WEBINAR TRANSCRIPTION

The ABCs of TCIs and UTCs

TRB AJE35 RIIM Coordination and Collaboration Subcommittee

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Auburn University Transportation Research Institute

Alabama Transportation Assistance Program

Opening Introduction – Laurence Rilett

Good afternoon, and welcome to the ABCs of TCIs and UTCs webinar presented by TRB AJE35 RIIM Coordination and Collaboration Subcommittee. Very excited to be here today. We have a great panel.

We're going to give some insight into the different types of TCIs and UTCs. Start now and go from there.

So just by way of background, the Coordination Committee Subcommittee Co-Chairs are Dr. Curtis Bradley, North Carolina DOT, Dr. Marwa Hassan from Louisiana State University, and myself, Laurence Rilett from Auburn University. I want to acknowledge AASHTO RAC Coordination and Collaboration Task Force,

Council of University Transportation Centers and AUTRI Alabama Transportation Assistance Program for their help and putting this webinar together.

I just again, some other info background information. This is the second in a series of 4 webinars. The 1st one was *Communicating Research Priorities from a State Perspective: Lesson Learned*. We have that recorded, and the web and the slides available for anyone who missed that one who would like to see it. Today's *ABC's of TCIs and UTCs*, and I'll talk more about what that is in a minute. And then the next one which sort of goes along with this one is *Working with USDOT University Transportation Centers from Conception to Implementation*. Our 4th one will be *Leveraging your State Research Funding with Federal Research Programs*. And I'll be providing more information on those at the end of the webinar.

So, an overview of the Webinar, we have about 20 minutes on just the background of UTC's and federally funded transportation centers, centers and university-based transportation centers. The reason we chose this format is that we get a lot of questions on what the differences are between these different acronyms. And I'll go into what the differences are and why we have these, why people can get sort of confused sometimes about it.

And then we're going to have 2 case studies: and again, Joe Zietsman and Mansoureh Jeihani, from Texas A&M and Morgan State University will be providing case studies, which I think will be much more useful in getting across the concepts we're talking about. Then we'll have Q&A. Please put all questions into the Q&A in the Zoom and we're going to limit questions until the end. We'll be making the recording available along with the slides and transcript. And the PDHs we'll cover at the end of the webinar. So, without further ado, I'm going to talk about the ABCs of TCIs and UTCs.

1st Presentation – Laurence Rilett

So, by way of overview, just going over what, when, where, how funding missions and where they're the Federal one, and then I'll cover the Federal ones. So, part one. I'm going to talk at first about university transportation centers and institutes: TCIs. So why do they exist? And I should preface everything, these are mine, this is my nomenclature: TCI. I'm not sure anyone really uses that. But it's the transportation centers index. The reason behind them is that transportation is multidisciplinary. It covers all different types of expertise, from materials, to construction, to maintenance, to pavements, to bridges, and those are often in a university across different colleges and different departments.

So, what an institute or center allows is a means for the university to coordinate transportation, research, education, and technology transfer. The goal is by going across these colleges and departments, you're going to end up with a bigger and more impactful program. Typically, if you hear the word institute it's multiple colleges. And typically, if you hear word center, it's a multi-department of a single college or a single department, although that's not always true. It's sort of a rough rule you can generally follow. Again, like every rule, there's lots of exceptions.

So, what are they? What do they do? Well, they are, they’re focus on all components or subsets of transportation, they’re multidisciplinary. It could be a focus subset, could be just a planning, or bridges, or pavements so they could do everything, all the different parts of transportation, or they could focus on a subset. They tend to do research. There's some education, and I'll talk a bit more about that. Often, it's K through 12 and outreach, such as workforce development, so short courses and webinars. And there's also typically a technology transfer component. Could be the Local Technical Assistance Program, could be patents, licensing, startup support. Those are the types of activities that we get into.

As I said, these are university based. They have a director. They typically have an advisory board. The director reports to a department head, a college dean, a vice president of research, a President. It really depends on where they fit into the overall organizational chart for that university, and how they're set up. As you can imagine, if it's associated with a department, it goes to Department Head. If it’s associated with a college, it tends to be the college dean. If it's associated across all colleges, it'd be the Vice President of Research or the President of the university. A key distinction for a lot of people is what they're not: they are not degree granting, so they may offer courses, webinars, and certificates and they hire lots of students, but colleges and departments are the ones that award degrees. Now I'm sure there may be some out there that do it, but by and large that's the way you can differentiate between the two.

How are they funded? Well, there's 2 methods one way they would call direct funding so it could be the startup funding to get the institute or center going or annual funding where they get us some money every year to run the center. It could be coming from the University; it could come from the State. On our 1st seminar, we had Dr. Hillary Nixon from San Jose State University talk about the California State University Transportation Consortium. I know Arizona provides funding for their consortium at State universities. It could also come from the Federal Government. I know the DOD funds centers at universities for specific things. There's also indirect or soft funding, and that's more typical. You often hear called soft funding, or soft money.

Essentially the centers and institutes will compete so for notice of funding opportunities or requests for proposals from State and Federal agencies, so they compete with other centers and other universities for research funding or workforce development funding. Typically, there's some combination. There may be some direct funding from the University or the State, but probably, in most cases, the majority of the funding comes from the soft funding or competitive funding from States and Federal government.

How long have they been around? Well, the oldest in the U.S. have been about 70 years, and I think Dr. Zietsman will be able to talk about that. The newest are less than a year old. The concept of the University Based Center Institute is not unique to transportation. So many universities have centers and institutes for energy, communication, and cyber security. Almost anything that has multidisciplinary components to it would be eligible and probably would have a center or institute focusing on that, and the vast majority of those are soft funded.

How many are there? The Council of University Transportation Centers is a nonprofit that represents the interests of all the centers, university transportation centers, university-based ones. It's been around for about 45 years. They currently have over 80 members. And I guess every speaker on this webinar today has been associated with CUTC in some form or another and they have all types. They have the department ones they talked about. They have colleges, they have university programs. So, there's just a wide variety of approaches to doing these. Almost every university in the U.S. will have some type of Transportation Center or Institute. I'm not familiar with too many that don't, especially the larger ones.

And fun fact for everyone out there, some universities have multiple centers across multiple departments and colleges. So, they may have 2 or 3 university-based transportation centers. Maybe one focuses on pavement, one focuses on systems, some will have just one overarching center institute to coordinate all the efforts. And I think today, when we get to the case studies, you'll get a better flavor for what all that means, so we're going to come back to that with some examples.

So that's the university, the 1st part was the university-based centers. What I want to do now is talk about the Federally funded University Transportation Centers. So, the UTCs. I am going to only focus on 3 types: the USDOT centers, USDOT FRA centers, USDOT FAA Federal Aviation Administration centers. There are others out there: Department of Defense, NSF, but I want in the interest of time I'm just going to focus on the ones probably most commonly you'll come across as part of a State DOT or part of the RIIM Committee.

So, the history of the USDOT UTC program, it's been around since '87. It started off as 10 regional university transportation centers. So, each federal region had a university transportation center. Every later act after that 1987 Transportation Bill had them, ISTEA, TEA-21 SAFETEA-LU, Fast Act. During that time, they added different types of UTCs. And I'll talk a bit more about that in the next slide. I didn't want to go into great history. They just have been around for a long time. They've operated in different ways. Sometimes they're competitive, sometimes they're earmarked. But the mission hasn't changed. They're related to research, education, outreach and technology transfer.

The other thing about the USDOT UTC program is in its current form they're all consortia, more than one university. And I also put in community colleges. So, it's groups of higher education units, universities, community colleges.

In the IIJA Act of 2021, they created 35: five national UTCs at about 4 million a year, 10 regional UTCs at approximately 3 million dollars per year, 20 tier one UTCs at about 2 million per year, and the total comes out to about 90-million-dollar program per year for the USDOT University Transportation Center program.

The centers all have a focus, and you can see the ones listed here: improving mobility, reducing congestion. I highlighted *G: Reducing transportation cyber security risk* only because it's a new topic that was in the USDOT request in the NOFO. But essentially all of the UTCs will pick one of these and focus on it: safety or preserving the environment.

The key parts of what the USDOT wants, and I pulled this from the proposal, is that they want, they want to know about the research activities, they want to know about education, workforce development, technology, transfer and collaboration and program efficacy. How good are or how good are they at providing these types of things?

I did write down here, it's a unique solicitation. So, the notice of funding opportunities or the request for proposals, if you're used to dealing with NOFOs and RFPs a lot of times the agency will say, here's what we want. You know, we want someone who can work on this particular problem. With the UTC program, it's a little bit different in that the consortia or the universities put in proposals where they define the problem and they define the solution. So they could say, we're going to do safety and here are the

safety issues that we're interested in in our region. And here's the research and workforce development that we're going to do to solve that problem. So, it's a little bit different way of writing proposals than some of the things you may be used to.

So, I said, there's 35. I took this picture off the USDOT website. You can see the locations, the large logos are where the centers are, and then the small dots are where the partners are, and you can see that it's pretty, as you can imagine from a 90-million-dollar program, it's pretty widespread across the U.S.A. Almost all parts, almost all regions have some contribution to the to the program.

So, in addition to the USDOT itself, The Federal Railroad Administration also supports university centers. I'm going to go through these fairly quickly but I just wanted to introduce you to them. There's a Center for Surface Transportation Testing and Academic Research (C-STTAR) led by the University of South Florida Center for Urban Transportation Research. I'm not going to read everything on the slide. As I said, they'll be available to everyone. But essentially, they're an education and outreach building the next level of researchers and students interested in railway careers. Again, this was funded through USDOT FRA. Their CRISI program funded this center.

There's also the National University Rail Center of Excellence (NURail CoE) led by University of Illinois, Urbana-Champaign. They're very much like UTC in that they do everything: education, research, workforce development technology transfer. You can see they have lots of different academic partners. And this was funded directly through the FRA through the IIJA Act. It was called out to create this center, and Illinois was fortunate enough and qualified enough to win that competition.

The 3rd center is the Rail Center for Research Enhancing Shortline Transportation or Rail CREST, led by Pennsylvania State University, Altoona. It's the most recent one. It was selected as part of the last CRISI Program in our competition in 2024. And the focus of this center is on shortline railways.

The last one I want to talk about is USDOT FAA and only have one slide for that. Essentially, they have 5 different centers: technical training and human performance, advanced materials… They are all a consortium. So, each one of those general aviation has a number of universities associated with it. I pulled this slide from their website. It shows that where all the different universities are, there's 69 of them involved with the FAA Centers of Excellence. Total funding in '24 was about 62 million dollars. So again, another large program.

So, in summary, the reason we wanted to do this was to try and clear up some of the confusion between university transportation centers and institutes, and the federally

funded university transportation centers and centers of excellence, and any other term that would come up from there.

So why is there confusion? Well, they have similar names. They're all located at universities. Right? They have a center, institute, center of excellence. There's some confusion with branding. The University wants to highlight their own transportation centers and institutes. The Federal agencies want a credit for their center program, so they will not put them together, they're going to keep them separate. So, University could have a number of these. So, a given University could have a Transportation Center or Institute, but also, they can belong to multiple federally supported UTCs or centers of excellence. And we'll see that when we get into the next slides from the rest of our panel about how these differentiations can work.

So, is there a way to tell them apart? Sometimes you can tell them by their name. So, I'm associated with the Auburn University Transportation Research Institute. So having the University in our name sort of tells you that it's at that university. It's probably university based. It's probably not federally supported.

But of course, the easiest way is just ask some questions. You can't often tell them by the name. So where do they get their funding? Are they soft funding? Does the entity consist of a consortium of universities? You know a lot of times they'll tell you on their website, yeah, we are a federally funded center as opposed to being just a university center that goes and gets research and competes for centers. That's sort of the differentiation.

So, I think that was a very quick overview of what we're talking about but, as I said, I think the most important thing to do to consider is the different just get some case studies, because I think it'll be much clearer than the than what I provided for you.

2nd Presentation Introduction – Laurence Rilett

So, our 1st panelist that we're going to have is Dr. Mansoureh Jeihani is a Professor and Director of the National Transportation Center at Morgan State University and the Sustainable Mobility and Accessibility Regional Transportation Equity Research (SMARTER) Center, a USDOT Regional University Transportation Center.

She has a multidisciplinary background in civil engineering transportation systems, economics and computer engineering. Dr. Jeihani has over 20 years of experience in applied research and transportation planning and modeling, traveler behavior, intelligent transportation systems, connected and automated vehicles, traffic safety, artificial intelligence and equity.

She has published 2 books and over 150 articles in peer reviewed journals, conference proceedings, and technical reports. She has also been PI or Co-PI on over 60 research grants funded by Federal or State agencies totaling over 30 million dollars.

Dr. Jeihani is the chair of Maryland Attainment Report Advisory Committee, the chair of the Maryland Connected and Automated Vehicles Technical subgroup, an executive member of the Council of University Transportation Centers, a member of the Transportation Research Board Artificial Intelligence Advanced Computing Application Committee, Maryland Quality Initiative and DC Quality Initiative Innovation Subcommittee, Maryland Connected and Automated Vehicle Working Group, National Cooperative Highway Research Program Panel, and Behavioral Traffic Safety Cooperative Research Program panel.

Dr. Jeihani was on the safety panel of the White House ARPA-I summit in June 2023. She's very busy, as you can tell, and we're very happy to have her here. So Mansoureh, I'm going to stop sharing my screen, and I'll let you start sharing yours, and we look forward to your presentation.

2nd Presentation – Mansoureh Jeihani

Hello, everyone. Thank you, Larry, for the introduction and for having me. So, I want to talk today about Morgan State University's involvement with UTCs. So, we are at Morgan State. We have been a member of USDOT University Transportation Center programs since its inception in 1988. So from 1988 to 1992, we were part of the Region 3 Regional UTC, led by Penn State. From ‘92 to 2013, we were Earmarked National Center. And that's how the National Transportation Center at Morgan was established and has been working. But in 2013, those earmarks went away, and we went to the competition from 2013 to 2016. We were part of regional UTC, led by Penn State, and we were a member of Tier one UTC led by Virginia Tech. 2014 to 2018 we were part of National UTC, led by University of Maryland College Park, and also a member of MATS-UTC, which was Region 3, led by UVA. And in 2016 on the FAST Act we were the for the 1st time we've become the lead of a tier one UTC called UMEC, and also the member of regional UTC. And in the current one in the Bill IIJA, we are the lead of SMARTER Center, which is the regional UTC region 3. We are working with 7 universities, and well, also, we are part of 2 national UTCs. TraCR, led by Clemson, Safety-21 led by CMU, and also part of 2 tier one UTCs: one is CMMM, led by University of Maryland and CCST, led by Hopkins. So, as you see, we have been involved with these UTCs a lot from the beginning.

So, the National Transportation Center that we have at Morgan was established in 1991 based on the ISTEA of 1991, and because we were earmarked. And we continued having that, although our National Transportation center was on soft money, still is on soft money. But we kept the name. We have the establishment and the rest of those tier one and regional that we have, they're all under that National Transportation Center. But currently our biggest grant is SMARTER Center, which is the region 3 UTC.

Under those we have been doing at the National Summer Transportation Institute that I want to talk about more. We have been doing the MSU internship. It's with Maryland Department of Transportation; we have been doing internship. We have had over 50 million dollars in grants completed over 120 research projects and hundreds of publications we have had. We were fortunate enough to have several awards from CUTC, Council of University Transportation Center. We received technology transfer leadership award and also workforce development leadership award in 2020. And this year again, we won technology transfer leadership award in 2024 for the second time. We have had several patents that I will talk about soon.

These are some of our workforce development activities. This is the National Summer Transportation Institute. We have it every year in summer, in the month of July, we're bringing high school students. And now we have expanded to middle school students as well. We are bringing them and teaching them about STEM transportation in general, and also all the job opportunities and career opportunities that they can have.

We have had over 600 students so far coming to this program, and we have been very successful in that.

We also have this agreement with the Maryland Department of Transportation to send graduate and undergraduate students to MDOT. And we have had over 650 students have been going there. We have had this program for over 30 years, and it has been a national model and a pipeline to employment. That's why we were featured in NCHRP Report 710. Most of our students, after they finish their internship, they are either being hired by MDOT, any of those modal divisions of MDOT, or by consulting companies that work with MDOT. So that has been really a pipeline. We are going from middle school high school to becoming our undergrad student, grad, and all the way going to MDOT and getting their jobs.

And this is 2025 at TRB. These are all Morgan students and researchers that we were at TRB. We are proud to say how many of our students have been involved and came to TRB. In our education, as Larry said, we

in the center, we don't have a department or educational, but we have a civil engineering department and also transportation department that works with us. And

because of these UTCs that we have had, our educational divisions has been expanded.

We have a unique department of transportation at Morgan under school of engineering, besides civil engineering we have Bachelor of Science in Transportation Systems, Bachelor of Science in Transportation Engineering. And, we have a Post Bachelor Certificate, Master of Science in Transportation Systems and PhD in Transportation and Urban Infrastructure Systems. So, we can say we're very unique. And because of all this funding and all of this involvement that we have had, we could expand our system to that.

And recently, under the CRISI grant that we have with University of Delaware; we have a rail track that some of our students, both in undergrad and grad, going to rail track. We have our research facilities that have been expanded through all these years. We have a lab safety and behavioral analysis lab or SABA lab. On that we have driving simulators, eye tracking systems, a bike simulator, and a pedestrian simulator. And so, we have been doing a lot of safety and traveler behavior analysis. We have been doing that.

And recently we have made a test bed connected and automated vehicle test bed that we have LiDAR roadside units and cameras, CCTV cameras, and also, we have onboard units in the vehicles and Morgan shuttles, and we get tons of data, as you can see on the top left. This graph is showing the unsafe crossing out of crosswalk, crossing all those red that you see those are at Morgan in an intersection that is near Morgan. So, as you see, a lot of pedestrians that are walking unsafely, we are getting all of that data, analyzing them, and we have been giving some solutions.

We have been working with the city, Baltimore City, with the State of Maryland, and also in national and global solutions that we are doing. And most of our research has been applied. We are, we are trying to do

the research to resolve and solve some of the issues, not only in our city, but also all the way to global. And we have been hiring tens of students each semester to come and work in our lab and our test bed.

We have an autonomous wheelchair that we made totally in-house. We bought a powered wheelchair, or several of them, 4 or 5 powered wheelchairs, and we retrofitted to make an autonomous wheelchair, and the wheelchair is being tested at BWI International Airport here in Baltimore. We are so proud that it's our students going there and doing the testing every week. And hopefully, that wheelchair is going to go to mass production. But right now, we are testing it.

And the bottom left is a picture of our LiDAR that gets any object that passes through intersections near Morgan. We receive all that data and information in real time, and

we can look at so many different things from conflicts, near misses, to the speed, and what kind of vehicles are passing by, and all that, and based on that, we have been doing a lot of research.

We have been able to receive one patent, and we have 3 patents that are pending, and we have 7 other IPDs that we are going to the patent track. And that's based on all the research that we have been doing in this center.

These are the information of our center. That we have a link tree, and also the QR code that it would be great if you can go and look at all different research and activities that we do in this center. Thank you very much for listening, and I will be happy to answer any questions, probably at the end, or whatever Larry says.

3rd Presentation Introduction – Laurence Rilett

So, I think, yeah, we're going to hold the questions to the end. We'll go on to our next speaker.

So, panelist 3 is Dr. Joe Zietsman. Dr. Zietsman is Deputy Agency Director and Strategic Advisor at the Texas A&M Transportation Institute. He was part of TTI's leadership team and also manages a vast portfolio of research on transportation planning and the environment with an emphasis on air quality and sustainability research. Dr. Zietsman has 30 years of professional experience and has led research projects valued at over 30 million during his time at TTI. He also conceived the idea, raised the funding and oversaw the development of a 3-million-dollar one-of-a-kind emissions testing facility at the Institute.

Dr. Zietsman has more than 70 technical publications and has co-authored a book on sustainable transportation. He's a frequent speaker at national and international conferences where he has delivered many keynote addresses, including on the topic of Health and Transportation. Dr. Zietsman is very active with the Transportation Research Board. He has chaired the Committee on Sustainable Transportation, ADD40, and is a member of the Task Force on Materials and Public Health.

So welcome, Joe, we look forward to your talk.

3rd Presentation – Joe Zietsman

Thank you, Larry. I will share my screen. Okay, hopefully you can all see my slides clearly. And

Larry, thank you very much for the opportunity to speak to this audience today.

So, in my talk I'll be covering the Texas A&M Transportation Institute, giving a quick overview and also talk about how we are organized. And then specifically, how the UTC program and UTC centers that we are participating on, how they are fitting into TTI.

So, in a little bit more about the Institute. So, we are headquartered in Bryan & College Station, Texas. And this is a photograph of our headquarter building. A lot of people always ask us, so where is Bryan & College Station? Texas is a big state, and people always want to know where Bryan College Station is. Where's Texas A&M? So, if you think about it, it's at the north of the State of Texas. You've got the Dallas Fort Worth area. That is a big metropolitan area. If you go southwest you get to the Austin San Antonio area, and if you go due east you get to the Houston Galveston area, and that can be a big triangle and we are located pretty much right in the middle of that very strategically. And that's a good location for us to be headquartered, and we're about 8 miles from the Texas A&M Campus, the main campus at Texas A&M University.

What you see on this slide is the RELLIS campus. RELLIS stands for, this is basically an acronym of the values of the Texas A&M University system: Respect, Excellence, Leadership, Loyalty, Integrity and Selfless Service. So, if you see at the top right, you see our headquarter building located there. And that was the photograph I just saw you showed you a minute ago and to the left you see old runways and those are actually part of those are runways that were created as part of an Air Force base. And that's the RELLIS campus. So, it's an old Air Force base, and we are privileged to be located there. So, we have all those testing facilities and capabilities that we can utilize on a regular basis. So, it's really a big advantage for TTI to be located there.

On this RELLIS campus, it's fast growing. It's basically a research and testing campus. We do a lot of workforce development there and a lot of industry collaboration. So, this campus is growing rapidly. And this photograph that you see here is probably one year old. So, there are a couple new buildings already that got located on the RELLIS campus. So, in addition to our location here, our headquarter building, we also have offices in the major metropolitan areas across the state of Texas. So, in all the major metropolitan areas, TTI has an office in the state of Texas. We also have a presence in Washington, DC as well as Mexico City. So, we are quite well distributed across the State and in a few other strategic locations.

Larry mentioned that we've been in business or in existence for more than 70 years, so as a matter of fact,

we were established in 1950. So, this year will be our 75th anniversary, and we're looking forward to a big celebration to celebrate that tremendous milestone. And TTI was established by obviously the Texas A&M University system to support the Texas Highway Department, which is now basically the Texas Department of Transportation.

And it's all part of the Land Grant Mission, which is basically education, research and community participation. So, education, research and community participation are big parts of what we do at TTI. And when I say research, it's definitely more on the applied research side to solve real world problems for real customers. So, what you see on this slide is just going back a very long time. This was a crash test that was done many, many decades ago, and we utilize 55-gallon drums as a crash cushion and that turned out to work very well. TTI has established more than 200 patents, many of them in the area of crash cushions, crash prevention, technologies, etc.

So, some facts and figures about TTI. So, our annual research expenditure is a little bit north of 125 million.

We've got 400+ professional researchers and 200+ students. Our total staff component is a little bit north of 700 people. So, it's a very, very large institute covering all aspects of transportation research. We, at any given time, work for a little bit more than 200 public and private sponsors or clients, and we, at any given time, we have about 700+ projects on our books.

I just want to touch a little bit on the researchers and the students. So, the researchers are, almost all of them have advanced degrees, masters and PhDs. Several of them have joint appointments in academic departments, so they are on the graduate faculty lists, and they can co-chair and participate in graduate committees. Then we also have numerous faculty members that have affiliate appointments with TTI. And, as a matter of fact, some of them even have leadership positions within TTI as program managers and division heads.

So as far as the students are concerned, we obviously have undergraduate students and graduate students working for us. With regards to the graduate students, we often have a very cool model or interesting model that works very well for everybody involved, and that is where TTI would fund a graduate student to work on one of our TTI projects. That student would then have obviously a committee, and in an ideal case, one of the TTI researchers, maybe the PI, would be on that graduate committee as well, because that PI will hopefully have a joint appointment on an academic department. So that is clearly a win-win for everybody. The student really benefits working on a practical project for a real customer working side by side with TTI researchers.

The researchers at TTI clearly benefit because those students typically do amazing work. And then also the faculty members participating in those committees would benefit because TTI is paying for the students and they can provide the academic rigor

that would be necessary to make sure that the product, the dissertation, or the thesis is up to academic standards. That is the model we're using with the students.

And on the next slide, I'm touching on something that we produced very recently. This is an online Master of Engineering degree for Transportation Professionals. This was developed by TTI, in collaboration with the Department of Multidisciplinary Engineering at Texas A&M. All the teachers were from TTI. I had the privilege of teaching a course on sustainable transportation. So, the first cohort went through this, and they recently graduated from a very successful program that we were able to run here at TTI.

So just to understand a little bit more how we are organized and based on some of the comments Larry made in the beginning just to understand how TTI fits into this very, very large organization, which is the Texas A&M University system. So, this is the organization chart of the Texas A&M University system. So, you can see it's governed by the Board of Regents. The Chancellor is like the Chief Executive Officer of the A&M System, and then to the left, you see, like 11 boxes. The system is comprised of 11 universities and 8 State agencies and the 8 State agencies are to the right on this slide. The one highlighted in maroon to the left is Texas A&M University. That is the flagship campus here in College Station, Texas.

And then you can see there are many other, 10 other universities associated with the system. To the right, you see all the state agencies, and you can see that TTI is a state agency amongst the engineering cohort. And if you look at the reporting structure, TTI reports up to the Vice Chancellor for engineering, and the Vice Chancellor reports directly to the Chancellor.

And we as an Institute here, and a state agency in the system, we have direct access to the Chancellor as well.

However, the Vice Chancellor for engineering is also the Dean of Engineering, so that person has multiple hats. So that is actually a huge benefit. Dr. Bishop is also the Dean of Engineering, and we can have a really close relationship with the College of Engineering in this, in this arrangement. So, TTI has the autonomy to report up to the Chancellor, but we also have a very, very strong connection to the academic departments here at Texas A&M.

This is how research is organized here at TTI. So, Greg Winfree is our Agency Director and CEO. I'm the Deputy Agency Director, and I'm also the Chief Research Officer, and I'm also a Director of a UTC CARTEEH. And I'll mention something about CARTEEH in a minute. So, I oversee research at TTI and to the right, you see agency operations that are like communication, HR, etc. that also report up to Director Winfree.

So, as far as research is concerned, we are divided into 5 groups. As you can see here, Dr. Tara Ramani leads the Environment group, Lance Bullard leads safety, Darlene Goehl leads infrastructure, Bill Eisele - planning, and Dr. Rafael Aldrete - the Operations Group.

Underneath these groups we have divisions and programs. So, the 400+ researchers are organized into these groups in divisions and programs. The university transportation centers, the UTCs, that TTI are involved in are all organized in this structure. They are not separate in a way that researchers would be 100% allocated to those UTCs. As a matter of fact, only a percentage of their time is allocated to UTC. So, at the same time, they are working on other research projects for other sponsors, and they have a boss as a program manager or a division head. In my case, as a Director of CARTEEH, I spend about 25% of my time on CARTEEH and the rest of my time is as Deputy Agency Director and Chief Research Officer. So, I'm also not full time UTC.

TTI is home to about 16 state and national research centers, and I will quickly speak about which they are without going into any detail. So as far as UTCs are concerned, you can see that this is the list of UTCs that TTI are involved in. And, as you know, any institution or university can only be leading one. So CARTEEH is the one that we are leading at TTI. All the other ones, we are partners and have some form of participation.

The other one I want to highlight is NCIT, and that is the National Center for Infrastructure Transformation led by Prairie View. TTI plays a major role in NCIT as well.

One other thing I want to quickly mention that I forgot to say is that because we are involved in so many UTCs, we have a small office that helps to run the administration of these UTCs, so we're addressing administrative functions like budgeting, reporting, etc., to have some consistency and to streamline those activities amongst all these UTCs. So we have a small office helping with that.

And finally, this is just a list of other national and state centers that TTI are involved in. And, as a matter of fact, all these we lead because they are all approved by the Board of Regents here at the A&M System and the funding is either from the State or from National.

So, with that I'll close and thank you very much for the opportunity. I'll be happy to answer any questions.

Closing Remarks – Laurence Rilett

Great. Thank you. Thank you, Dr. Zietsman.

Q&A – Laurence Rilett

We're now able to ask questions. We had Dr. Jeihani who did a great job of briefly providing an overview of hers. Dr. Zietsman did a great job on his Institute.

So, I'd love to open it up to questions from the audience. We have some time. As I indicated at the beginning, the goal of this webinar was really to bring people up to speed on the differences between a university-based transportation center institute and these federally funded ones. And I think our examples or test cases really brought that home on just how broad these operations can be.

So, do we have any questions? Okay, so I actually have some questions I would like to ask our panel. So, I'll go to Dr. Zietsman first.

Question 1 – Laurence Rilett

One of the obviously one of the challenges in doing these, and particularly in case of TTI, this fairly large operation is, you have a lot of, you have the different departments and colleges, but you also have the faculty with them. Can you discuss some of the challenges and opportunities you have in working across departments and across colleges and in TTI's case, actually across universities as well?

Question 1 Answered – Joe Zietsman

Yes, Larry, that that is a big challenge, absolutely. One of the things that we run into is that, you know, in Washington there's a perception that Texas A&M is Texas A&M and if there are proposals coming from different units within the Texas A&M University system, it would clearly cause confusion in the reviewers. So, if the RFP came from Department of Transportation, US EPA, whatever the case might be, and they see a couple of proposals from that have the A&M word in there, or the A&M brand at some form or fashion, it causes confusion, and it's definitely not helpful for our case. So that's one of the big challenges.

And to that end TTI is pursuing a notion where research RFPs and big opportunities dealing with transportation be coordinated through TTI, so that we can eliminate some of that confusion. And in that light TTI is not saying that we want to necessarily lead, or anything but just that we have awareness, and we can help out with that perception. TTI is also, like I said, involved in many UTCs, and we found that this small UTC office is very helpful, that we can also streamline and prevent confusion, and especially how we report and how we talk about that. But yes, it is a real challenge, and we are trying to address it.

Question 2 – Laurence Rilett

Great. Thank you. Dr., I had one quick question. I mean, TTI is obviously, I believe it's the oldest institute, Transportation Institute, US-based institute in the country. And obviously you have a fairly large research portfolio. Do you have a breakdown of how much of that 125 million comes from the UTC or these center programs? And how much from more traditional, you know soft money research competition?

Question 2 Answered – Joe Zietsman

Sure. We get an allocation from the state very small, much less than probably in the order of 6-7% of our funding comes from the state as an earmark or an allocation, and we use that for certain overhead type expenditures. And then, you know a very, very similar amount is pretty much on the UTC side. So, I would say 85% of our funding, at least would be soft funding. So that is a very interesting model, and it keeps us on our toes. It's got benefits. And this benefits. The benefit is obviously it keeps us really honest and good, otherwise we will not have repeat business, but it does cause some sleepless nights when we're worried about contracts getting signed, etc.

Question 2 Continued – Laurence Rilett

It's the nature of soft funding, right? But I think for the listeners on the webinar, I think it's, it is a good example of just how we often talk about institutes and university transportation centers, and as big as TTI's footprint is on the UTC, it's fair to say it's a fairly small part of your overall portfolio, even though sometimes we talk about it more than a lot of the other stuff, if that makes sense.

Dr. Jeihani, I want to give you the opportunity to answer the same type of question. You're in a slightly different scenario: the university has been around a long time working within the UTCs, and you also work across departments, but you also have your own transportation department. I was wondering what if you'd like to address some of the challenges and opportunities you encounter when working across these multiple units at the University?

Question 2 Answered – Mansoureh Jeihani

One opportunity is at Morgan, they made it kind of centralized, so this National Transportation Center is the one who leads the proposal. So, there is less confusion. The faculty from different departments can be part of other UTCs and write proposals, but when it comes to the lead, it's the National Transportation Center. So that is clear.

But we have been fortunate to work with not only with the Department of Transportation and Civil Engineering, but also all other engineering, and beyond that, from business school, to computer science, to even biology or sociology, and all of that that is great to work, but also brings some challenges of being in different colleges with different rules, and the teaching load and release time and some of this kind of stuff. But it has been a blessing.

Question 3 – Laurence Rilett

Thank you. Yeah, I think it's, I think, for all of us, right, we have this challenge of working across departments. It's great, because we bring in all this different expertise. And so I think sometimes, okay, even amongst the universities, think all transportation, it's just one thing. It's this one department of civil engineering, when, in fact, over the last 20 years, it's become much broader than that, and really speaks, you know, for the folks on the webinar, really speaks on why we have these multi department, multi college, multi university centers and institutes, is it allows us to address some of the problems that are pretty pressing.

So, we have a question from the audience, let me pull that up. What is the outlook for UTCs in the future? Is it tied to the Congressional allocations?

Dr. Jeihani, would you like to address that? And then I'll go to Dr. Zietsman.

Question 3 – Mansoureh Jeihani

Let Joe start.

Question 3 – Laurence Rilett

Go start with Joe, and then we'll go back. Sorry.

Question 3 Answered – Joe Zietsman

Well, that's a tough one, because, as we see that, you know, it's a moving target in terms of how things, how quickly things are changing on the Federal Government side, and as we get more clarity on what direction is of where we're going to go in terms of focus areas, etc. That will probably then provide stability and to see how the funding is going to also play out.

But specifically talking about earmarks, etc., the way I see it is that transportation is apolitical. So, we don't get Democrat and Republican potholes. It's going to be an important issue moving forward. We just need to do a very, very good job articulating the successes that we're having, the impact we're having, and I have full confidence that we will definitely have robust funding moving forward. The only question is, we might have to pivot a little bit in terms of focus areas as these, you know, as the politics is settling down, and we understand exactly what we're going to be focusing on. But I'm confident it's going to be good.

Question 3 Continued – Laurence Rilett

Jeihani, Ms. Mansoureh, would you like to follow up?

Question 3 Answered – Mansoureh Jeihani

Yes, I agree with Joe said. But yeah, traditionally, the UTCs have been being funded under Congress, so still, probably going to follow that pattern. But we don't know. We will see what happens. But, as Joe said, transportation is apolitical. We need our roads and bridges. We need safety, and we need to move people and goods, so we cannot stop any of that.

Question 3 Closing Remarks – Laurence Rilett

Thank you. Yeah, I think it was a good answer. I think it was a great question. It also showed, you know some of the terminology we have, but so the question is, what's the future of the UTC program?

The implied is, what's the future of the USDOT UTC program? Our transportation centers and institutes at the universities are going to continue regardless, we'll continue to do soft money funding. But yes, as part of the USDOT UTCs, or the FRA Centers of Excellence and the FAA Centers of Excellence, those are congressionally mandated. So, the next Transportation Bill is about a year and a half and we're all hoping that those will continue.

But of course, if they're not in the in the act, in the Transportation Bill, then they'll go away because there will not be funding from it so great question. I see we have Constantine Tarawneh from University of Texas - Rio Grande Valley is on. Hey, Constantine, do you have a question?

Question 4 – Attendee (Constantine Tarawneh)

Yeah, I just have a general question like, it would be nice to know, how do you guys deal with cost share? Sometimes we try to involve junior faculty, and some of them come in with a good idea, but they say I don't have any cost share to provide. So, hey, I want $90,000, but I cannot give you $90,000 of cost share so, and I know sometimes you can, you know, allocate some of their time and effort, you know, but it's not $90,000 worth. So how do you deal with those in your centers when things like that come up?

Question 4 Continued – Laurence Rilett

So, I'll just add a bit for those who aren't as familiar with the university things. As you said we're soft money, so we write a lot of proposals, and sometimes the NOFO requires cost share as Constantine was saying. On the UTC program it could be 100% match, on the national and regionals it could be 50%. It is 50% on the tier ones. Or it could just be a research project where the sponsor, like, I know, CRISI, FRA CRISI is 20%.

So, Dr. Zietsman, would you like to take a first crack at that question? It's a good one.

Question 4 Answered – Joe Zietsman

Yeah, it is a great question, it's a challenge. And Constantine, to your point, the last thing you want to tell a junior researcher or faculty member, “No, we cannot help you. Don't propose”, or you know, “We cannot help you.” That's the last thing you want to do. So, at TTI, fortunately, we have a lot of our Texas DOT and other State work. So, you know, when it's a federal grant, we need to look for non-federal matching funds, so we often have an opportunity where we can find some matching funds in some of our other work and other projects as long as it is a one-to-one connection with the project we are proposing on. So, there's a pathway where we get some help.

We also leave behind some institutional funding from our indirect return for these cases. So, we put in certain cases, hard match. Put cash match forward. It's very expensive. It's dear money, but we want to make sure that we don't discourage, and we don't let these opportunities go to the wayside. So that is what we do.

We're having some conversations at the Vice Chancellor of Research level of the system, sometimes we want to really go to the system level and say, “We've got a big, big one, and we need lots of matching funds. Please help us at the system level”. The question there is, what is the probability of success? And what's the risk? And how

does all that play out? But those are all avenues that we are pursuing at TTI and Texas A&M.

Question 4 Continued – Laurence Rilett

Thank you. Mansoureh, you want to add your perspective on that question?

Question 4 Answered – Mansoureh Jeihani

Yeah, similar. It's really challenging. It's not easy, especially when those schools are smaller. It's harder to do that. But, as Joe said, we have been reaching out to the state, and we got some state funding, some from the Morgan State. The University helped and we have been increasing our industry partners and getting some help from industry. So, these are all different avenues that we can try. So far, we have been able to do it. So hopefully, we can continue.

Closing Remarks – Laurence Rilett

Yeah, thank you. It was a great question. It's a tough one to answer sometimes is trying to find that matching one that's always difficult, particularly for young faculty.

So, I see on this, by the way of time that we're slightly over. So, I'm going to end the questions now. I want to thank everyone for attending. And obviously I want to thank our participants, our panelists. They did a great job. As I indicated before we have, you know, over 80 of these in our Council of University Transportation Centers.

We were fortunate to have Dr. Zietsman and Dr. Jeihani join us today, but I think you would find similar things from some of our other partners, and hopefully it helped to get a better understanding of the things that are going on with respect to institutes and the University Federal programs.

As a note, PDH certificates will be provided following the conclusion of the webinar via the email used for registration. We had 124 registrants for this webinar, and I think I counted approximately 70 people on the webinar at one time, and, as I said, we'll put this up. We'll post the recording and the slides for everyone's use as we go.

I also wanted to announce our next webinar as part of the series will be Friday, April 11th 1:00 PM Central.

The title will be *Working with USDOT UTCs: From Conception to Implementation*. So, this webinar was really putting out the introductory parts. What are the Institutes, and what are the centers, and what is their purpose? What are UTCs? What are these Federal USDOT UTCs? And now we want to talk about best practices on how different stakeholders could work with them, work with the UTCs, or work with the universities from conception to implementation. The timing's good, because we're expecting a new transportation bill, you know, ostensibly in the next year and a half. That's anyone's guess whether we'll have continuing resolutions, and it'll be pushed back or not. But it's time to start thinking about it. We have Dr. Robert Hampshire, who just finished his stint at US DOT and oversaw the USDOT UTC program. So, we're happy to have him. We'll have Dr. Curtis Bradley from North Carolina DOT, and we'll have Dr. Ali Karimoddini from North Carolina A&T all participating. We'll talk about, as I said, the best practices.

So, in terms of the webinars, we've done two, we're going to go to the third one *Working with USDOT UTCs* in about 2 months. So again, I'd like to thank our panelists that have taken the time to talk to us today, and I want to thank all the participants as well.

Have a good weekend and stay safe.