmon

55:59

Well, I, I think that it's, it would be disingenuous for me to say how does the state see this and ask me to speak on behalf of the state because, you know, we are a state agency that responds to the direction given by state leadership. So. So Dan Harmon is not, I mean, I don't think that I can effectively speak for the entire state or the state leadership. What I will say is, is that the state tends to take their - put it this way. Other states tend to view the way that they participate in the transportation system with a greater hands-on approach than this state normally does, this state does - This state tends to look at development of infrastructure from a point of view of we put the highway in based on demand. We don't tell you what's going to be at the end of the highway. And so that is left up to private investment that is left up to the local governments to determine if you know what is going to be on the feeder road and where it's going. So, we're not building a highway out. You know we're not going to build a highway out to nowhere. We're building a highway for a purpose to connect two points that are already in existence.

And so, I think that if you look at Florida or you look at Ohio or Virginia, the way their states participate in their transportation is much greater hands on than the state of Texas. I mean Virginia, it's a Commonwealth. They have a history of being very prescriptive and directive in the way that they do transportation planning. Florida's dot is much more prescriptive and and hands on and directive and how they are pushing development to certain areas because of what they have in the Orlando area with you know Disney and all those things. And they are much more prescriptive about how that's going to go and where it's going to go in the planning you know it with.

From the state perspective, we rely on the MPOS largely in the RMAs to create that demand or generate what that's going to be because you know we have MPOS that are the size of 25 other states. You know the greater Houston area, the greater you know NCT COG covers an area that would cover pretty much the Acela Corridor. So you know within so within the state we have these sub regions that are larger than than a lot of these areas And so it would be disingenuous to say OK this one-size-fits-all for the entire state. So when it comes to like Vertiport development or a plan linking the state, you know it's not TxDOT. I'm not going to say that's not our responsibility. We will do whatever the legislature tells us to do. But generally speaking, we're not going to say hey city of Dallas we want you to put a vertiport at reunion center to link Arlington and and all the other or you know build a vertiport in Plano. Now the legislature may say Dan build a vertiport in Plano and I will build one in Plano. But TxDOT in itself is not going to go. We should put one here and here and here because to us that's going to be a demand driven by either the MP, the, the local government unit or as as part of a greater transportation plan that is the MP OS that we're here to support. And the MPOs are going to be the ones that are going to be working largely with the local vendors whether it's

whether you know whether it's Wisk or you know Sugar Land Airport. You know those types of investments I think are going to be driven much more at the local level with the state providing the, the infrastructure development help. So, for instance you know we we've had you and I have had this discussion about you know the NIP, how does if we'll build a new Vertiport, is it instantly in the Nipius? I don't know that's an FAA decision, you know if you're going to expand the current program that we have by adding new facilities into it, Are they instantly the Nipius? Will they instantly be eligible for federal funding as opposed to the entry requirements that exist for normal regular traditional airports as we know it? You know right now the FAA funds for Vertiport, You know, I look at it, you know from our perspective the concrete and steel part is easy. It's some of the other bigger issues that I think need to be addressed, you know the power and stuff like that in the, you know, the regulatory environment. But as far as the state being the one that picks kind of the, we don't like being you know, in the winners and loser picking business, We think that that's you know, Ernest's folks need to be determining where vertiports, public use vertiports are going to be and then how do we support that or do we not have a role they're going to work directly with the FAA or the system. You know, Sugar Land is a prime example. We didn't pick Sugar Land, you guys did you know the city of Sugarland picked working with you guys to be a hub. So that's what we think that our role is, is and and I say that Dan Harmon again you know the legislature may may have other, you know other designs, but historically speaking I can say that from transportation development the legislature has taken more of a hands off resource providing role, much more, much less so than a very prescriptive role that some of our eastern alleys have taken. As far as that goes about you shall build 1 here and you shall build one there.

Dan Dalton

1:01:39

OK. So, then a follow up, another topic that was kind of floating around looking at kind of outside of Texas to what extent and this you know TxDOT play has some role in it, but maybe it's others in the organization across the government. To what extent does Texas try and get out there at aviation conferences and what not to try and promote Texas business or coming to Texas. You know we were there's a note that the conference last week outside of Texas and they had had Ohio and Florida and all these different booths. To what extent is there a kind of a drive to to go to aviation conferences or affiliated conferences and try and drive business back into Texas.

Dan Harmon

1:02:23

So I would say from- well you met Joe McGruder. So, there is literally a guy that you know whose job is to do that. From our perspective, yes, we do go to conferences. In fact we're trying you know I'm asking for additional staff to to do that more and to be those folks at conferences and to to get the word out of it Texas, you know, I I don't know that we are the right people to be - hey come to Texas because I can't negotiate anything with you as far as what Texas can or can't provide. You know we are you know and inherently in the transportation business of building infrastructure. So yes, we go to conferences and to because we we want to be there. I don't know that, you know, we haven't had a table or anything like that about hey come to Texas because normally speaking the economic development side is not something that TxDOT is charged with. You probably don't want us in charge of that. You know we're engineers, well I'm not, but we're engineers and we build roads, and you know things like that, but but Joe, that's Joe's what Joe does. And so, you know we're not, we're not opposed to to going, I mean that that's what we want to do and be out there and being there representing the state, I don't know we're the right ones to try to be the, the "come to Texas." Guy.

Dan Dalton

1:03:45

Any other questions for Dan while we got them pinned down? All right, any questions online? All right, great. Well then for the next few minutes, just like to have the, the working group leads. I know infrastructure doesn't have their leads here today, but would like the infrastructure, sorry, the working group leads to please just kind of report out kind of where you are. And then after that, we'll

break for lunch a little bit early, and we'll take a vote as to whether folks want to work through lunch and get done really early or take a nice lunch and then come back. So, we'll start with the working group leads or subcommittee leads. So, Kendall, I'll start with you if that's OK. Jim, why did I? Well, Kendall says all the smart things.

Jim Perschbach

1:04:37

Are you saying I don't say anything smart Dan? On community engagement, we've been focused really on two things. The first thing is all the issues that come up that the public is going to have safety concerns. You can tell anybody that the drones aren't looking in their backyard. I can tell you the public's not going to believe that. We've had some conversations with folks in the public who've come in. They're already threatening takings, litigation if these aircraft operate closer to buildings or other properties. So, we've been looking at two things on that side. One is some display flights, just good old fashioned, bring them to fairs, bring them to arena, show them operating. And two is locations like ours like the RELLIS campus where somebody owns the entire facility. So, you can fly these aircraft over residential property, and nobody can claim takings or at least those who can, won't. And commercial industrial property and show that there is an actual use case for them. The second issue that we've been focused on is where the communities are really going to have some concerns about the way Texas is structured in Texas, right or wrong. Back in 1846, we decided to focus a lot of the state governance on the localities and that comes to where the taxes come in and that comes to where the bills get paid. And I've seen out of the funding committee and the infrastructure committee an awful lot of requests that are going to be necessary, but a lot of that is going to flow down onto the local entities. And I can tell you from the hard experience of being somebody who's building these when I look at a Vertiport and I see \$100 million in cost for building that. And I see coming out of the funding committee 50 to \$100 million to fund 5 to 10 Vertiports across the state, it's not going to work. We don't have enough power generation in the state for the needs that we currently have. And so looking at some of that infrastructure is going to be interesting to see developed and there needs to be some real conversations with the communities who are funding the bonds. We've had some great conversations with the Alamo regional MPO in terms of how this can fit in, how this can supplement municipal transport and ease up some of those conversations. But that's where we're looking. We're still very excited about it and we think there's a couple locations in the state that are ready to go on it right now. And so, the last thing we're going to say is, so at some point, you need to stop a lot of the discussions about planning and just get these things actually into operation. That's it. Unless there's any questions. Did I misstate anything? And I don't know if Mandy's on the call. All right.

Jason Day

1:07:28

I'll do safety. Since I've got the microphone, we've been focusing quite a bit on use cases. So going over different scenarios where AAM and UAS can be utilized what it's in the overall infrastructure, you know, kind of within the scope of this committee. We've also talked quite a bit about funding for public safety and other entities for responding to and being educated on AAM technologies, which I think is going to be extremely important. One new thing that came up in our in our last meeting was talking about some type of - man, I don't want to say the the bad word regulation but some type of documentation on cybersecurity practices for AAM technologies so that there is a a framework from the state whether that's through somebody like DIR and the text ramp system or something because that also feeds back into responded to some type of incident, right. I know I've talked about in the past autonomous vehicle stops in the middle of the road downtown Austin. How were police and fire going to respond to that thing? But, you know, cybersecurity from an automation perspective is one thing, but also the potential for cybersecurity attacks, right? Everybody was scared when the ADSB mandate came out and, oh, they're going to hack all of our airplanes. So we have to consider that when we're talking about AAM technologies, a lot of conversation on UTM. You know, this is when you get into UTM and data sharing. This is where the public and the private sector kind of split.

You know, we know data sharing is not a good business model for the private sector, but it's exactly our business model on the public safety side. So, this is where we have to really kind of find common ground. I think UTM is going to help with that. As a group, we did vote to include unmanned aircraft systems in the definition of AAM. So that'll be presented to the entire group. Well, I guess when we make that decision on what that definition looks like and then the last is we talked a lot about awareness. An example is you know FAA has their UAS Safety Day, right. We think in Texas we need to have some type of AAM awareness day and multiple events across the state, at universities, at the capitol, at airports and things like this to educate the public, educate, you know public safety agencies, educate, and engage with STEM programs. There's all this outreach that we can do as this collaborative group to advance these technologies, but again to build that that workforce for the future.

Ernest Huffman

1:10:44

Ernest Chair for the funding subcommittee. So, I think a lot of you've seen an update on where we are at the moment with the funding subcommittee. What we're doing is we're taking all the recommendations you're making in each individual subcommittee group and we're assigning some funding to it, where the funding is coming from, who the funding goes to etcetera. And I imagine most, most of you have seen that on those slides in each one of the working groups that you're in. And what we're going to do after today's meeting is continue to work on those particular numbers. So I advise anyone who has a comment question concerned on funding, how Texas does funding, where the funding can come from, where the funding should go. Please attend our funding subcommittee meetings to have those discussions - Jeff and others because we really need your your expertise in this. I'm not a native Texan. I don't necessarily know how Texas runs in particular politically from a funding perspective on all things. So, any of those inputs we're going to need them in particular for the folks who are in the know how those things go. So, our our next meeting's tomorrow actually from 10:00 AM to 11:30 and we can get that meeting invitation sent out to you. So, point is anything I know we're going to go out over some recommendations today. We're going to take those same recommendations tomorrow and go over those & some numbers to them and and and other things.

Cameron Walker

1:12:01

Still hot? Good, microphone? I'm Cameron I'm chair of the economic impact subcommittee. So, want to share with you the sort of highlights of our recent committee meeting which was April the 18th and open with a with a quick thank you to Rebecca and your staff for providing the thought material that that came in the form of slides. There were 21 separate line items. Some of them we blew past fairly quickly, and others were controversial, and we had some robust conversations about it. I'm going to put a few of them on your doorstep and then I'm going to end with the three that that we think should be perhaps promoted the most. Not saying any of these are are throwaway topics, not at all. But the establishment of an apprenticeship program is 1 idea that came up, a great bullet point list of what advanced air mobility will not be used for. And there was other discussion in this group and online about that earlier continuation of the committee, should it be at the decision by the legislature to continue this committee. And Dan, the the topic of a position at TX dot and or the office of the governor came up somebody that would manage AAM communications whatever that job duty would entail. Create some communication materials available for public use. And by the way each one of these bullet points had a sort of ballpark cost estimate with it. And Dan Harmon, thank you for your input in indicating to us that things probably cost more than what we were really thinking they do at the time. But a couple more increase TxDOT aviation funding to fund off airport activities that that are that are related to the AAM can continue to support research and development with that whoever the agency would be with modify Chapter 21 of the transportation code to enable existing airports to utilize Vertiports. And the three, the three sort of high dollar, higher dollar and higher discussion items came around to the creation of a statewide plan for advanced air mobility. And as you know I work

with an MPO. So, I'm very aware of the statewide plans that go on on on a mandated basis and those that are not exactly mandated but are still wise for the state to get into. The state is now working on its 2050 plan and so were we as a subset of the state. There's also a statewide multimodal transit plan to address congestion by 2050. So, there's a resilience plan and ironically, it's called the RIP Resilience Improvement Plan that's underway. There's a freight plan statewide that is frequently updated. I believe 2021 was the last update, but don't hold me to that. Lots of money, lots of investment in these studies that eventually come up with strategies on how to address these things, whether it's freight, whether it's multimode, IE transit. So, to say well how about a one for advanced air mobility. Number one, I think the cost would be substantially less. That's just an opinion but also it fits right in with with the direction transportation is going. The other two - and then they overlap maybe just a little bit is perform an economic impact study and and we, I don't know whether other states did this. Yeah, I'd like I have to assume they did the Ohio's, the Floridas, the Oklahomans that you're talking about. They didn't just show up in a conference and say you know we'd like to deal me the two cards and let's see what comes on the flop, right. They didn't do that. So, and then continue with our workforce education and workforce training, work with TEA and work with the Texas Workforce Commission to implement programs from ideally from K through 12 and on up. So, we our subcommittee meets again on on May the 15th, but we've had some really good good important input from the membership. So, thank you to everyone involved and I'm here for any questions

Dan Dalton

1:17:08

I handed mine out. Great. Thank you, Cameron. Appreciate that. That's actually a really good segue to to the post lunch conversation. I'm also really happy that we found some very passionate leaders for each of these subgroups. So thank you all for your, your insights and and your leadership. You obviously don't get paid for this. So I I do appreciate you driving it forward. All right, So with that, there's a whole set of lunch logistics activities, but I think, does anyone want to take an hour lunch or would you like to bring your food back in here and keep charging? Yeah, I think. Does anyone wanna take a break? I mean, we'll take a break, but does anyone actually wanna take a break for lunch or just keep or does anyone? OK, I don't think anyone does. We're gonna go ahead and just keep working through lunch. So now Dan Bagwell will tell us about the logistics for lunch, but we'll plan on just coming right back in and going through the recommendations.

Daniel Bagwell

1:18:06

So this obviously is just for those here presently. So, everyone should have a visitor badge, the yellow badge there. If you don't come see me here as soon as we break up from this and we'll just get you checked in. I'm sure it's very simple. Just get checked in over at security. So here in a moment I'll gather some tech stock folks there probably about four or five of us, we'll be over at the security entrance to the main, to the to the rest of the building and basically, we'll just have everybody gather here in the next few minutes or so line up outside. We're going to have to physically badge you in and badge you out. So, it'll be it won't be too time consuming but it'll it'll take a second and basically right after that we're just going to walk into the cafeteria area. There's an area where you can purchase food a la carte and you know from from pizza to sandwiches to soup or whatever you want to have you there. As long as you're kind of sticking with us generally it's it's that's fine as far as the escorting duties go. And then it sounds like if everybody wants to come back in here and just continue as soon as we all gather our food, we'll just we'll have to come back in here and check in. If you already brought your own food, you're welcome to well, I guess you need to heat it up or something like that. We do have microwaves for your usage and things like that. But obviously you can just stick around here. There's no escort required for this room. You can hang out go to your car, whatever, whatever you need. So and I'll be so me and the TxDOT folks, we'll be just outside here right near the security. If there's any questions or anything on how how we want to operate, let us know. But should be pretty, quick.

Dan Dalton

1:19:44

Yeah. I think the easiest will just probably just go on. Yeah. All right. So then those that are playing from TV Land, let's plan on reconvening and getting things going again at 12:15 Central Time. If that works, that'll give us time to go and get through and get some food and and then go from there. So thank you all and we'll see you at 12:15 Central. Thanks.

Dan Dalton

1:20:17

All right. I think we'll go ahead and reconvene. Hopefully everyone else got some food. Definitely got some caffeine because you're gonna probably need it the next 7 hours, we're going to review the recommendations of this committee in glorious detail now. So, the intention here, most people I talked to over lunch said yeah, it would be great to finish early, so if you had plans over lunch, I do apologize for messing those up. But yeah, if we can get done early, I think that would be great. But really the goal of this next session is to to frankly see where the subcommittees have gotten to as it relates to recommendations, they're still rough, I'll tell you, you know and and by that I mean broad. So part of today success looks like kind of narrowing them down, getting a little bit more specificity. They're certainly not, we're not voting on recommendations for final approval today or anything like that. The idea is, you know from this point forward, we should kind of be moving out of the ideation phase and more into the kind of drafting phase if you will of really focusing on what are those things that we would like the state legislature to do to really help drive AAM in in Texas and to make sure it's safe as it's deployed and that type of stuff. As we talked about last time, there is also this element of well maybe there's things that actually we don't want the OR we don't need the legislature to do and that's totally fine. I we talked about last time kind of having somewhat of a parking lot for those things that that communities can do, or industry can do to be able to implement those things that probably don't need actual legislation. So, we should make sure to flag those as we see them today. But with that, we'll go ahead and get started again. Thanks to Texas State for putting all the controversial ones right up front. I think everyone knew that we were gonna be going after lunch and so why not keep the fireworks going to make sure everyone stays awake? So, if you could pull up the first round of slides. And so, as we go through these, just a few housekeeping tips. So, the recommendation details came from the subcommittees and that they were kind of grouped in three priorities, It's kind of the most most discussed or new ideas and that type of stuff. Then there's the priority too, which get no definition, just there's twelve of them and then the third one is kind of those least controversial. So, the idea here is if you know you're you're enjoying your lunch and you don't see any issues with the recommendation, you don't have to say yes, "I agree with that". It's like asking when you fly into when you fly into a non tower airport, is there anyone on frequency and everyone said "Oh yeah", we don't need everyone to tell us that you agree with them. What we would like you to do is if you don't agree with the recommendation or if you have a recommended change or edit, that is what we would love to hear from you. And then yeah, as it says, if if nothing is said, then we will move forward with the next one.

I think there are, as it stands right now about 30 some odd of these. And so just kind of manage your own expectations on how much time. But if we get too far down in the weeds on anyone, I will probably say this sounds great for the subcommittee to take back and think through. So all right with that, the definition of AAM, this is good. So, the recommendation is to include drones and UAS into the AM definition. And I think I would actually broaden it even more so just so that everyone's aware the FA as definition is as followed because they went through this same kind of exercise to determine what was in and what was out. And so, you know, it really for the FAA, it really looks at largely propulsion mechanisms, power mechanisms, slash fuel mechanisms and then the control mechanisms. And so, you get to, you know, piloted or nonpiloted electric hybrid, traditional blah, blah, blah. Also, the ways in which the aircraft leaves the ground and comes back down South, basically, let's see it's the suggestion to clearly include drones from the Texas AAM definition is

requested. So, I think and maybe Jason you had mentioned this earlier, what is the vision to kind of take the FAA's definition then and add small UAS? Is that kind of what the team was thinking?

Jason Day

1:25:13

So I don't know if we even need to take the the FAA's definition of our recommendation was more for the purposes of this document or these recommendations. AAM technologies include XY and Z, but we don't have to even get in the weeds on that.

Dan Dalton

1:25:33

I see. So, in terms of as legislatures should view the work in this committee, it spans the spectrum of small UAS to large autonomous air taxis, OK and everything in between. OK. Does anyone disagree with that notion, Tom?

Tom Swoyer

1:26:04

I don't disagree, but I wonder if there's a kind of maybe point of parliamentary procedure. But if we include the word drone in the definition, does that then trigger current legislation that is opposed to using drones in certain places? Like I was just quick checking, you're only allowed to use drones without a permit in two state parks. So, if we put drone in this legislation, does that trigger something else?

Dan Dalton

1:26:31

Yeah, that's a big question and one that we would, we would not want to have negative knockoff effects of anything that we write here because we added the word drone. So I think what I would ask is this would be one of those things where you know Texas State could help you know as we look at what words to include and as I said earlier not include to make sure we don't run afoul of any existing legislation, that would be great. And I know folks like Kiefer and you know folks like Sarah could help on this to make sure we don't run afoul with some of these things. But no, Tom, it's a good, it's a good flag.

Jason Day

1:27:12

Something to add to all that, and I know Rebecca and I talked about this and some more research needs to be done, but we also need to look at a recommendation to change Texas transportation code and the definition of aircraft right now because it does not include a lot of AAM technologies. FAA definition of the aircraft includes small unmanned aircraft systems, but the state definition does not because it gets very much into like rudder and different things, right. So that needs to be part of this.

Dan Dalton

1:27:43

Do we have a separate recommendation on that? I don't think so. Yeah. Well, we have TxDOT here. Do you see any challenges with that? So, this is where I don't want to run afoul of Sarah. So, I think that in the Texas definition of aircraft, there's an opportunity probably to define. I mean what I'd say is to define or add to AAM. But there has been some discussion that industry groups have had with us outside of this forum that there's folks on the small UAS side that have concerns about being included with AAM and vice versa. And so from our perspective that's kind of something that the community kind of needs to work out how you guys want to be represented in statute because like you said some things may triggers, there may be some you know unintended consequences of putting those two aircraft that you know the small UAS drone delivery and AAM in the same category while they both are air vehicles. You know, so from Chapter 21, Chapter 22 perspective it's about airports and serving, you know, air vehicles that you know in the traditional sense. I don't think there's anything wrong with

including you know the definition of what an aircraft is or changing that to include. I think where the issue may come is when it gets into you know how that's going to be supported in certain certain infrastructure development and how that may happen. You know, may that that may be looked at as far as are you an aircraft now or are you a drone. So, what category do you fall under? Because there is very specific legislation that regards the use of drones that would not apply to the larger aircraft as as you know as when we think of AAM being the the the Whisk or the Jovis or things like that.

Jason Day

1:30:02

So that's exactly why I don't think for this recommendation we need to define something. We're just saying for the purposes of our recommendations, blah, blah, blah. But on the state definition, I think, I think that's a whole different conversation amongst multiple groups because it affects so many things, especially on the public safety side, because there's lots of administrative code that references the state's definition of aircraft, right? Like, on registering an aircraft, it's a misdemeanor if you don't register your aircraft in the state. But state law enforcement or even local law enforcement can't enforce that on drones because the FAA definition of aircraft is one thing and the state's definition is completely different. So you get this area where there's conflicting definitions on things that we have the opportunity to help guide to the future of this.

Dan Dalton

1:31:05

Yeah, no, I agree. I think there is some clever solution in there, probably involving the word maybe even and and a comma or something. So I would say let's take that one offline because I think there is an, like you said, there's an opportunity if we're gonna make changes, recommended changes here let's you know kind of raise the bar for everything.

Matt Ruszczak

1:31:23

If I can chime in real quick, I'm Matt the legislative director. So as a policy wonk, the current definition of advanced air mobility means an aviation transportation system that uses highly automated aircraft, which may be manned or unmanned, to operate and transfer passengers or cargo at lower altitudes for commercial, public service, private or recreational purposes. That's the current statutory definition and why I'm chiming in on this is the language that these devices have to be used specifically for transport of passengers or cargo. So to help this the conversation, if you guys have other uses, then yeah, you definitely want to modify this.

Dan Dalton

1:32:07

OK, please.

Sarah Trott

1:32:10

Sarah Trott with Representative Cook's office. I just wanted to chime in. Archer had a really great point in their presentation that they worked very carefully to have their eVTOL air aircraft deconflicted from current airport operations. So, this is where the definition for you guys to spell out specifically these types of planes is very important, is when you turn around and then start to regulate the different types. So when you have the big Airbus and it's near an airport, that's going to look differently than a Walmart or an Amazon with a smaller drone who's delivering packages under 5 lbs. These things are fundamentally different. It's the definition for the legislature can spell out the different types and can help you craft what does this look like for this type of piloted versus pilot, non piloted, electrical versus traditional. These are all things that a definition will be helpful for, OK.

Dan Dalton

1:33:09

So I think I think we all agree at at least at some level that you know small UAS drones should be included in in the Texas AM definition in some way. And I would you know I think I'll ask Texas State to kind of take that and and come back to this committee next month with an idea of what that could look like, you know obviously trying to minimize impact on other areas. And then separately, I think there's a question around you know do we actually go after the the term air airplane or aircraft in the in across the code and see if we want to change that and what the impacts would be there or if we just wanted to add you know and small UAS or something like that.

Jason Day

1:33:52

So just wanna just gonna add one more point kind of based on what they said. So, this is how kind of nuanced some of this can get, right? If you're talking about an aircraft that carries cargo and let's say text DPS, we're going using a drone to go catch a bad guy. Then under a lot of the different definitions you'll find out there, it's not AAM technologies. But as soon as we strap some type of payload to it, you know, either deployable or we're doing our own package delivery for DPS purposes, then it does fit that that definition of AAM technology. So, this is where you know it. It just it has not been clearly defined.

Dan Dalton

1:34:37

Yeah. And I think there's even there's even a carve out opportunity for for, you know, public safety and public use type aircraft that we could probably figure out too. I know Scott's done a lot of work across different states with AUVSI, he'll kind of look at this too. So, we might pull him in as well. All right. Anything else on the definition of AAM? Great. All right. So going down to economic impact study, so the line through these words means that it was recommended this actually be removed as a recommendation or in some way altered. So the recommendation was you know having a preliminary economic impact study to determine the cost benefit analysis for two takeoff and landing locations for AAM and you know funding amounts and all that type of thing. I personally think especially in sidebar conversations after this recent just during the break for lunch that there actually is great value in an economic impact study, and so I'm actually wondering if the concern was around the specificity of two takeoff and landing locations for AAM or what that is. So I see. Oh, there you go, Jim, Then a million, yeah.

Jim Perschbach

1:35:59

So my concern with it was asking the state to fund an economic impact study rather than providing the state with an economic impact study. We've got a lot of big asks for the state and showing up and asking them to pay for the value of this really should be our job.

Emilian Marchand

1:36:18

Yeah, this is Emilian from Wisk. My concern would be doing an analysis for two takeoff locations which is not going to yield much economic impact. So, it's looking at this like we've done. We provided the example for Social is what is it gonna look like at scale. So, what's really going to be both the transportation impact and the economic impact once you have a network of reports in a region and then have that being statewide. So, the various networks that we expect being built in the the Dallas region, the major metro and then with some other use cases that we talked on the Permian Basin of things like this. So being able to provide that holistic picture over the next 20 years rather than what are we gonna get after two years of operations, which is not really gonna move the needle, yeah, I think so that's makes perfect sense.

Dan Dalton

1:37:13

Yeah, I think so that's makes perfect sense. So, and I'm not just saying that because you work at our company, but it's it is true that we do with we want to show the upside of where the opportunity is. And so, I think constraining it to just two is it's yeah, it's somewhat shortsighted or nearsighted I guess I would say. So, I agree with that. I think you know Jim your point it's an interesting one. So if the state isn't gonna pay for it, how? What are some of the solutions we could find for funding this idea?

Jim Perschbach

1:37:51

I can't believe that just the people on this committee can't fund that. An economic impact study, \$500,000, would get you a really nice impact study. Anywhere from 50 to \$75,000 would get you a reasonable impact study. It would certainly work for legislative purposes. And if we can come up with that between the operators, the airports, and everybody else in this room, we've got a much larger problem. I just really hate going back to legislature and saying fund a study so that we can show you how important we are. We should have that information.

Dan Dalton

1:38:24

Yeah. Dan was just noting, yes, we're we're like right at that cusp of like, OK, we need an organization industry side that is driving this. Yes. So, does anyone think that the state should pay for the economic study? Love to hear that side of it too. OK, excellent.

Ernest Huffman

1:38:52

And I think the state should pay, but it doesn't have to be state funds. It could be a federal grant that they take advantage of in the future or something, something of that meant. Or the state could be a 50/50 type of deal where the state's matching funds on a or providing a percentage of the funds on A on an impact study. The reason is, I mean we could probably self fund a study in DFW region, right? But that won't get you what you need for the entire state. If you want what you need for the entire state then you might need a state funded study.

Dan Harmon

1:39:23

So I just got to say that when when you ask this, when you say the state, if it's if you're asking TxDOT just to do it. The problem is, is that TxDOT, a lot of TxDOTs funding is federal. And so, when it comes to economic impact studies and things like study, when we talked about tips, tips and things like that, there's federal. A lot of those are paid by from FHWA specific programs and FHWA is really wonky on what they'll pay for and what they won't. When it comes to not on the ground. They say they are like, hey, congestion mitigation, right up to the point where it's. Oh, we're paying for that. Not so much. So when we we talk about the federal stuff, we have to, you know, FAA is still kind of like not really pushing that as far as giving us money. But that's one of the things about trying to figure out which pot of money that would come from. That's where there's a little bit of challenge.

Dan Harmon

1:40:21

No, I'm just saying that, Yeah, it's So when you talk about like federal money? Which federal money? That's the issue.

Matt Pantuso

1:40:32

But I wanted to note that Jason White had commented in the chat he couldn't disagree more. This is a federally created problem. Might be missing a little context if you want to chime in.

Jason White

1:40:47

I would actually, so in terms of whether for an economic impact study, this is a federally created problem restriction/ ban that they should absolutely fund the impact that their action has had on the local economy. And if they get their money from federal, I would argue that it makes it even a stronger point that they need to look into the impact on localities that this federal restriction has created. And I say that historically that you know this wasn't illegal in 2007 when they changed the rule. Ever since that day going forward that's been an opportunity cost on local economies for anything having to do with unmanned systems, automated automation or whatever. As technology has progressed and can tell, technology will continue to, will continue to progress. Therefore, this is something that should be funded with federal dollars to see, to see that all the way down to the local level. It should not be on us to fund studying what they did to us if that makes sense. Not to put it overly harshly.

Dan Dalton

1:42:03

All right. Thank you. Emilian?

Emilian Marchand

1:42:07

I was just gonna ask as we look for entities maybe to do this study with like what would be a third-party organization that maybe you could not necessarily financially but maybe Co sponsor that so that it would have more plat with the legislature. Like are there existing organization in Texas that have a good reputation to do that and, because if you know, we always worry if it's just an industry funded report, branded industry that it might be taken with a grain of salt. And so how do we hedge against that? Just a question.

Jim Perschbach

1:42:42

I think every major Texas university system has a group that do these, and it might be nice to have Texas State do it because they've been part of this and I'm sure they've got somebody who can put these together. I know the University of Texas and Texas A&M Systems both have folks that do it and I've paid for these. I've paid anywhere from \$50,000 at the low end to several \$100,000 at the high end, but they can do it statewide as well.

Dan Dalton

1:43:12

OK. So, it sounds like the scope, I'm glad we got past the scope. It's just now about a matter of funding it. So, what I would recommend is that we, this one go back into the hopper. So, it should stay. I think everyone agrees there should be some sort of economic impact study because that will show quantitatively the value and the opportunity that A presents to the state. So, I think that's good. I think we do need to kind of take another turn on the funding mechanisms though whether you know, I like the idea, I don't know if a local cost match is kind of what we're looking for that to Jason's point. But if there is some sort of state cost matching maybe in the low dollar amounts and then industry picks up the other side and then also kind of helps alleviate some of the the bias that maybe industry is driving this on purpose and they're trying to change the outcome of the study and all that kind of stuff. So I think there is a way to do it where the state has a little bit in there but also that shows that the state is also helping it not be biased. So. So I'd say we're in the right track here. It's just a matter of refining the cost, the funding mechanism. So does anyone disagree with that statement? Cameron?

Cameron Walker

1:44:30

Quick question, no disagree What's the dollar figure we sort of circling that 500,000 as as a bookmark just that?

Dan Dalton

1:44:41

Jim, Jim has a compelling argument that it's actually less than that. Yeah. So, no. Do you want to do you want to, I would say not too exciting for that 100,000 how about that?

Andres Carvallo

1:44:52

Yeah, I think I think they you know economic studies on different industries, you know takes the chips, semiconductor, or any industry that we have done in Texas. The key about this for the outcome and I like the concept of you know a statewide inclusion versus 2 only. But the thing is if I'm a mayor in a city and I really want a bank one of these things, what is my return on investment if I do it, right? So you this would give the ecosystem, all the players on the ecosystem, the supply companies, the maintenance companies, what they could get out of it if they were to put you know their boots on the ground kind of thing, right. So that's why you want to do it because it would help a lot of and this would be driven by an association that represents AAM and that doesn't exist. But you know, I think I think Jim's angle is the right angle in my opinion.

Jim Perschbach

1:46:03

And I would be a little bit cautious about how we do this. The real value Jim's opinion of this is that it allows us to take a lot of pressure off of what the state and localities otherwise need to fund - bridges, highways, fixed rail infrastructure. The danger of going into the economic impact studies very broadly is the state may take in the direction of this is only going to make sense if we can attract the manufacturers. We may not want to attract the manufacturers. The cost of trying to bring them here may be higher than the state is trying to bring in. It may be something about airports becoming hub airports or not hub airports. And so one, one of the cautions I always have about these studies is you don't want to let it get too far out of your hand. You don't want too many stakeholders coming in. I think we have a pretty compelling case already. There's a lot of industry numbers out there that show where the industry is going. The Houston Airport System did a wonderful job on their slide of showing this. If you take our little campus and things like we don't have to build two or three \$40 million parking garages, we don't have the same wear and tear on the streets and we don't need to build the \$250 million bridge. And you extrapolate that out, you extrapolate what is really important to all the mobility planning organizations, which is connecting people to jobs and opportunities. And that's something I think we can largely craft together. Candidly, I think Texas State can do that as part of putting this report together and rather than asking for a study which shows some doubt of what we're doing, we have a report that pretty compelling says there is a real value for this evolution of the transportation system. And that's why we're coming back and asking the state for the big dollars. In other words, I guess what I'm saying is I think we have it, if it's a matter of adding a little bit of funding to kind of bolster that up with some anecdotal cases, I'm all in favor of that. But I hesitate to leave too much out, let the legislators and other folks start to do their own parameters around the study.

Dan Dalton

1:48:13

OK.

Dan Dalton

1:48:15

Others, anybody else online there?

Sarah Trott

1:48:39

to pile on to that you, you could forgo the study and just talk in your report about each of your companies and your projected economic impact in your current projects and you're bringing X

amount of jobs to San Antonio, to Houston, to Dallas. You know those figures for your own company, and you could just put that all in one section and say if we total this up, this is what it is.

Dan Dalton

1:48:49

Yeah, that's a that's a good one.

Rebecca Davio

1:48:56

From online we put for for the people that can't read it. This was just an example of some of the information that Jim provided to us which we felt like got at that issue of economic impact and in lots of different ways and cost savings. And so, we are happy to take direction from Sarah and compile that information if you're willing to share.

Jason White

1:49:45

I just wanted to speak to stakeholders that it's not just companies, there's local users, there's drone user groups, AAM encompasses all things. So, I just want to keep that in perspective too that the, the reason I would argue for the Federal league, and I like the way the conversation's going in terms of it being a shared burden. But I will say on the stakeholders, you don't know what you don't know until you ask the question and the way we're thinking here, it's like San Antonio ports of this airports, these are all big picture flying car type mentalities. But AAM includes the entire spectrum of all unmanned systems down to drone user groups and local stakeholders, FPV pilots, local law enforcement, hobbyists, enthusiasts this time which is everyone. And when you do that economic study, you would want to know the entire impact all the way down to the ground level, grassroots level back up. And that's one of those things that's the whole entrepreneurial spirit of the United States is you know, every person should have an opportunity to do something. And I would argue that for one, if it's industry fund something then you would have to have money to be able to fund that. And if you're talking about and I'm just going to stick with the whole band theme, I can't go out and create my own start up that does flying cars or drones beyond visual line of sight without knowing that I've got a regulatory wall to get through. And with that VC money has already been spent drought out and long since gone. So, from an from the ecosystem standpoint where you those resources have kind of tapped out for like Joe Schmo. And so that's kind of my perspective that I'm presenting. When it comes to bringing in additional stakeholders, the idea that we have the ones in the room that are good, that are looking at big picture stuff, big infrastructure stuff. We can't forget the Joe Citizen that wants to start a business or wants to do this, that, or the other thing that you're not going to find from a top-down perspective. You can only find that out by, you know, doing a real economic survey where you're going out and asking questions and soliciting small businesses that are like, hey, if if this were possible, how would this change your business, you know, and and for people like my company, I mean, it's just you know who aside from reaching out and doing things like this, you know, I I'm only existing through federal defense contracting stuff to keep my doors open. And like I would have a whole another story if I could just go out and do my operations as I had done 20 years ago in the wild. That's a that's an entirely different picture and there's people with those perspectives that we don't know exists that we need to find. So that's all for me.

Dan Dalton

1:52:28

Sure. Yeah. No, thank you. It's, it's a good point. So, which subcommittee did this come on this come out of Cameron, this is yours. OK, good. Well, I would say Cameron, if you wouldn't mind and anyone who would like to be part of you know, kind of turning the crank on this one coming back with and maybe I think there's a, there's kind of a binary here of like do we even have it go forward as something we want the legislator to continue to consider. And I think there's there's a version of this where it is actually entirely industry or some other funding mechanism or maybe we, you know, I think Sarah's recommendation's a really good one where we all contribute what we can and what we're

willing to share in terms of the economic opportunities that we as the industry see and even as airports and testers and all that kind of stuff. So, I think there's that, that's a, that's a low hanging fruit in my mind for that to happen. But I think if you folks wouldn't mind going back, assuming we do keep the economic impact study recommendation in the report, what the various funding mechanisms could look like, I think that would be helpful. And I would encourage folks to join Cameron in doing that so that he doesn't have to shoulder that health himself. But does that work for you, Cameron?

Cameron Walker

1:53:49

Yes, thank you to the gentleman that just spoke online, I think of my friend at home in Midland who operates a small engineering company. Part of his service to his clients is, I'll go fly your property for you because he's licensed, right. I have no idea what percentage of his annual company income comes off of that or if there's a job created because of that. So those are the micro pieces of the of the whole picture and they're going to be very difficult to find. You could, you might be able to make a sort of across-the-board statement about that. I don't. I don't know. But that's kind of what I got out of what the gentleman was saying earlier. We're, you know, we're maybe missing the smaller pieces and through no, no one's fault, but that's just happening.

Dan Dalton

1:54:41

Well, tell a friend the Cameron's having a subcommittee meeting and he would love their input. Yeah. OK. So, let's move on to the next one, which is a statewide AAM plan. And so this is for Dan Harmon and friends to develop a statewide plan for Texas AAM in conjunction with industry similar to the other AAM leading states. Did I hear you put a line through this? No, not you. OK, this is not the plan he was trying to line up. So curious for those that did strike this or wanted to make a change to it. Would love to hear their thoughts. Anyone maybe online?

Matt Pantuso

1:55:33

I think the person who commented on this is not present in the meeting right now. I think the overarching concern was a lack of clarity about what goes into that report, leading to concern about including it as a recommendation.

Dan Dalton

1:55:47

Gotcha. Can we go to the next slide? Yeah. OK. An implementation, yeah. Versus a strategic plan versus an implementation plan. OK. If we could go to the next slide because you know kind of what would go in said plan is actually pretty good. It's a good question and I know that Texas State did some looking into what other states leading states are doing in this regard. You know the the overarching kind of tenets of it are you know what is a then what is the economic impact, what does the infrastructure and operations look like and then what are the timelines. I think personally if there was a plan to go forward, those are pretty good headers because I think it hits some of the key parts and and actually many of the subbullets actually talk about what we've talked about in this room and online. So the I, I like those themes if there if there was a concern around those I would love to hear that but but going back to the maybe the plan itself. Does anyone oppose there being a statewide plan? And maybe we'll maybe the action then is to further refine this one. Do we know which subgroup has that one? Cameron, you are, this is good you clearly got all the controversial ones but I appreciate you doing it. So maybe Cameron, more homework for you, kind of further defining what this would include. And I I you got a CHEAT SHEET on that next slide from Texas State.

Jim Perschbach

1:57:25

It primes me from Dan Harmon's comments earlier about the way that Texas does business that this may be difficult to implement in Texas in terms of the plan because we've got the regional mobility

organizations that have to do it. You've got all of the local governments, municipal governments that will be involved in that. And just having spent a long, long time doing this in Texas, I am concerned that if we try and model ourselves out of a very central control state, in a very decentralized control state, we may find ourselves in a real, real set of problems. This could wind up being very politically controversial without us intending for it to be politically controversial.

Dan Dalton

1:58:13

It's a very fair point. So looking to our expert, have you seen statewide plans, How Have you seen statewide plans in any form of Techstop mobility, whether ground, Air, Sea, how do they work?

Dan Harmon

1:58:26

So, so there are a variety of of statewide planning documents that you know like Ernest was talking about we have a, you know, a a freight plan, we have a - you know ship tip, all these different plans that we have that are most of those are federally mandated plans for various funding sources out of out of the surface transportation bill. And So what those look like tends to be dictated by the federal government, but that requires them On the AAM plans that I've looked at the Florida though those are a little bit more fluid because they're but again those states that are doing more comprehensive plans, one are substantially smaller and have a tradition of being much more prescriptive in the way that they are in their dots. You know regarding MPOs, Texas is a very decentralized MPO dependent state. I don't think that a statewide plan for Texas is out of the, I mean you know using that framework is out of the question. But as Jim said, we have to tread very lightly on how we will be you know because a lot of it's going to be deferring to the RMAs the MPOs to put forth their vision. And the one thing that I will say you know regarding state plans, they are generally speaking when TxDOT does a state route planning and things like that. It is very general and very broad because what I will tell you, is that If Dan Harmon publishes a map that says Plano is going to have a Vertiport, somebody's going to drill down and go, that spot is right on my house tech stocks, building a vertiport right here. And then all of a sudden that is reality for somebody that now TxDOT is building a Vertiport right here and who told them they could do that. So, we have to be very careful about those kinds of representations of Oh well TxDOT said this is a potential route. Well, who said that's a potential route who was TxDOT to decide that and that. So, we have to tread very lightly when we talk about statewide plans and route planning and stuff like that. Not to get into too too too prescriptive or too detailed because there are folks that take that to heart as in you know and then it does become very politically charged with things And so you know what you know doing a statewide plan is not - but when we start getting into that local perspective we would have to defer greatly to the to the MPOs to develop that for for that look because we certainly don't want the unintended consequences or you know or unintended backlash on those sort of things because that's what doesn't - that's the reality that we see is all of a sudden Sarah's office is going to be like Dan, why did you put a dot there just randomly put a dot on the city? I can't make that stuff up.

Dan Dalton

2:01:35

I was just telling. So, for those of you that did not go to the Texas aviation conference last week. I was telling Dan Harmon how impressed I was that he had 500 people in his fan base, and we would not want it to go to 499 based on that dot. So there. So, Jim, I mean you raised a really good point and thank you, Dan, for providing that context. There's almost actually an element of this where it gets broken into two things, where it's I actually was going back to that next slide and looking at the the topics and honestly industry could probably write most of that. I don't know. We'd probably disagree on tax revenue and many of us probably shouldn't actually opine on tax revenue at all. But we could probably write most of that. And then they have a corollary where it's actually like Sarah, you'll know the term or maybe that will. It's like almost like a, an agreement that the state supports this concept and it's like a supportive statement or something along those lines where you're not actually writing this, but you, you agree that this is of of value to Texas and that you know you support in some way.

Matt Ruscack

2:02:44

Yeah. On that point, I think you could probably look for in in one bill or another legislative finding, right. That clarifies. Yeah. Well, going back to the comment, I really appreciate the comment about the Texas approach. We'd be very decentralized and bottom up rather than top down. This also applies to our economic development conversation. We had, we had earlier as a suggestion for maybe ask committee to consider, rather than creating a specific statewide plan, maybe a recommendation for the state to consider AAM factors in their existing transportation planning. Ask the locals and the mpos to include AAM components in their overall transportation plan that there's multimodal anyways, so just adding another mode does not really take it very far. Just as a suggestion.

Dan Dalton

2:03:34

Yeah, that's a really good idea. Good thing we got the ringers in the back here. No, that's a that's a really good idea. So, I think this one will probably morph. Cameron and I don't think now I realize that this is all part of Dan Harmon's plan. I don't think this will be a TxDOT plan anymore. I think that this will probably be led by industry supported in some way by the legislature in some sort of wording and then and I like the idea of having the mpos, you know consider that too. So, does anyone disagree with kind of that path forward? OK, great. All right. Standards kind of. No, you're not, but you're building out a recommendation that says industry not for the legislature, but this is one of those in the other bucket like we as industry need to. Yeah. And yeah, yeah. And we can talk more about it too. All right, state standards. So, this one also struck developed state standards for infrastructure consistency. My guess is this was struck because it's a little vague but does anyone have ideas on why this was struck an offline conversation by a member that expressed concerns about the state setting standards.

Rebecca Davio

2:05:07

An offline conversation by a member that expressed concerns about the state setting standards. And that's really where it was come from. Came from. Yeah. So you have your speaker.

Dan Dalton

2:05:18

Was there someone online who wanted to Go ahead?

Matt Pantuso

2:05:20

Brent.

Dan Dalton

2:05:21

Oh, Brent, Hi.

Brent Klavon

2:05:22

My name is Brent Clevon. I'm with ANRA Technologies. We're an airspace management provider and we've been working in this space since 2015. And we recognized along the way that there was a need to develop international standards. And so, we participate in a number of standards development organizations, efforts to include IKO, ISO, ASTM and so forth. And from an industry perspective, these are invaluable to provide to the regulators to have a means of compliance that they can point to everything from aircraft certification to eventual airspace management certifications we're seeing in Europe. And so, for the state's engagement on standards development, it would create a bit of a challenge for technology providers like ENRA to have to build technologies that would be adaptable to every state's standards, whatever that might be. So at a macro strategic level now we would prefer that States and other governing authorities that have any kind of Aviation Authority or say in how

there will be technologies will be used to conduct operations for AAM whatever state that they point to recognized consensus industry led international standards that everybody can join and contribute to including the States and everybody on this call can participate in, in these level of efforts to help ensure that everybody's voice is equally heard. So that when the standard is actually published that now we can go ahead and build and create technology allows it to work in Texas and then the neighboring states like Oklahoma and that we don't have a patchwork of technologies that don't work anywhere but the state of Texas.

Dan Dalton

2:07:13

Yeah, you you hit the word I was looking at which was patchwork. Does anyone think the state should develop standards for infrastructure?

Andres Carvallo

2:07:24

So I don't, I don't know where this came from, but I'm thinking differently. I don't think the state, I don't think any state creates standards. There's the I Triple E and SDAC. And so, there are other organizations that create standards. Was the intention of this to create requirements for the infrastructure? Is that, is that what we're talking about? Maybe minimum requirements cause TxDOT doesn't create standards, some other organization does? TxDOT adheres to requirements and all these other operational institutions, you know, adhere to requirements. I don't know if that's maybe that would eliminate the issue. And maybe what we're talking about is do we need to have minimum requirements of what this infrastructure needs.

Cameron Walker

2:08:23

Hey comment on where you went on your comments you just made the, you know, I'm not totally familiar with their book, but it's, it's the rule book essentially for TxDOT construction it's ASHTO and you guys are maybe you're somewhat familiar with that, but that's the standards - speed, control curve radius, blah, blah, blah, pavement, all this other good stuff, right. So you're right, the state doesn't doesn't dive into the regulatory world of what a heliport pad should be. Is that 6 inches of concrete with a 8 inch base, What is it, right? How much electricity is supposed to be available on site? Nah, I say move on to the next one, strike that.

Dan Dalton

2:09:07

Yeah. All right. So, I agree with you. So, I think we're going to strike this recommendation. If the person who did want this to to be a recommendation wants to circle back with Texas State offline, that's totally fine and we can reintroduce it and have a conversation around it. But I think I think pretty much everyone agrees at this point that state shouldn't be involved in actual standard development. So, all right, moving on to regulatory framework and ensuring flexibility. So, the short answer is yes, I agree in theory that that's the way we should do everything. But curious, I mean a little bit deeper on what this is trying to get after if anyone wants to be the proponent for this. Jason Day was this you OK umm, so I I think again I I think we all probably agree with this in theory, umm it's a little, it's a little high level to make into an actual recommendation. So, I would say unless it gets more definitive, I would actually recommend we strike it umm just because it it's yeah. Yeah. Yeah. Because I I mean I would imagine that if this was to arrive on a legislature's desk, they would say great yes let's do that go Texas. I mean that's kind of the ethos of the state. I feel like so, so yeah. So, if again, if unless there's you know, additional scoping that needs to be added to this, I'd recommend we strike it. And again, if the, if the sponsor of this or the proponent of this wants to circle back with Texas State and kinda talk through it a little bit more and reintroduce it, that sounds great. But otherwise, I think we can strike that one data capture and analysis. I'm sorry, I'm going faster than Typer's.

Cameron Walker

2:11:19

Chair, can I interrupt you for just a second? So twice you've made the point. If somebody's somebody either present or online, really likes the one we just struck through, then, you know, circle back with Texas State and see what you know, what direction you might be able to move with it. It might be putting an extra burden on them over something that clearly got the strikeout in here. So, if someone really wants to defend that, they ought to either be here and say it or say it online. Otherwise, it's gone. So, we don't wear them out because we're going to give them X number of directions anyway. How about not the other ones? That's just my thought.

Dan Dalton

2:12:06

Well, it's, it's a fair point. I know a number of members could not make it today. And so that's where I'm trying to give them. Like I said, we're not trying. We're not doing final voting today, but if they if, if we come back, then there's a list and it doesn't have theirs on there and they don't come back and say, well, hey, by the way, you know, if they're not watching this recording, for example, then you're right. I mean, there's really no reason. So, this is kind of their last opportunity to bring it back in because like I said, this isn't final loading. But yeah, and the onus is on them now, I would say. So thanks for your point. All right. Data capture, so mechanisms for capturing, analyzing data, aerospace integration, drone detection companies enhance air safety, let's see. So, the concept here being that we will actually legislate for the mechanisms to be created. Is that curious, Jason, if you have thoughts on this one, it's either Jason or Ernest.

Jason Day

2:13:18

Yeah, I'm just, I'm reaching back in the brain there, right. I'll say this. Oh yeah, this, this is about, I mean ultimately this is about UTM. And again, it's that conversation we had earlier about the about data sharing being good for public safety but not a good business model for the private sector and having some type of mechanism that is controllable and available for like public safety to utilize while not just taking the data that and this is kind of hard to explain. So, for example, we have drone detection technology. We have a login to a website. It's very easy. And when we need to, we share that data with other public safety agencies, right. That is important for us. And in the moment, they need that information. That's a bad business model for the private sector because that company also wants to sell that service to other public safety agencies. But we need some type of mechanism to be able to capture all of this on the statewide level through TxDOT or Comptroller some way. And then analyze all this data where the individual owners of the data are not losing out on funding opportunities or violating contracts that they have with the private sector, but with all this data. Does that make sense? Because we cannot have safe airspace if we don't know what's in the airspace and we also are not analyzing what's in the airspace. I think that was my point on this. I had too much lunch.

George Kivork

2:15:22

This is George with Joby Aviation. I have not yet had my lunch because I'm stuck here on the West Coast. So, I would like to spend a minute on this. I really agree with your point, and I love the highlighting of this. It is important for safety and figuring out a way where we do this, where it encourages business, maybe one mechanism because it does seem like creating a mechanism for capturing. Maybe it's create a collaborative mechanism, because what I think I'm hearing from all these different speakers so far is there already are various methods in which we report a Joby will operate its aircraft the same way it would operate any other airplane. We'll communicate with the FAA in the same manner. All that data and information will be shared the same way. Every other aircraft and pilot and operator shares that information. So, there's no need to create a new reporting process. But I think as you're pointing out, there are drones reporting through other websites. So maybe it's more about coordinate the various sources of information and reporting already in existence for

aviation so that we can have a centralized source where you can go and check that instead of creating a new new requirement or burden that maybe folks from industry might might, might not be excited about. Is that would that be appropriate? Maybe coordinating it because you already have all of these reporting would be an idea.

Jason Day

2:16:45

Yes, this is a hard topic, right? Because again, it's about the balance between the two. And really, I know for a fact that no single entity I, I can see it on somebody's face. Nobody's single entity wants this problem. Another good analogy for all of this is we and I know TxDOT, It's the same thing. We all say drones help clear traffic accidents faster because you don't have to roll out total station You do it faster with drones. And everybody's like, oh yeah, man, give us the data. Oh, that's a hard problem, right? Even for us, because we don't know when the trooper got there when they launched their drone. We know that. But that's not a separate system. We don't know how long it necessarily took them to map the entire thing, process, all that information. If they're doing it on the scene, when do they clear the scene and when did traffic get moving again? Right. And then we don't know how to say, well, if they didn't have a drone, how would they do it with old traditional methods? And so, this is the question we always get is, hey, do you have the data on all this? Well then we're talking to text out some representatives from text out and they're like, oh, you know, we could get Google data from over here and see when the traffic patterns was and we could pull your flight data from over here and then we get the trooper reports from over here. But somebody has to collect all that data and there has to be somebody that has to be their job. So that that's part of this, it's so talk we're talking about the same type of mechanism but enhancing air safety through drum detection and other airspace awareness methods.

Dan Dalton

2:18:37

Yeah, I think so for this one. Another big part of this is around public safety and so I think so I think there's you know creating some sort of creating over the coordination of collaborative mechanisms blah blah blah. I think we're on the right track there. I think the other thing we can do is also hand this to legislative staff to consider what would be some solutions that they might propose. We don't actually have to define the answer here. This is a recommendation. So I would say I think we're on the right track with the way it's worded now. I think the only thing I would add on there is to enhance, to enhance the air safety especially for public safe public safety uses or however you guys describe your kind of law enforcement and emergency response, however that's captured.

Jason Day

2:19:23

But I I think on the private sector they want this date as well. So, if a wing or drum delivery company already either air, even air taxi is looking at putting some type of air asset in an area, they would like to know what else has historically been in that airspace for a certain duration of time because they have to mitigate that risk going forward, right. We can all look in the air and be like, oh, I don't see any drones, There's probably 3 drones within a mile of here, right? You're not going to see. So, the financial burden and the data gathering burdens then on both the public safety agencies and the private sector. If multiple people are collecting this data, let's put it all together and share it for the common good.

Dan Dalton

2:20:06

Yeah, I I think, at least from our perspective from now putting on my Wisk hat. You know, we will use remote ID, it's at George's point, we'll we'll use remote ID and these other mechanisms, they just be out to be able to make sure that the area is clear. Umm, so I don't know. I from our perspective was from that, I don't know how much we would take in another another source of data for that. But yeah, that's just from our perspective. But umm, OK. Did someone online just say -

George Kivork

2:20:33

My reception's a little, Sorry, Dan, I just one quick thing. Maybe we could just say coordinate for existing public data because maybe that is the caution, because I think Brent maybe was saying is you have private companies that have the data that are going to look for private information. But then as you just said, there's already existing entities that you're using or existing processes. So maybe it's public. So, then there's less anxiety that it's, there's no new reporting that Whisk will do. It's just whatever you already do, make sure that database is reported, you know, the whatever public databases are out there that we're utilizing or coordinating those. I don't know if that helps.

Dan Dalton

2:21:10

Yeah. But I think Jason your point was there's actually additional private, there's quote UN quote private data that is collected as well that you're hoping to make to to have at the disposal of public services. That that's what I'm hearing. That's what I thought I heard from Jason.

Jason Day

2:21:26

Well, let's, let's, I guess we have to be careful there. I'm not talking about private data that we're not pulling private data from the aircraft. It's just data that we have that other agencies and other people do not because they don't pay for it, right. It's something that we are paying for that we we just have access to.

Dan Dalton

2:21:49

OK. I think we're closer on this one. I would say there's probably, it's probably worth going and take another turn on the scope just to make sure it captures exactly what you want or what everyone wants. So this one, I think this was in yours, right? Jason, this came out of your group.

Jason Day

2:22:08

If if just if Rebecca says it is, then yes.

Dan Dalton

2:22:13

All right, excellent. Well, if. Yeah. So I would say take another turn on this one. If folks want to help contribute to that one. Please do join. Jason, he's running a group.

Brent Klavon

2:22:26

Excuse me.

Dan Dalton

2:22:26

Please.

Brent Klavon

2:22:28

Yeah. Hi. Brent Klavon ANRA Technologies. I would also encourage the adding language or at least for this group to consider the FAA key site initiative in the Dallas Fort Worth area, which we are a part of which is introducing public safety to enter UTM operations. And so there's a number of drone delivery companies that are conducting drone deliveries in the Dallas Fort Worth area. There will be a new phase where public safety is invited to participate in that activity and have conversations like we're having here. And so not all of the questions that you raised for this issue will be answered through that initiative. But now public safety has a seat at that. We'll have a soon have a seat at that table to have these types of deeper conversations with industry to include data sharing, airspace operations, safety of those operations and so forth. So I'd be happy to talk to you more offline.

Dan Dalton

2:23:27

Yeah, that would be great, Brian, if if you could circle back with Jason to to kind of hone in on what that language might look like here. Excellent. All right. Moving on to the next one, an AAM office, creating an AAM office within TxDOT to help drive adoption and awareness of AAM. And we've gone all the way down to an exception request or a writer, someone there was a ringer on this group as well as a pay grade. So yeah, does anyone have concerns or is anyone opposed to this?

Dan Harmon

2:24:09

I would say this is something, I mean this is something we're already moving towards, you know, whether you want to codify it in recommendation or not. But I think that there's you know how there's some nuances to how folks how agencies get FTE's approved. And so, the budget is where that happens not a rider. So, it would have to be when we what'll happen is is we will put in our LAR request which is our budget request and that is that process has already started. And so we've already asked for additional people to serve as AAM specialists and hopefully we'll be able to to get some before the LAR to start to kind of see that. But you know that's that that's something that I I will defer to my legislative folks here about how that would be appropriately just saying that you know I'm not trying to dissuade or anything. I'm just saying that we're already moving towards that direction. But how that's done is there's some nuances to how that goes in there because if you just do a stand alone it won't, it won't be picked up on its own. But I think there's probably more discussions along that lines later on. Again, I'm not trying to dissuade it, you know, but we are moving that direction already. It's we recognize that.

Dan Dalton

2:25:41

All right. Does anyone disagree with this recommendation? All right, so we'll leave it in there for now to make sure Dan does his homework. All right. Next slide, please. OK. Eliminating, sorry, eliminating the statewide plan for the recommendation for a statewide plan for vertiports or somehow changing the scope of this so to assess all existing Texas airports in terms of their potential viability vertiports coding electrical infrastructure. Anyone want to say why they think this should not be a recommendation? You pointing at me? I struck this? Oh, the other Dan. Thank God, I thought it was me. Strike that.

Dan Harmon

2:26:29

But we're already doing that. We already do this now. We're doing this now.

Dan Dalton

2:26:32

Oh, OK. I was listening intently. So, this is so it's actually underway. OK, well, in that case, I guess we could strike it. That's fine.

Dan Harmon

2:26:50

No, no. So, so this is one of the things we're looking at. We're trying to take it off, you know, as we move forward in airport discussions for for like airport layout plans. So, every airport's quite having an airport layout plan or a master plan, actually both. But that's where they kind of layout where their future development's going to be. The FAA is kind of schizophrenic on how they identify future AAM. But what we're asking airports to do as we go through the planning process in the future without the airports in our system is AAM. So AAM is coming. Now what AAM looks like at each airport may be different, but the need for electrification, it we have a different name for that, we call it fuel. And so, you have these different fuels that are coming to airports, whether it's next generation, you know, fossil fuels of unleaded or sustainable and electricity in greater volume and capacity is going to be needed at all the airports eventually, some airports sooner than later depending on their maturity and

where they are. So, our, you know, we're already looking at those airports that are in the urban area that already know they're going to be part of this and sooner than later they need to look at where electricity is going to come from. They need to. I mean, if nothing else, at the heart of the day airports, I've said this a million times, airports are agnostic. They literally don't care what lands on them. But I can land a Citation jet. I can land an eVTOL that. It's just simple. It's that easy. But fueling it is an entirely different issue. And so, what I'm saying to airports is you may not have eVTOLs operating right now. You may not have them in two years. You may not have them in three years, may not even have them in five or six. But if you know where power is coming from to your airport, you might be thinking about whether or not you want to get an easement now or even run some empty conduit between there and there. Because doing that now at \$500,000 for 100 feet is going to be a whole lot easier than buying an apartment complex in five years. So, you can tear it down and run conduit underneath it. It's got to go underground if it's going to come into the airport. And so that's what we're asking airports to do. Think about where you are in the system and your maturity. Think about where you are geographically located and start thinking about where you're going to put this. It's as simple. And for most airports, it's going to be as simple as an FBO, right? This guy right here can tell you about how to work in agreement with, you know, a reliever airport in the urban area and what that looks like. It's a simple land lease. But for others, the biggest thing is not the concrete steel glass parking. It's bringing the power in. And so that's what we're asking them to look at now is, is where that's going to come from. How that gets paid for in the future, I can't tell you. But right now you need to at least look at it and start thinking about it if you're going to be in the game in the next five years, because one thing's sure it's coming and nothing's getting cheaper.

Dan Dalton

2:30:13

I remember that part, you said that last week. So, I think so. I guess one and just really kind of current, so are the are all of the airports required to do this with TxDOT or is it just the one seeking funding, so in terms of kind of looking at how airports are looking at AAM?

Dan Harmon

2:30:41

So we're not, we can't, we're not, there's no requirement right now to look at AAM. What we're doing as part of the planning process with our airports is starting with those airports that are much closer to the problem there. There is no, there is no legal requirement to have it in the planning process. But there, I mean, but there's no legal requirement to do almost anything in the planning require. You know, if you want to be an airport, you need to have a runway, you need to have, you know, there's certain things, but there's nothing in law that says you have to have one runway or two runways or this many. You know, there's design characteristics and things like that that we try to meet in this, but what we're trying to do is get them a portion for the, you know, ready for the future, not every airport. I mean, you know, there may be airports out there that have no, you mean there are literally airports on our system that have a runway and a ramp and that is it. So, they don't even have regular fuel, much less, I mean they don't have lights. So, electrification is the least of their problems. So, you know that airport is not the highest priority for us to engage about the future of electric aircraft Sugar Land where you guys are you know, or you know some of the airports in the DFW system and things like that. They are much closer to the problem and are already engaged in this problem. I'm trying to work with them to try to figure that out for them.

Dan Dalton

2:31:59

So maybe said another way if an airport in Texas wants to chase AAM and wants to see AAM come to their airport, they can come to your office and you will help. Yes, I literally that's what my staff is to do to help them plan for the future. That's what we paid to do.

Ernest Huffman

2:32:19

And I have AI have a quick question just on the same context. And Dan, I know you're familiar with with North Carolina and what they put out recently, how they're allowing for \$200,000 available to each airport that's interested in improving its infrastructure in regard to advance their mobility, but particularly on electrification of that airport. Is that something that Texas can do?

Dan Harmon

2:32:40

So we haven't, we don't set a specific dollar amount for, I don't I'll put it this way it's not been our practice to assign certain dollar amounts for certain types of projects. Now I'm not going to say that there there are because we do set certain things for like hangers and fuel and that's and and the ramp funding and stuff. But I mean what we we don't generally as a rule we try not to like set aside this for you know OK I'm more of a come with your needs and then we will try to to to fund them approach then try to say well you have 200 for this and you have to because we don't want to we don't we want to be able to use all the money we have available and so we're trying we don't we try not to block funding for specific purposes. I would rather have the flexibility to not to to not to be able to use it for the purpose it needs to be used at the time we have it available. Instead of saying we got 200 for only for this or 200 for that or 200 for that. I would much rather say is hey Dan all of my airside needs are met I got a great runway. I got great lights. I got a great ramp. Now I want to talk to you about electrification. So that's the next, next most important thing for you then that's what we're going to hit next.

Ernest Huffman

2:34:14

Well, how well, how would that work in the grading process in terms of priority? So what would that AAM priority project be in regards to a runway length project or runway safety project at another airport?

Dan Harmon

2:34:21

Runway safety will always come first, right. So, that's how it gets graded. I mean that's how the hierarchy goes even with the FAA projects center of the center of the runway inward.

Ernest Huffman

2:34:32

So where are the AAM projects on that priority list? well it would depend, it would depend on what the project is.

Dan Harmon

2:34:40

Well it would depend, it would depend on what the project is. And so, if we're talking about creating a vertiport for take-offs and landings then we would look at that as a runway. We're looking at that as a primary surface for operation of aircraft transitioning from ground to flight. So that in itself would become a primary surface. So, so when we're looking at the, the hierarchy of projects, we're going to start with the most need of safety of for the, for the for the public. So, if that is the primary surfaces that would start there, then it would be lighting, lighting in nav aids, weather and then primary, then taxiways, ramps, terminals, things like that.

Ernest Huffman

2:35:23

So but this, so it sounds like an AAM electrification project will probably be low then.

Dan Harmon

2:35:29

Well, it depends because at a certain - certain things like airports are going to be in different places of maturity. So, I'm not going to put electrification at an airport. If your ramp is crumbling in a FOD hazard, I'm going to fix your surfaces first and then we'll talk about the fuel and the hangers and things like that. And so, if AAM right now I kind of look at it as it's, it's just to to me it's an airplane, OK. I literally doesn't matter to me whether it's an it's eVTOL or a Challenger 5:50. It's an airplane that uses the facility. And so it's whether it's it takes off you know use electric fuel or or or jet A it still needs the the safety of flight factors come first and that's going to be the primary surface, the NavAids, the lights, the weather and then down the line off of that whether it's a helicopter, an eVTOL, a drone piloted, unpiloted that's going to be the priority and that's how the national priority ranking works for the FAA as well. So, it's going to be you know primary surface 1st and then down. So it so to answer your question the the definition of the vehicle, the type of vehicle again is immaterial. It's the infrastructure to support it that's going to be the how we grade it. Make sense?

Ernest Huffman

2:36:52

No, it makes sense. I don't know if it's getting to the heart of my question now we'll talk, we'll talk.

Dan Harmon

2:37:01

I was just saying it's to me, it's whether it's a, you know really the same thing as a heliport. If it's a bad condition heliport or whatever and we need to get you know fix the the the pavement there that would be the first priority. So that doesn't fog down something and then we would work on the next and the next and the next and the next. But but just because it's AAM wouldn't you know an AAM ramp wouldn't necessarily jump the line over a primary runway that that was being used or lights.

Jim Perschbach

2:37:26

It comes to a really, it's a really interesting point. I think for a facility like ours, but for the state as well, for a traditional airport, whatever the aircraft is, is going to be their business model that traditional aviation. We are an airport sponsor. We've run a big airport. But I'm looking at AAM not for the aviation side. I'm looking at to bring people on and off of our campus to save building other infrastructure. So, the electric charges that we are looking at are absolutely huge. And that's despite the fact that because we've run all these cyber operations, we've got 3 substations on the campus. But just bringing it the, I can't even tell you the distance, half mile or 3/4 of a mile that we have to bring it is going to be outrageously expensive I would love for the FAA or TxDOT to say here's a pocket of money to do that. But right now, my expectation is we're going to have to fund that and we're going to have to justify that because we're leaping in front of somebody who's looking at it from an aviation perspective in terms of saving 30, sixty, \$90,000,000 in parking garages. But it's a tremendously important point. And if North Carolina's putting \$200,000 into it, I can tell you that's not even going to cover a transformer it. It's not going to get you where you need to be.

Ernest Huffman

2:38:51

North Carolina money is more about the studies for each airport to determine what they needed for electrification.

Dan Dalton

2:39:03

OK, OK, so it sounds like a text dot Aviation is moving in the right direction as it relates to the scope of this work. Does anyone want to keep this? I think the the, the recommendation is to strike this recommendation. Does anyone oppose striking this recommendation. OK, All right. Let's move on to cybersecurity risks. All right, So developing A statewide cert process to ensure good cybersecurity

practices are here, too, for autonomous AAM technologies. I'll. So I'll take off my chair hat and put on my Wisk hat. I will tell you that there are plenty of existing cybersecurity requirements that are put on any airframe manufacturer, whether it's autonomous or not. And if it's autonomous, there's even more. So, kind of thinking through is this to make sure that this, that anyone operating in the state adheres to those existing regulations. Is that what we're thinking?

Jason Day

2:40:04

Yes. Similar to like the text ramp process, especially if you were going to leverage existing state infrastructure, you would have to abide by some type of statewide cyber.

Dan Harmon

2:40:30

Not in my scope knowledge. OK, I turn on phone.

Dan Dalton

2:40:37

He says I turn on phone. OK. I think yeah. I mean if there's an if there's an analogous process, it would be good to reference that here in some other domain. I think that would be important because what I wouldn't want to do is put additional here's here's my concern again putting my Wisk hat on, I now have a special aircraft that's designed for Texas because it meets all these specific requirements in Texas. But it's more than I need for another aircraft somewhere else in the in the US. So I just want to make sure that we're, it's about leveraging existing cybersecurity and and going back to kind of the same idea of the state isn't creating its own cybersecurity standards and that kind of stuff.

Jason Day

2:41:26

So yeah, that's why NIST and CISA are on there. I mean just so TXramp is just a statewide version of Fedramp, right. It's just, it's just a certification on the statewide level that's based on stuff from the federal law to be for state agencies to buy your cloud services or your widget, you know any type of electronics, something that has a cybersecurity concern.

Dan Dalton

2:41:55

Yeah. So can we add on to maybe the back end of this, you know, for services to be purchased by the state or something along those lines just to make sure that yes, so totally agree with you. If someone, if a company wants to sell their services to the state, absolutely they should be, you know, whatever the state thinks is important to make sure that the data is secure is yeah, totally agree with you. I think that there are also a set of services that may not need to get to that same level. So I'm imagining, for example, FPV donor operators probably don't need to have that level of cyber security in their systems. Now if they wanted to sell the FPVS to the state makes sense. But they as recreational users probably don't need to have that certification kind of what I'm thinking Do you disagree?

Jason Day

2:42:49

Yeah that's a that's a whole other man. That's a that's a fuzzy conversation I got to be careful with, because the FPV and the cybersecurity concerns are, you know, a big deal on the state one level as we're getting ready to enter the legislative session because an FPV drone is no different than your standard quadcopter as far as the fundamental electronics in there, right, And how it can be used as a terrorist tool or to gather information from, let's say, nefarious countries, right. So, the same kind of would apply here. And you are navigating an aircraft through the air that is at some level AAM technologies are more reliant on technology than your sessional 172. That thing never touches the Internet, or you know, it has steam gauges and some gas. You're good to go, right? But AAM Technologies, especially automated stuff is going to need more electronics in there to operate. Would we agree with that?

Dan Dalton

2:43:59

Yeah, absolutely.

Jason Day

2:44:01

So you have to have, if it's navigating through here, you're going to have to have some type of mechanism to make sure that that cannot get hacked and fall from the sky or be used for some type of nefarious purpose. Like a drone could be, right? Right now it's there are companies out there that you could boot the drone and you could take control of it and use it for whatever you want. The concern is just thinking about that, at least at this level. Does that apply to bigger AAM technologies?

Dan Dalton

2:44:31

So yeah, I mean since we redefined AAM as SUAS all the way up that that's where I got to like I see a hard, it'd be challenging to have a 12 year old get a statewide certification in cybersecurity for recreational drone use is kind of the way I was thinking about that's how I was reading it until we put for services to be purchased by the state. So I think maybe the first first step maybe is yes, for State services, absolutely, state should have a very clear expectation of what their requirements are. I think recreational use, that's where it's to your point. I mean, that's a probably a bigger thing that we want to deal with honestly here. But I'm open to other thoughts. Yeah. Oh, Brent, go ahead.

Brent Klavon

2:45:17

2 comments, I suggest that we revisit the word certification for one and maybe clarifying what's behind that. If I'm certified by a federal entity like the FAA, is there another level of certification that we would have to go through with the state? And perhaps the second comment I have would clarify that purchased by the state and connected to state systems, I think is a very important thing to understand because if we're not connected to any state systems, whatever that might be, then I don't understand the reason for certification. But I completely agree if if we're connecting to any kind of enterprise system that's used by the state, fill in the blank, whatever that might be, software, whatever in the state requires that you comply with this following list of standards or protocols or whatever that might be, then absolutely. But if we're not connecting to those systems, I don't know why we would have to be certified.

Jason Day

2:46:22

Yeah, I'm good with that. That's kind of where we're at right now with with small, unmanned aircraft from the state.

Dan Dalton

2:46:34

Scott.

Scott Shtofman

2:46:35

Yeah, thanks. The other thing I wanted to make sure we're aware of is that you know when you start talking about certifications on an aircraft there, there are already a lot of things in place that the FAA is required to do for something to be considered air worthy. There's a lot of certain air aircraft certification standards that go through or a type certification for either a larger aircraft or a small drone that's doing delivery. You know, I want to make sure that we keep this, if it's something specific to Texas, that it's performance based, that it's not prescriptive, that there is an ability for an operator or manufacturer to say we meet these sorts of standards that have been developed by standards development organizations or we meet the criteria for cybersecurity in the state of Texas. I I'm OK and I'm I'm it's nice to see the sort of clarification around where this would come into play around

purchased by the state and connected to state systems. I just want to make sure that we know there already is a lot of work done in making sure that these standards are met and understood and contributed to by both industry and by stakeholders on the state and the governmental side.

Dan Dalton

2:47:44

Yeah, no, it's a really good point. OK. I think we've gotten a lot more clarity on this.

Matt Ruszczak

2:47:50

I just have one more quick comment that this is for awareness, not one way or another. We had a bill last session that talked about from that angle the use of UAV equipment for law enforcement use and you know tying into whole the hard things of blue list on the on the federal level, That's our conversation. It blew up in our face from local law enforcement and county law enforcement and stuff like that because they felt as if their current equipment would go offline. There's no competitive equipment available. It doesn't come from China, and it was a real mess. And so, as we're looking at that, I'm just wanting to put that on the plate there Will be pushed back on the, you know as you guys finally on the wording here potentially from that angle. So just want to put this out there for awareness.

Dan Dalton

2:48:45

Yeah, no, that's helpful. Helpful context. And yeah, I mean in the end these recommendations, right. And you can take or leave them, but yeah, that's that is good to know and and maybe with more, a little bit more kind of crafting of the words on this one. So, for example, the one that really sticks out to me is good. We would probably want to have a better definition, or another set of words to further explain and expand upon what we consider good because we don't want that to be ambiguous. So, all right, any other questions, comments, concerns on this one? All right, great. Do folks want a 2-minute break and then we'll come back for the non-controversial ones. Awesome. All right, so it is one almost 150 by my clock. If we could be back by 55, that would be great, and we should be able to move pretty quickly through the remainder. Thank you.

Daniel Bagwell

2:49:42

All right, folks, we could take our seats. We'll resume. Thank you.

Dan Dalton

2:49:54

So we are gonna go into the noncontroversial ones and hopefully those will move a little bit faster. And I I'm gonna say that just because they will probably be controversial but then also there were some late breaking ones that were that we're gonna add to the bottom of the stack just so we can get through the ones that are already submitted. And I think we will get this. I think we'll actually get this done by the time we're supposed to end. But yeah, all right let's dig right in. So, the next level of priority, vertiport construction, matching program. So, the idea that the state there's a matching program for the state for new public good public use, vertiport construction, there's a lot of feelings about this one, especially as it relates to, you know, kind of would be there to be supporting industry. And then there's another side of this of well state the state should be there to help out communities that need these. So, I think I get where I would like to start with this conversation, because then it gets into funding and you know, all this type stuff. Does anyone disagree that the state should be in the business of helping match funds for new public good and public use Vertiports? No one online. Everyone's OK with this? Great. I appreciate everyone starting off with the noncontroversial ones in a non-controversial way. I would say that yeah, the the big, the big question is right, how much money, to what extent does the matching program happen? There's a lot of additional detail that needs to go into this one. I don't think we're going to solve that here. I would love to kick that to the subcommittee to take another turn on this and kind of see, I would actually encourage you to reach

out to to Texas State who can help pull in folks who can advise maybe on what is politically viable for what a matching program looks like here. I think there's a big there because there's a whole nother question about whether or not this would be a separate AAM pot of money, or this would be from existing aviation. Texas aviation, the pot of money. And there are two schools of thought on that one too. So, which I don't want to talk about here because we're never gonna get to A and we will be here until 6:00. So, I would say kick this one back to subcommittee for a little bit more detail on the scope and specifically what we propose this the state should match. I would argue, yeah, I'm not even gonna say it, but yeah, that would be great if the subcommittee could look at this. Anyone have any concerns with that plan of action right?

Emilian Marchand

2:53:04

Just on the public good of public use, Like just as we make the current recommendation, that's a term that's not always well understood or it can be depending on on who uses it, there's different meaning. And so as we rework the recommendation, also like the attention to that term, see if we want to use that or have a different way of bringing that up.

Dan Dalton

2:53:26

That's a really good point that those, those two terms were actually used interchangeably quite a bit and they mean very different things, especially when you get to like funding. So making sure that's really clear during the recommendation phase will be, yeah, that's really important. What was that, Scott?

Scott Shtofman

2:53:49

And I was going to say and access requirements based on the definitions.

Dan Dalton

2:53:54

Yep, good point. All right, next slide off airport infrastructure increased text dot aviation funds allows funds to be used off airport to construct infrastructure to enhance the aviation system. Does anyone disagree with this one? OK. I would send this one back to the subcommittee and ask for a little bit more detail on kind of just examples and rough dollar amounts that you would think would be helpful for these off airport, these initial off airport construction projects. Also, it might be politically viable for you to also put a sunset date after which maybe these don't have to. You know, there's always a, there's always a question mark around programs that have funding needs and perpetuity. And so if we could maybe have an idea of what what, when those end dates look like. And yeah, just a recommendation for a recommendation.

Emilian Marchand

2:55:01

Yep, maybe one thing and the way, and I don't know if I can't remember if it was from the infrastructure subcommittee, but so we had funding to support ancillary infrastructure. It was an off airport in in the prompt and so in the examples that we had additional to you know microwind sensors also ground based precision navigation solutions and so but if we talk about off airport then we can include those. So just wondering which would it be like so the the need was funding to support ancillary infrastructure and we didn't have off airport in the recommendation 19 from the infrastructure subgroup. So if those would be captured elsewhere or if we still want to capture them in which case off report might be excluded exclusatory.

Dan Dalton

2:55:52

So you're you're saying that by adding off airport we may preclude future communication systems,

future precision navigation systems that may not. Yeah, Dan Bagwell, on or off airport, how about that the recommendation there we could put on or off airport, flip it down.

Cameron Walker

2:56:19

The thought unless there was other language in the infrastructure committee, we had something very similar that to this in in the economic impact subcommittee that was, I don't remember which number of our recommendations it was, but it was in there too, just there. So there may be some crossover.

Dan Dalton

2:56:43

OK. OK. I think this maybe, Yeah. Again, going back to the the subcommittee and maybe just honing it a little bit more. All right. Next slide vertiports at existing airports modifying Chapter 21 of this state's transportation code. So the name of existing airports function as reports increase available funding, et cetera, et cetera. Does anyone disagree with this? I'm going to assume it's Chapter 21. Someone knows. OK, great. Thank you, Andres. Great. All right, moving on. These are truly noncontroversial. This is great. Electrical infrastructure Providing funding to improve electrical capacity at Texas airports for airborne and ground born vehicles. Yes. Does anyone disagree?

Cameron Walker

2:57:39

Put off airport in the slide in there too in the same manner that we just added on and off airports 2 items ago. You could do it here too. So, what I would just think about it if it were worth my time and money as somebody who could generate enough power electric power to to source an airport under a contract. But I don't. I'm not on the airport property. I might be able to get some assistance, public money to proceed with this plan. So, we'd want it to say on or near to or or on or off airport facilities.

Jim Porschbach

2:58:19

Yeah, this is I am hugely in favor of this. I just offered this caution the last time we had a grid emergency in the state. There were 2000 megawatts of available cushion on the power just in San Antonio. I know of two projects, one is mine, one's up straight from me. They're going to add 800 megawatts. So, one part of San Antonio is going to take half of that cushion. We do not have enough power in the state of Texas or the ability right now to generate that much power. We in theory could do something like small nuclear reactors fuel cell technology, but this is something I worry about this one. I will defer to the folks in the legislation, the folks that know what they're talking about. But this is open in a huge can of worms with what's going on on gas natural gas regulation what's going on power regulation what's going on, on green tariff. I just see us getting into this especially when you're adding ground vehicles to it is the number I'm hearing for ground vehicles is an outrageous amount of power.

Dan Dalton

2:59:33

Yeah, I think it's a fair warning. I think I guess I would flip it the other way this demonstrates an actual demand signal from this segment of aviation that may not be accounted for in other you know when they when you let's say you're ERCOT and you say OK here's all the users and here's my forecasted needs. I'm not sure that they necessarily are thinking, oh, here's AAM's forecasted needs. And so this may actually present that demand signal that says, OK, that 2000 MW cushion ain't got to cut it anymore. We need to get that cushion up to 5000 or something like that.

Jim Porschbach

3:00:12

Yeah. And it's not a two. That 2000 megawatts was 2000 megawatts before the Texas grade collapsed. And so, we were going to go into the same rolling blackout situation that we had on Tropical Storm Yuri I I this is one people smarter than me need to look at it from a standpoint of it's a really good

point. But I worry that throwing this in may be a hand grenade into the larger effort and get people saying let's not go promote this industry right now because what it's going to do is put an effort on us. There is a Department of Energy Institute called Simani. Full disclosure, I'm on the Board of advisors to Simani, but our mandate is to look at manufacturing, the cyber secure architecture of manufacturing and demonstrate the technologies that show a material reduction in the power requirements. And that is being done because of what we're doing with generative AI and machine learning just coming in and beating that up. So, I wholeheartedly agree with this. There are certainly people smarter than me politically, but I am worried that this could be something that just might trigger people saying we can't afford AAM right now, let's slow roll the rest of it.

Dan Dalton

3:01:27

Yeah, no, that's that's a fair point.

Andres Carvallo

3:01:33

Sorry. My, my, my, my world. So, the great guys are under assault globally. There are many things happening. The EV revolution is happening. Genie's out of the bottle. You can buy a Porsche, Ferrari EV, right? So, so take Texas. Texas has 22 million registered vehicles. If they all go electric, as many people want in the administration and somewhere else, then 22 million vehicles times 100 kilowatt hours would be 2200 GW hours. ERCOT at peak only delivers 85 gigawatts today. It is planning to add 100 gigawatts for the next 100 in the next 10 years. 100 gigawatts only. But if all the EVs you have, all the cars switch to the VS and you'll buy them, the grid will collapse. That's just the EVs. The data centers that are being added with AI will consume 10 times what the current data centers consume. That will be the size of the Netherlands and France in consumption. Globally, the USPS is 30% of that. There's not enough power anywhere to power all those data centers. You have the crypto guys. I don't know if you're listening to investing in crypto. The world is coming, right? To create a Bitcoin requires 52 MW hours. Just one Bitcoin, one MW hour powers 800 homes for one hour. OK? And then AAM. If you go with my vision of 10,000 vertiports, the estimated amount of consumption of a vertiport is 1 MW hour. So that would be one MW times 10,000 vertiports. That is 10 GW hours. Needed more for Texas. Now, this is not going to happen overnight, but the genie is out of the bottle in the electric industry. I ran Austin energy for eight years. They move slowly. So, I if you don't tell me now what you need five years from now, it's never going to happen.

Jim Perschbach

3:04:03

You're smarter than me. Do you think that this would be helpful or hurtful? All right. I'm not going to disagree with you because you're smarter than me. My sense of the utilities is this is the type of stuff that gets them running for the hills and trying to get people to sew it off. But I stand to be corrected, so I'll withdraw my objection. Just be cautious about it.

Dan Dalton

3:04:35

It's fascinating to hear the two sides of the same coin. Cameron, please.

Cameron Walker

3:04:40

How about how about the word matching funding in there so that it's not entirely public dough that we're we're leaning on now you have to come up with percentages and dollar amounts, whatever else, but at least there's some stake in it. And I, I want to give you an example out out where I am in the Permian Oxy just created or is in the process of building a plant to take their natural gas and turn it into electricity to power all their oil field, all their oil field sites. I don't remember the range of the electricity. I don't know all the weeds of it. But the bottom line is the technology's right there. Take that that gas that is otherwise going to get flared and and get EPA and others involved and capture it and use it to create electricity and put it in. Now in this case it's specific to one consumer,

Oxy Petroleum. If you were located right over there by the airport with a natural gas well or more than one of them, now it goes for that purpose. And yeah, I'm going to make money off of it because I'm going to sell it to the airport. But maybe there should be some public dough involved in creating this the site.

Dan Dalton

3:05:56

Yeah, interesting. Interesting point. Yeah.

Andres Carvallo

3:05:59

Let me just say, only thing state is not gonna buy production of the energy. What the state needs to do is coordinate and accelerate the marketplace that enables that, which is ERCOT, ERCOT should be, you know, incentivize to create the rule to attract more generation to the Texas market, the federal, the state is now gonna write a check for, for building the generation capacity.

Dan Dalton

3:06:33

Yeah, no, it's very true. All right. Any other items on this one? All right. Moving on to the next slide and public awareness. So, providing funds to create communication materials for public decision, public decision makers and recreational drone users that can be implemented as appropriate. Does anyone oppose increasing AAM public awareness? OK, all right, there might be a few more stakeholders there, but yes, I OK. Yeah. Moving on to the next slide there.

Emilian Marchand

3:07:31

Maybe just on this one in the details later, but I would again because we're with, but also for all of these smaller US want to emphasize autonomy in the public awareness piece, right. It's definitely something that that we want to address and that's going to require a lot of presentation and conversation with the public. So we'd want to emphasize that in the recommendation.

Dan Dalton

3:07:40

Yeah, higher levels of automation for sure. Yeah, Next slide, AAM Rep on text dot Aviation committee. OK. So in case you did not know, there is actually a text dot Aviation committee in addition to the AAM advisory committee. So this is you know whether to create a AAM Rep so someone from this committee to sit on that committee. Does anyone oppose that? OK, great. Cost is 0. AAM advisory committee continuing this lauded body into the future. I - we are expensive. I don't. Jim, are you getting paid that much?

Jim Perschbach

3:08:28

I am, yeah.

Dan Dalton

3:08:29

OK, biannually. So, yeah. Does anyone oppose continuing this advisory committee into the future at least for another year? Yeah. Great. All right. Next AAM workforce K through 12, which actually reads kind of funny I imagine. Yeah, I mean they will be the future workforce. So but directing the TEA to integrate AAM into K through 12 curriculums and according that with TWC on developing an AAM apprenticeship program at high schools. Yeah, I mean that this is in my mind. This is a no brainer. We need to be creating the future workforce and if we can have Texas be the epicenter of that, that'd be great. So does anyone oppose with that bias comment ahead of it. Does anyone oppose this one? OK great.

George Kivork

3:09:26

And just do to clarify, we're not employing K through 12 - I said this is to clarify, we're not, this is George. We're, we're not employing K-12 employees? This is for the future workforce just the way it.

Dan Dalton

3:09:38

Yeah, So exactly. Yeah. That's what the that's how I read the title too is they might be the earliest. Yes, we're going to get them building composites very quickly. So, all right, next slide. All right. Higher education. So same concept around workforce development, supporting education, workforce dev for AAM by providing funds and resources for for state universities, community colleges, vocational schools, develop and offer programs and courses related to AAM. Anyone disagree with this one? OK, great. Research and development, supporting research and development for AM technologies, product services in Texas, creating programs for state universities which could be used as matching funds for federal grants and minimum percentage of community or in industry match. So, this is really kind of helping create that seed. Funding for larger grants is kind of the way I read this. Any opposition? OK, great. First responder training fund matching funding mechanism, sorry to help with first responder training. This one I think we just need to add a little bit more scope as to, I mean as it reads now though it is in an AAM deck, it's pretty broad. So, I think we just need to kind of say what specific type of training we're trying to drive, you know, whether it's, you know, how to actually operate these things, how to legally use them depending on the use case. So, I, Jason, is this out of your camp? Yeah. So, I would just say adding more specificity as to what the training would be involved, any opposition otherwise? OK, great revenue streams develop and recommend a list of revenue streams to educate the legislature on their options. OK, I want to unpack this one a little bit. Can someone who helped draft this one can help eliminate a little bit on what this was around?

Patrick Egan

3:11:48

Maybe and I'm just guessing here, this was tied into some sort of industry sponsored economic impact or economic forecast of what would be in it for the state of Texas and the Texas taxpayer.

Ernest Huffman

3:12:23

So I think this one was created to create a baseline of understanding for legislature on how revenue can be generated in and around the technology or in education of sorts because I doubt they, I mean until we put that list down, most of us probably won't know all the various ways that revenue can be generated from this industry, from the state and local government. So that's what this was about.

Dan Dalton

3:12:46

OK. So almost like and and for lack of a better term, an info sheet on the different use cases and how revenue is generated by those companies, is that?

Ernest Huffman

3:12:59

No, no, not the companies themselves, but how the state can benefit. So tax taxes, permitting licenses, whatever mechanisms are available to the state to benefit from the industry. What are folks talking about around the country in terms of generating revenue from that industry? So not how the the operators are going to get their revenues, but how the state and the localities can.

Dan Dalton

3:13:21

Yeah. OK.

Ernest Huffman

3:13:22

How they get a return on their infrastructure investment, their capital investments, Yeah, I see.

Dan Dalton

3:13:30

Yeah, I see. I think I'm waiting for George to pipe in here. Well, I think one of the things that we at least from the A- from the like AAM air taxi side, we're a little hesitant. No, I'm putting my Wisk hat back on. We're a little hesitant in kind of putting out tax structures for an industry that hasn't even taken off yet, look, no pun intended. And so that I think there's a there's a way that we can kind of yeah, we can work our way through this needle. I just want to make sure that it's not like hey let's tax this industry before it even gets here that's because that's not going to help the industry grow.

George Kivork

3:14:09

So, but I see, I see your point maybe maybe it's I think you and Ernest maybe you can help clarify when we're saying revenue streams, you you mean the benefits of the city, the potential, right, the economic. But I think you just said that again but just to clarify not hey, you can generate \$300,000 in airplane property taxes immediately, but more as part of AAM, A locality could generate hypothetically if they had you know 2 vertiports and 20 employees and maintenance, they can generate X number of million in payroll. Like is that the idea versus the first idea of what Dan was was anxious about? Just wanted to clarify.

Ernest Huffman

3:14:52

I think, I think the, the first idea is what I'm looking at, but I'm not saying we need to say the number. I'm not even saying we need to call out what the tax is. But we need to call out the fact that you can use taxes, you can use permits, you can use licenses, whatever mechanism states usually use for this kind of thing, tolls or whatever to generate profits because we're going to want to return on our investment if we do invest in capital infrastructure.

Dan Dalton

3:15:24

So yeah, I I think so I think there's a way that and I actually like George's idea maybe we roll this one into the recommendation around economic impact and it because it effectively it's not local economic impact, it's actually state level economic impact. And so in there we could talk about kind of traditional ways that aviation is, you know, taxed or permitted or licensed and whatnot and where the state's opportunities are in that. So Cameron, I think this one comes back to you in your bucket. But you also had a comment.

Cameron Walker

3:15:55

Well, I like where you just where you just took us. I believe it fits in with that earlier item on the economic impact study. That's right. It's not. Are there going to be passenger user fees applied just like now if I buy an airplane ticket, I pay X percentage or a flat fee, whatever it is for that flight. What's the difference, you know, whether so these things are coming. So, yeah, put put them all together and you sell a certain amount of electricity. There's some tax on that too. So, yeah, I, I, I think it fits in there, Ernest. I think we could tie them together.

Dan Dalton

3:16:32

That that works for you. OK. OK, great. All right. So if we can roll Texas State can have us roll that one into the economic impact, that'd be great. I see you already put it on there. OK, wonderful. All right. And on to priority three-

Emilian Marchand

3:16:47

I think when we talk about revenues, when we talk about revenues, it's not just instantly tax, it's also the economic activity that's being created. And then the new jobs in the new, you know you have a Vertiport similar to an airport or train station, you're going to have kiosks, shops, whatever and those are you know tax paying businesses and etcetera. So, it's as you guys say, right. It's not just our industry but it's everything that also gets created because the industry is there and the revenues that this brings. So yeah, just the last comment on folding in the economic impact that's how we did it for Social as well.

Dan Dalton

3:17:31

All right, on to part three, of which there are three. So, creating an AAM interagency working group, I believe that is what IWG stands for. Asked the governor's office to request an IWG workshop in Texas. Does anyone oppose this in Texas already? Yeah, I like it.

George Kivork

3:18:03

And sorry Dan to give you homework that just if you need help writing that letter or sending it, I'm happy to support that since I know this was my idea to come up with this. So happy to support.

Dan Dalton

3:18:14

Your fault. OK, good. Yeah. No, that. Yeah, we that's a good recommendation. I think that works. And I think this is one of those ones where it actually might just be on us versus having it legislated to request that. So we can see.

Scott Shtofman

3:18:31

Hey, George. And is this similar to like the tabletop exercises and the kinds of stuff that's already happened in Florida? Is that what you're thinking of?

George Kivork

3:18:38

A little bit. But it was yes, expanding it, make them more formal. And I know that the Florida one's a little yes and that one's got a little more focus on the industry alone. But yeah, the idea is similar to that and make it broader.

Dan Dalton

3:18:56

If Texas State could help, just put Interagency working group just so everyone's on the same page on that one. All right, thank you. And the next slide disallowed AAM uses, you know, creating a list. So this is creating a list of ways that AM will not be used and encouraged and the encouragement of liberal use when applicable. That is a fascinating sentence. So, the ways that it will not be used, I assume that means, you know, the state, state employees shall not use AAM in any way to spy on its y'all. Thank you so much. OK, can you tell it's getting late in the day? So, yeah, conduct random surveillance, target a person, harass, intimidate, et cetera, et cetera. I mean many of these. I I'm sure we all know a lawyer who could find a way to make a problem out of this. So I think this is a tough one. Jason, is this out of your camp?

Jason Day

3:20:21

Most of this language already exists for UAS, but there's no language for AAM Gotcha.

Dan Dalton

3:20:32

So extending it to, extending it to, yeah, the interesting thing is like when you get to, when you get to larger sized aircraft, many of those laws already exist at the at the federal level, right. And so, yeah, we would just want to make sure that maybe it and maybe it's a matter of ensuring that the federal statutes are actually applicable at the state level.

Jason Day

3:21:10

Though a lot of lot of that case law is based on accessibility to the technology. So, like on public safety, most of your case laws based on helicopters, right. And what you can and can't do. And it was always, well, the the police can afford this, general public can't. But when the general public and law enforcement can occupy the same space for the same technology at the same price, that's where it it starts to get loud, right? AAM Technologies is going to allow more people into the airspace than was before, and now you have the the opportunity for it to be used for careless and nefarious purposes. You know you just want to fly around the neighborhood in your jet pack, right? And spy on people's backyards. Again, I don't think it was my group that put this forward, but that's how I see this. I don't see this specifically related to drones because we already have all that.

Matt Ruszczak

3:22:21

Don't want to accidentally open a can of worms here, but is this related discussion related to like avocation, easements and defining lanes and paths in the airspace for uses that where this is going?

Dan Dalton

3:22:58

I think you know kind of building on what Jason was saying. I think it's around the concept of like so there are there are personal use eVTOL aircraft which have one passenger also the pilot. And I think kind of to Jason's example, like if someone decided to use their personal use eVTOL to fly over someone else's house and look through their windows or harass or intimidate them in some way that that is not a drone, that is not an SUAS, it is an aircraft by FAA standards. So, I guess the question would be are there existing laws around aircraft doing that that are applicable in Texas for privacy and whatnot. So this is an area way outside of my understanding. I mean, I can spell privacy, but otherwise, there's much smarter people to Jim's. There are much smarter people than me on this one, I think. Can we go back up to the recommendation and I'll tell you on the statewide level, and I'll speak for my counterpart, Captain Fritch.

Jason Day

3:23:28

And I'll tell you on the statewide level, and I'll speak for my counterpart, Captain Fritch. He teaches a class called Enforcing drone laws. And as far as the enforcement goes and deciding if somebody's doing something wrong or not wrong with this kind of technology, we talk about remove the aircraft from the equation. Were they breaking some other law? Right. Were they on a ladder on the fence, right. The ladder doesn't matter where they they peeping in the window, whether it be with the aircraft or not. Do we want to, as the committee, put together some type of recommendations or say would there needs to be some recommendations? So, that's. So it's more clearly defined because you also need to support law enforcement when they get the call and say hey somebody's flying their jetpack around my backyard. Well law enforcement's like that's the airspace that's the FAA. I I can't do anything.

Dan Dalton

3:24:23

So I think this one actually will take some research before we, you know it's kind of measured twice cut once. I think if Texas State could help us on this man you folks are getting a lot of actions today. I'm sorry, but could help us kind of look at what are the existing kind of state laws around privacy,

especially as it relates to aviation. It should be a pretty small Venn diagram of of things, but making sure that we're not duplicating something that might already exist or exist at a higher level. So I really like that example of if you take the ladder out of the picture or you take the jetpack out of the picture, what are the laws is that person violating? Because I yeah, we might just be over constraining the problem.

Jason Day

3:25:06

So here here's another example. Can you use a AAM eVTOL to assist with hunting hogs? Right? Under certain circumstances you can use drones, under circumstances you can use helicopters. But under state definition again an EV toll mate, if it doesn't have a rudder and certain things it might not be classified on the statewide levels in aircraft. So is it a now a state offense or you know a a local offense. It's again very nuanced with with all of this there's, you know, I mean you can even get into fishing. I mean people use drones for fishing. There has to you know and assisting with with other hunting and people are using this stuff. That's what I'm assuming whoever came up with this is was talking about all the different things.

Dan Dalton

3:26:00

OK yeah. No, the hog ones are a good one. So. And my wife's from Arkansas so I yeah, she would yeah, I love to say about that one but I think what we do with this one is I think we go back Texas State if you could take a look at what existing kind of aviation. This kind of goes back to the earlier conversation around aircraft and do we really does the existing, the rule set around the aircraft for the state encompass EV tolls and these types of aircraft, so I think there's a bigger research project actually there. So, so we won't strike it yet, but I just want to make sure we're not duplicating efforts. So next slide, data agency information sharing, basically creating legislation that governs information sharing among agencies using AAM during disasters with an existing House bill referenced update legislation House bill that to include eVTOLs. Does anyone disagree? Great. OK, next slide, that is the last slide. Yeah, fantastic. Then there's three additional I as I read it closer. The only thing I would say is maybe maybe you change EV toll to AAM aircraft and that adds even more ambiguity maybe. But I would hate for hydrogen-based aircraft that'll take off vertically and take off. You know I would I would just not want them to be excluded. So if there's a way to broaden that to include just basically a new aviation technology.

Matt Ruszczak

3:27:47

So 89 for the Chief, the 89th live safe session hasn't happened yet. That's the incoming one. And then the last session, this is a 2340 is a bill on the retirement system of Texas.

Jason Day

3:27:59

Yeah, we'll have to put the date, it's the 20/20/19.

Matt Ruszczak

3:28:07

OK. Gotcha. All right, cool.

Dan Dalton

3:28:10

Again, the Ringer's in the back. OK. So now we, those are the ones that we had as of yesterday. And then there were three late editions we'll which we'll go through really quick. And then again, I think we will end early. I just keep saying that, but all right. Yeah, cool. We had a musical interlude. That would be great, but OK, a lot of words. All right, OK, airspace. So the idea being that the state of Texas should invest in statewide airspace infrastructure, providing surveillance, situational awareness, traffic management support, communication and identification services. Things to consider would be that

the state could invest in core infrastructure to create the framework that operators and developers could plug into for this exchange of data. Also that the state is not going to pick winners or losers, but instead provide the framework for that other system and then find the systems that could be appropriate for TxDOT who can then hire integration engineers, et cetera. Significant upside for communities, workforce and development of the AEM and broader ecosystem funding would be through those things mentioned there. So comments, questions, concerns, Jason?

Jason Day

3:29:32

Weather specifically micro weather and Ernest agrees with me. Localized weather reporting or I don't know what Ernest, what terminology should we use? Our micro weather reporting stations, micro weather infrastructure is good.

Dan Dalton

3:30:32

Any concerns with that? Great. Next slide, real estate Texas should not establish an independent Vertiport standard. I think we all agree with that. Does anyone disagree with that? Great. And Texas should create a grant program for the development of Vertiports across the state. Yes. This one is a little more specific in the sense that it's yeah, it this is the one that I think we should, we should think heavily on this. Everyone agrees there should be some sort of funding from the state, for Vertiports. I think the mechanics of how we do that is a conversation for the subcommittee to think through what strategically makes the right, the right sense. So unless anyone opposes the previous one, I think everyone agreed to it. So does anyone oppose this one? Tomorrow grant. Yes. Yeah. OK, excellent. So then let's see, there are, I think we've gotten through everything. Yes, OK, we have. Were there any other recommendations that we did not cover that folks want to cover today? OK. So you know, we are clearly not done yet, but I think we're on a good path. And I would say, you know, really for the subcommittees, take these recommendations, turn the crank again, be a little more specific. And from here on out, we should really be focusing on those that exist today and not trying to introduce new ideas. If there are new ideas that could be integrated, but really focus on the ones we have today and we've kind of walked through today, I think that from the recommendation perspective we're in a good spot. Any other questions, comments, concerns on the recommendation part of this day? OK, great. Thank you. Thank you all for who those who presented this morning, which feels like 2 days ago. I appreciated everyone staying to under 5 minutes. I'm impressed. And you know obviously if there was something that cued your interest, find that person, talk to them. It was really designed to just be a teaser of what every organization is doing around this around the state. I took a number of notes of folks that I will track down, but thank you again. Next time we will have the FAA speaking, possibly even maybe some electric companies and organizations from around the state, which will be helpful and I think at least for me that was about it. Was there anything else from you, Sir, Any other committee member comments? Cameron?

Dan Dalton

3:33:26

May 14th is what I am hearing. Yes. Oh, it's virtual. Sorry, sorry. This is where I should Yes, the next committee will be full committee will be virtual only.

Cameron Walker

3:33:41

OK, full committee on May 14th and then on May 14th. When do we propose to be here next? Is that one already set or not yet?

Dan Dalton

3:33:49

I don't think that one's set yet. It will not be in May as far as. Yeah, yeah. Any other committee member comments in the room online? Excellent. Well, I realize that you all have day jobs and we truly appreciate your help on this. We could not do this alone. So thank you so much for being here

and spending the day with us. If there's any other public comments, I'll pause for that. It's a good thing you're here. I am the horse that saw the barn. So, yeah. If there's any other comments, please feel free to let us know. Otherwise, we are adjourned for the day. Thank you again so much. Take care.

Daniel Bagwell

3:34:42

And for those here who got your security badges, just a reminder to not accidentally walk out the door with it, stop by security and drop it off. Very easy to do. Thank you.