Hi, uh, thanks for being here. Uh, I am here to talk about how my other slides on. That's okay. I'm outta here to talk about making the bus run faster. Um, and since you don't have the cover on a slide, um, take one of these and pass it.

So, again, I'm Jesse O. Sullivan. I'm Policy Council at Circulate San Diego. We're a San Diego nonprofit dedicated to creating excellent mobility choices and vibrant, healthy neighborhoods. Um, and we just released a report called Fast Bus. Uh, we just released it two days ago, and the report, as it obviously titled, is about making the bus run faster. And so the San Diego region has an opportunity to invest in our buses to make it a much better service than it currently is. Currently, transit route are twice as long as driver commutes. Bus commutes can be especially long. Um, you know, people can end up spending an hour, an hour and a half between right at one bus to get to their next bus, to get to the next bus to get to the destination. Improving bus service is one of the most cost effective ways that we can improve our transit system.

So he recently got the Midco trilogy, which is Amna Midco Trolley, which is an amazing project, but it cost $2 billion. Building a bus rapid transit line can cost on the order of $50 million, so it's much, much cheaper. And in order to meet our climate action goals, we have to be able to do things quickly and do a lot of things. And if we wanna do a lot of things, we can't do a lot of expensive things because we don't have that much money. So we need to do things that we can realistically, uh, do in a short amount of time. We fill the resources that we have. So, up here, this is a community survey. Uh, probably can't read it, I'll try to explain it. Um, this is a community survey conducted by MTS of both MTS writers and the general community. And they were asked to, uh, give, what is the most challenging thing about riding mts?

Or why do you not ride mts? And to rank those things from one being the biggest challenge to seven being the least challenging. And so over here, we have service isn't frequent enough and it takes too long. And those are by far rider's biggest concerns. And over here in, in the lowest categories are that it's too expensive or that there's not enough parking. Those are the least of rider's concerns. So when we talk about making the bus run faster, not only is it good in sort of an intellectual sense, it's also what riders are saying is important to them.

So why make the bus faster? A faster system is a more equitable system. Bus riders are disproportionately low income. They're disproportionately people of color, and most of them don't have access to a car. If you make the bus run faster, you are giving those people their lives back. You are making their trip, cutting their trip down from an hour and a half to an hour. That means, uh, half an hour each way every day. That's an hour every day that they could spend working, They could spend with their families, they could spend having fun, right? So the time equity issue is, is major. Um, the other reason is that as buses bring in new rider, So if you're, if the, um, on Wednesday was free ride day
on the MTS system, great program. A free ride is a great way to get somebody to try mts. But if it takes an hour to get to your destination, and it's usually a 15 minute drive, doesn't matter how cheap it is, you're not gonna do it because it doesn't, it takes too long. So what you need in order to keep riders is a system that will get people where they need to go in a reasonable amount of time.

Jesse O'Sullivan (00:07:25):
Also, when you increase the, uh, frequency of the system, there are some people who will still be traveling an hour and a half, but now they can get farther than they used to be able to get to. This is important for linking especially low income people to jobs in higher income areas. So our report gets fairly technical. I'm not gonna go through all of it with you, but I do want to give you guys a little bit of sense of how this all works. Uh, the bus travel time is defined by speed, frequency, and dwell time. Speed is sort of the most obvious of this thing of these. It's what most non-trans riders would immediately think of. How fast are you going while you're driving? The things that can improve bus speed are things like bus only lanes, which keep buses out of traffic. The next is frequency. Um, if you're not a transit rider, it might not be obvious as to why frequency so important, but firstly, it's so important because if the bus comes frequently, you don't have to plan your life around being at the bus stop when the bus is gonna get there. You can just show up when you want to go somewhere and know that in a reasonable amount of time, you're gonna have a ride towards your destination.

Jesse O'Sullivan (00:08:33):
The other reason it's important is that we have a system that's dependent on transfers. And so MTS does their best to time out transfers to make sure that, uh, riders when they arrive somewhere are, don't have to wait a long time for the next bus, but sometimes the bus is late. And if you're late to make your transfer, and that next bus only comes once every half an hour, suddenly there's half an hour added to your trick time where you're just doing nothing. You're just sitting there waiting. The last one is dwell time. What dwell time is, is the amount of time that the bus spends sitting, waiting as people get on and off of the bus. And so things that improve dwell time are things like outdoor boarding where you let people get on from the back. Um, I was recently on the two 15 bus and it's like five minutes at one stop for everybody to get on and off of the bus.

Jesse O'Sullivan (00:09:18):
If you cut that in half, that's a big difference. The last point I make on this slide is that improving bus travel time improves reliability. All of these things improve reliability. And the reason is that speed and dwell time are highly variable. Depends on the day, depends on the conditions on the ground. And so when you're planning a bus system, you can't accurately predict when a bus is gonna arrive at the next stop. If every day it's different. And if you cut out some of that time, some of the traffic time, some of the dwell time, then suddenly those predictions get a lot more accurate. On top of that, if the bus breaks down and you, you bus is only coming every half an hour, you gotta wait for half an hour. So frequency matters in reliability as well, because it's your backup, right? If you, this bus didn't come, if you missed it, if it broke down, whatever, you can just hop on the next bus.

Jesse O'Sullivan (00:10:11):
So our report goes into detail about a lot of specific recommendations. I'm gonna talk through just a few of them. Um, the first is dedicated bus only lanes. So this is the center line. It's on the I 15, uh, that's El Cajon Boulevard. Running over El Cajon Boulevard also has, it's a, uh, bus only lane, one of the few bus only lanes in San Diego. Um, these keep buses out of traffic. They're, uh, politically hard to do because
you often involves taking space away from drivers. But the important thing to remember in all of this is that a bus lane can move around four times as many people as a vehicle travel lane. So when you, a lot of times drivers get upset cuz bus lane looks empty, and yeah, the bus lane may look empty at this moment right now, but that bus might, when it does come, might have 50 people on it.

Jesse O'Sullivan (00:10:59):
And these 50 cars ahead of you have, that's way more space. But it's the same number of people, and we're trying to move people, not cars, bus stop balancing. Um, so what bus stop balancing is the idea that we're gonna take away some bus stops. And the reason for that is that the way we've historically planned bus lines in many cities throughout America is that the bus stops every two blocks. And when you do that, the reason to do that is that everybody wants to have a bus stop in front of their house or in front of where they work. But the problem is that when you add up all that stopping and going over the course of the whole line, it slows things way down. So if you can eliminate some of those stops, it means that people have to walk farther, but it means that the bus runs faster for everybody on it.

Jesse O'Sullivan (00:11:44):
And so ultimately, you're right as you're gonna be, your total travel time's gonna be shorter, even if you have to walk a little farther. There are issues with this. There are winners and losers. Some people are gonna lose their bus stop. And so when, when you're doing that, it's important to be especially conscientious about people with disabilities, people with mobility issues, and make sure, so for example, if you have a bus stop in front of a senior center, that's the one you want to keep. Um, and then the other thing is just, just make sure that paratransit services are adequate transit signal priority. Um, so this is the Park Boulevard bus lane. Um, and as you can see, it's got those special bus signals. Transit signal priority is sort of a smart system for making sure that when the bus gets to the intersection, either the light's already green or it's gonna be green really soon for the bus.

Jesse O'Sullivan (00:12:28):
And that keeps the bus is moving through traffic in lane stops. So this is a picture of actually a quick build version, uh, in that I took in Portland. You can see there's a bike lane that goes through on the right there. And then on the left is the waiting area for the bus. The reason that you want the bus to stop in the lane is that when the bus merges out of the travel lane and then has to merge back in, that adds a lot of time because you're competing with cars to try to get back in. And cars don't wanna let let a bus out. Um, so by making the bus stop in line, you don't have to make that merge out. You don't have to make the merge back in. You just stop where you are. People get on and off and you keep going.

Jesse O'Sullivan (00:13:10):
All door boarding, as I mentioned before, um, letting people board on the front and the back door of the bus. Uh, right now there's a proto card scanner at the front. Either scan your card or scan your phone, or you pay in cash. If you added one of those scanners to the back of the bus, people can get on twice as fast or on a really long bus that has three doors. You could, could be go on three times as fast. Um, a concern with this is that it does create added potential for fair of Asian people might at the front, the bus driver's watching and can make sure that nobody gets on without paying the fair at the back. It's harder to do that. Um, the response to that is, well, you can do something like you do on the trolley where you occasionally have transit enforcement come on.

Jesse O'Sullivan (00:13:49):
And also most people are not gonna evade the fair. Most people are gonna pay. And it's better to have a system that runs well and efficiently and quickly that has some level of fair of evasion than it is to prioritize nobody ever evading their fair and have and in the process slow down the entire system. So we have a whole bunch of other recommendations. I invite you to go to our website and read the full report if you want to learn those in detail. But just briefly, automated enforcement of bustling stops near level bus boarding, improved frequencies, extended service hours, improved fair payments, a family friendly, fair structure, and off board fair validation are some of the other recommendations of the report. So how practically speaking do we get there? Politically making the bus run faster is surprisingly complicated. So sandag is the Metropolitan Planning Organization.

Jesse O'Sullivan (00:14:45):
They control capital funding. MTS actually runs the buses and operates them. And local cities own the streets that the buses run on. And so in order to make some of these improvements, especially the ones that require physical infrastructure, like bus lanes, you have to coordinate across all of those agencies. So Sandag has to put down the money for it. The city has to say, Yes, we want a bus lane on this street, and then MTS actually actually operate that bus. So politically this requires a prioritization. It requires our elected officials who are often actually, you know, Mayor Todd Gloria as the mayor of the city of San Diego. He's also on the Sandag board and he is also on the MTS board. So a lot of this is the same people running all three of those agencies or responsible for all three of those agencies.

Jesse O'Sullivan (00:15:31):
So it takes political will to do that. And changing the way our streets are designed is, I'm sure some of you know, is like a surprisingly hot button political issue. <laugh> people get really, really off about losing parking or about losing a travel lane. But that's what it takes, You know, if we're gonna have our climate goals, if we're gonna have an efficient bus system, you have to prioritize it politically and you have to prioritize it politically where the traffic is worst, which is also where it's politically hardest to do it. So it takes, takes some will to make this happen. Um, that's the end of my presentation. I'm gonna introduce Andy Ke who's gonna moderate our panel and let him introduce the rest of the panel.

Andrew Keatts (00:16:12):
Thank you Justin. Well done. Ready for <inaudible>?

Andrew Keatts (00:16:21):
<laugh>. Uh, alright. So I'll get go through the channel, we'll get some questions out the way, and hopefully we'll have a nice conversation. Um, so first, first we have, uh, starting on the far end. Dennis Desmond is the Director of planning and scheduling at mts. Uh, next to him is Manu Agni. He is the board member at, uh, our Time to Act United. It's a youth empowerment organization, So yeah, accurate, fair, fair encapsulation. Yes. All right. Great. And then next to him we have Clarissa Res Falcon. She is the commissioner on the California Transportation Commission. Uh, thank you guys for being here. Um, let me start with Des Dennis. Um, so mts, uh, a few years ago did a, uh, a bus rebalancing system. Can you tell, walk us through a little bit about what that entailed, uh, and then sort of what lessons you learned from it that might inform what else there is to do in the region? In terms of getting the most out of the bus system without focusing quite so much on major capital infrastructure upgrades, which I, I would say has has more often been the focus of transit upgrades in San Diego.

Denis Desmond (00:17:29):
Sure. Um, thank you, Jesse, for the report. Um, I think that you really hit the nail on your head when you said that, um, riders are rider's. Number one concern is travel time. And the number one people, number one reason, people don't use our system as well as one of the number one complaints of people who do use the system. Um, so a lot of these things that we've talked about, or Jesse's talked about today are things that we've been focused on. And one of those, um, uh, has been this, uh, transit optimization plan that we did in 2018. This is actually a follow up of our comprehensive operational analysis that we did in 2008. Um, and what we essentially do is take all of our service and, and look at all of our service and find out where our resources are best being used.

Denis Desmond (00:18:12):
Um, where do we have the most ridership? Where can we take resources aren't being used very well, and allocate those to places where we actually need more service and, and can actually gain more ridership. So without going into too much history, um, but when I started in this industry in the 1990s, um, a lot of systems had a lot of routes that covered the entire area, their entire service area running every 30 to 60 minutes. And ridership just dropped and dropped and dropped. Uh, and the reason for that really is that it was trying to do, um, too much, trying to give a little bit to everyone instead of really focusing on high quality service, um, where it was most effective. So that's really what the coa, um, did in 2008, and that's what we did again. Um, and, and we really try and do the same every eight to 10 years.

Denis Desmond (00:18:57):
I think that the pandemic has put a little wrench into that, but, um, every eight to 10 years we do try and look at our system and see where can we reallocate resources and, you know, frequency is king. Um, we talked about that here. Um, why frequency is so important. Um, it's, it's absolutely important because it's not only how long it takes to get from point A to B on one bus, but most people are making, um, trips on multiple buses, and so they're transferring. Um, so when you look at the total journey time, if you're transferring between buses that run every 30 or 60 minutes, that's a lot more difficult. Now it's a lot more journey time than transferring between buses that run every 10 to 12 minutes. The other thing is the perception of that waiting time. Um, studies have shown that people perceive that waiting time to be actually twice as long as the time spent on the vehicle.

Denis Desmond (00:19:42):
So the frequency can really reduce that waiting time, and that's what we've tried to do. So in the transit optimization plan, um, we did reduce some service very difficult because we do end up reducing service in some areas where we just aren't performing very well. But then we're able to reinvest that in areas where we can really gain more ridership and, and, um, help out more rider. So, um, for example, we took a lot of routes that we're running every 15 minutes and we started running them every 12 minutes. Um, and so that's something that we'll continue to do as we go through each of these. Again, every eight to 10 years we look at our entire system, we try and go through this and figure out where can we get more bang for our buck. Yeah.

Andrew Keatts (00:20:18):
So, man, who put us in the mind of a, a transit rider's perspective here, particularly, uh, uh, maybe a young Transit rider's perspective, uh, you know, I think maybe somebody might think, Well, this all sounds great. What, what's the downside? Who, who, who, who says otherwise who, who opposes this faster buses? Why I'm not gonna be in the slow bus party, um, <laugh>. So, but, but the, but the
alternative, the alternative to fast buses is, is a more focused effort on big long term transit, uh, uh, capital projects, building, uh, rail projects that might go, you know, 50 miles and, and cover large areas and take, uh, decades of planning and engineering and environmental work and locking up major funding sources. Uh, this is an alternative that can be faster and a little bit more efficient. Um, do, is that what riders want? The, the faster, more efficient version as opposed to the longer term, but the, uh, Roll Royce product at the end?

Manu Agni (00:21:16):
<laugh>. So the, you're asking if people want something that's fast and quick or something that's slow and takes a long time. I don't know. That's a hard question. Uh, what is beautiful

Andrew Keatts (00:21:25):
At the end of the line, right? I mean, so, you know, like the, the blue line, right? The, the blue line that just opened the mid midco expansion took 30 years to build mm-hmm. <affirmative>. Um, but everybody was trying to sign that, uh, to attend the ribbon cutting, right? Everybody had a great time at that ribbon cutting ceremony.

Manu Agni (00:21:41):
Uh, so I'm, I'm Manu, I'm a student at uc, San Diego. I've been student body president. I'm also on, um, involved in the MTS Community Advisor group. And in this role I'm a board member at our time to Act United, which is a local youth empowerment, um, nonprofit. But the fast bus is really important, especially for young people because it's about freedom. I mean, it's about freedom to go places, of course, without having a car, especially if you can't afford or don't have access to a car. But it's also about freedom of having transportation choices, like even if you have a car or have access to it. Um, I don't think anybody in this room would say that San Diego's Transportation Network in any mode, including driving, is absolutely perfect. Or, um, you know, you feel like you get to where you need to go every single day, all the time, fast, safe, and in a cost efficient way.

Manu Agni (00:22:29):
Even if you're driving, I think that, you know, traffic is bad and often you don't have an alternative. And so the reason that I think, you know, it's so important for us to get behind or rather get on board at no pun intended, <laugh>, the, uh, fast bus is because it's easy and it, and it's cheap. But like you mentioned, um, rail projects can take decades and decades or even, uh, you know, might be studied for many years and not pan out. I'm sure everyone's familiar with a statewide rail project that's been going on for some time as well. Um, but the bus is, is easy to fix. I mean, you can add a new bus lane with just a can of paint, pretty much. Of course, the political wrangling behind that takes many more cans of paint worth of time, <laugh>. But it's just so easy, so cheap, and it's something that we can see in our lifetimes or even in our, um, you know, even in, in, in a year if things go well. So I think it's important because of the freedom and it's a good use of the public's money. A little bit of money can go a long way in making, um, people's lives easier. Give people who don't normally ride transit the opportunity to ride, or the ability to ride transit, um, and give people alternatives driving or alternatives to waiting around in a bus stop for 30 minutes. Um, so it's important for all those reasons and, and it just makes plain old sense.

Andrew Keatts (00:23:52):
Clarissa, you, uh, bring a statewide perspective here on the, uh, commission that you serve on, um, Fast Boston Belt Ball Service specifically. How, how much does that factor into the, uh, state's sort of strategy
for improving transportation? Um, how much is this conversation, uh, Ed with what the state’s looking at?

Clarissa Reyes Falcon (00:24:11):
Yeah, thanks for the question, Andrew. Um, a lot. So, uh, I’m on, I think at merits just kind of explaining what the California Transportation Commission does. So we’re a, a statewide commission, uh, pointed by both the governor and legislature. Uh, there are, um, 11 appointed members and two exo officio consisting of one state assembly member and one state senator. Each, um, are the chairs of their respective transportation, uh, committee. So there’s a lot of transportation, brain trust, um, in, you know, not only on the, on the commission, but also the staff. Um, and we work very closely with the California State Transportation Secretary to Soma Shock, who is a cabinet level, uh, with the governor, um, as well as Caltrans very closely with Caltrans and the regional planning agencies such as, uh, Sandag and with mts. So this is really exciting for me. Um, I’m also on the circulate board just out of, um, just full disclosure, really appreciate, you know, the, the, the work that MTS has done to, to survey their, um, rider and, and what it is that, that they, that gets ’em to ride the bus.

Clarissa Reyes Falcon (00:25:27):
What will make the experience, uh, a better experience for them? And this is important for us at the commission for a couple, at least a couple of reasons. We like to fund projects. That's basically what we do. We program and we allocate, uh, state funding for projects up and down the state. More and more what we’re doing in terms of what our priorities are is to implement environmentally friendly, um, uh, opportunities for environmentally friendly projects and operations. How can we optimize what we have? Now, tho those are music to our ears because with rising construction costs, right now, what we’re seeing with projects that are long, long range that we program early, when it gets time to allocation, we’re looking at double, triple digits in, in, in increasing fees for, or increasing costs for construction because, you know, of labor, of con of contractors of the, the price right now because of, um, supply chain issues of, of materials.

Clarissa Reyes Falcon (00:26:34):
So anywhere where we can try to capture opportunities for getting folks to ride, uh, the bus or to use the trolley to really optimize what we have now, get folks to get off their, you know, their gas, uh, you know, gas, uh, propel cars and into, um, into a bus is a big plus for us. That’s one. Um, second is equity, and that is more and more, um, a priority for the commission. We just created a, um, equity, uh, advisory committee, uh, that will be representing, uh, regions up and down the state on how we can implement equity into our, our transportation investments. And so any way that, and this would be a really interesting, um, these recommendations would I think be very interesting because again, what Jesse mentioned was the folks that mostly ride the bus right now, and we wanna entice more people.

Clarissa Reyes Falcon (00:27:36):
I mean, that's, that's part of what this, this, this, uh, report is about, is to try to also entice folks. But we really need to also take care of the folks that are, are using the bus now. And those are mostly folks that are coming from communities of color, uh, blue collar folks that are trying to get to their place of work, um, or to go shopping or to recreate, um, and folks that are, that can't, can't drive, that are aged that, um, you know, are, are ADA part of the ADA community. So those that are the folks that we need to ensure that they have a good, um, and, and viable, uh, way of getting from A to B. So we’re looking at, you know, really I think, um, innovative ways to use what we have now. Yeah. How can we, how can we
use our highways better? How can we, you know, how can we, um, you know, pilot, uh, you know, using shoulders as, as a dedicated bus? Well,

Andrew Keatts (00:28:36):
So, you know, in terms of using what we have now, put it in the, in San Diego's, uh, transportation picture specifically, uh, sandag, uh, which programs, the majority of the funding here in in San Diego for transportation projects, transit and otherwise has a brand new, uh, plan for all the transit projects that's proposing in the region in the future. Um, it all is already behind the eight ball on funding that plan. There was, uh, envisioned to be a ballot measure this cycle to start paying for that project. Uh, it did not qualify for the ballot or else you might be at a panel right now discussing that ballot <laugh>, right? Um, but it didn't, it didn't make it. And so, and you know, they need three of those things. They're already behind on one. Uh, meanwhile the board has directed staff to pull out another one of the funding measures.

Andrew Keatts (00:29:29):
So, uh, funding is by the looks of things going to be in scarce supply for any transit projects, whether it's, um, the purple line trolley extension that has been discussed and is in that plan, the, uh, airport connection that's been discussed and was considered likely to be in the, uh, ballot measure. Um, how does a, you know, a souped up bus network fit into or compete against those sorts of major capital projects that the region has been discussing and get most of the attention when it comes time to talk about, about measure? We can start with Jesse, and then we get everybody to jump in on this one.

Jesse O'Sullivan (00:30:07):
Yeah, so I think that's a great question. Um, and it is, it's unfortunate that Sandag has, uh,

Jesse O'Sullivan (00:30:15):
It ha is gonna have issues funding the regional plan, but I think that it's, it's really important that Sandag should prioritize bus investments because they can happen so quickly and because they're the most value per per dollar. So the, um, you know, and, and I I also wanna say here, like I am, I am very much for a purple line. I'm very much for more big transit investments, but when you're deciding when you don't have enough money and you're deciding what you're gonna spend it on, like go for the low hanging fruit first, right? Like, if you can't, if, if you don't do the easy thing, like why, why are you trying to do the hard thing before you do the easy thing? The easy thing is to, to spend the money to make the bus system really great. And then once we have a bus system that is good and we wanna do something that's even better, then we talk about making those really expensive investments in, in something better.

Andrew Keatts (00:31:06):
Interesting. So, uh, Dennis, I'm, I'm interested in your perspective on that. Um, you know, the, the bus system and the Sure. And the transit system obviously relate to each other. To what extent are, are is, are these sorts of ideas in competition?

Denis Desmond (00:31:21):
Well, ideally they compliment each other. Any major infrastructure project we do is gonna compliment the underlying bus system. Um, but, you know, we did a, a big, um, project in 2018 through 2020 called Elevate sd. And, um, the idea of that Elevate SD was, um, ultimately to go to the ballot with a potential
sales tax measure that would bring a half cent, half penny of sales tax to MTS over the next, um, potentially 50 to 60 years to fund things. So we looked at a lot of different things on that, um, potential projects to fund, uh, went through a really, really robust, um, process of analysis and community engagement. And the purple line was one of those things that we looked at, um, that, that purple line we estimated was going to cost 12 to 14 billion. Um, our entire project was gonna raise 25 billion over 50 years.

Denis Desmond (00:32:14):
So, um, it was gonna use up more than half of, um, that entire sales tax measure. So we ultimately ended up not including the purple line in there because Sandag was, um, doing their regional transportation plan at the same time, and they were gonna look at the, the purple line. Um, but we, what we did include there was massive, massive increases in bus service, um, to the extent that we're now pursuing another, um, bus maintenance facility because we know that when these things come up, we're not necessarily gonna have this 5, 7, 9 years that we need in order to develop a new bus facility. We need to have that ready to go. So we're actually starting that now to prepare for future expansion of the bus system because, um, even if you've got rail lines, rail lines are only gonna get so close to so many destinations. Um, so you still need an underlying bus network that's really gonna get into communities and, and bring people to those rail services.

Andrew Keatts (00:33:06):
Yeah, man. And we can go back to you. Uh, I'm, I'm curious about what you think about how easy it actually is to, to implement some of these projects. The, our experience here in San Diego, uh, might cut against the idea of them being especially easy. Um, I'd look at something like the two 15 now, the, with the was once called the mid-city B RT that was, uh, pitched initially as like a demo project that would show San Diego's what a rapid boss system could look like from the idea phase to it actually breaking ground. It was just whittled back on and features were cut away all the way through. It was supposed to have, uh, off board payment system. It was supposed to have dedicated right aways throughout the whole thing, uh, signal priority. And then what we ended up with was basically Park Boulevard. Um, and no, and no offboard payment system, um, Elon Boulevard, the city of San Diego did put a bus line in there and demonstrated that they could do it quickly and cheaply. And then they've replicated that success exactly zero times since <laugh>. So I, I wonder, is it true that these things are, are low hanging fruit?

Manu Agni (00:34:15):
I think, I mean, transportation projects never seem to be easy in San Diego. Yeah. But, uh, certainly it is much easier than building a new train. And, and while you're right, some things got chipped away at that project. Something is better than nothing. And if you can invest a little bit of the, of public money into that and, and have a slightly better service, that's better than not doing it all at all at all, or trying to save the money for something that would may or may not happen much, um, later down the line. And, and buses are the unsung heroes. I'm sure Dennis can talk about it, but buses in Tran San Diego transport a lot more people than you might think if you don't ride the bus. Um, of course the trolley also transports a huge number of people, but buses, uh, I think actually might be around the same or, or more even.

Manu Agni (00:35:01):
And if you look at the entire system and at a time when there's so many funding challenges, of course, like you mentioned, challenges with, um, new tax measures or funding, large regional plans, and the economy overall is uncertain. And we don't know how funding will look like for a lot of things. Um, in the long term, it seems like a good use of taxpayer money and, and, um, an efficient way to use it to just improve the bus service, even if you add a bus lane in a few places, which is pretty cheap, that improves that bus line, which has, you know, kind of compounding effect. So you can start piece by piece, and that's kind of the advantage of the bus too, is you can improve one line and you can leave the others until you have time or money, um, rather than having you do the entire thing at once. So I think it's a smart idea. <laugh>

Andrew Keatts (00:35:46):

<laugh>. Uh, one other thing that I wanna think about is that, um, anybody who's paying attention to local public affairs would be aware that, uh, that that transit policy and housing policy are linked, that they, that those two things go together. And historically, one way that we have, uh, taken advantage of that link is to use capital investment as a, as a signal to developers where to invest their money, um, to build big projects near, uh, to billion dollar light rail line. Um, and I wonder, does, does increasing frequency on a bus line without a fixed right of way have that same effect? Does it drive real estate decision making in the same way that, um, you know, putting and putting tracks in the ground does,

Jesse O'Sullivan (00:36:33):

Um, to, Well, I'm not a hundred percent sure whether I agree with the premise of the question that I would, I would defer to a developer on it, but I think that most of the time the way it works is that, um, like the example that comes to mind is like, we built this Midco trolley extension to the uc area, and now we're doing a uc community plan update that may create opportunities to develop lots more homes in that area, but developing developers would want to build lots more home in that area, even if we hadn't built the Midco trolley, like we've built the Midco trolley to that area because it's where all the biotech is because it's where the university is because it's a desirable area. Um, and so I, I think that, um, you know, the, the building, I think a lot of, you know, small scale infill developers do focus on where they can ha where transit is.

Jesse O'Sullivan (00:37:23):

But I think most of those decisions are driven by where are the jobs and what is the underlying zoning? What are you allowed to build they, and most of the restrictions on what we can build, um, and thank you for acknowledging the connection between those things. That's like the entire premise of my organization is that housing and transit and uh, transportation are like fundamentally connected. Yeah. Um, but the, the, um, you know, most places in San Diego, it's not legal to build anything other than a single family health. And that's really what is what you're legally allowed to build is really what drives the decision making. Uh, and then what are the property values in that neighborhood?

Andrew Keatts (00:38:05):

Clarisa, what do you think about, um, in terms of the, the necessary, uh, sort of give and take in relationship building that's required between mts sandag, uh, individual cities where that, that control the street grid, uh, that the buses run on, and then the state that up that provides, you know, significant funding for all of it. Um, how do all these different levels of government need to relate to be able to make real, real improvements here?
Clarissa Reyes Falcon (00:38:31):
I think it's critical to make, to ensure that, that, you know, the, the municipalities and the, and MTS and sandag work together, um, and, and, you know, make this a priority. There's gonna be a lot of coordination that's gonna need to happen. Mm-hmm. <affirmative>, uh, particularly if you're trying to do for exam example, optimizing your, your, your signal signals to prioritize buses, that needs to be streamlined across the board, not just, you know, within a municipal board. It has to be, um, you know, it, it has to be, um, you know, across the board consistent in order to ensure that the bus service is gonna be fast. Yeah. Um, what we do in the, in the state is we, we, we take our cues from, from the region, and if it's a priority for the region and the region put skin in the game, Yeah.

Clarissa Reyes Falcon (00:39:20):
Then that, that makes, uh, the, the request for funding stronger and so is absolutely important that, that there is, um, consensus in, in, you know, us utilizing these, these approaches and trying to get state funding because there is opportunities for state funding to do some of the things that may require a little bit more capital investment, like, you know, more inlining or, um, or, you know, uh, level platforms or even signal, uh, signal technologies. They'll be, they'll be, uh, uh, requirement of, of, of investment there. Mm-hmm. <affirmative>, um, maybe not to the extent of having a, you know, a a, a whole new trolley line. I think I was monk's, um, age when we started talking at U C S D about, uh, putting a, a midco trolley. And that was, and I'm not afraid to say it was over 25 years ago when we talked about where we were gonna put this, um, this trolley stop, it takes a long time for these types of projects. So if, if the agency and the municipalities can work together and they can, Hey, let's, let's, let's grab the low hanging fruit, let's go ask for some money from the state. Um, if there's, you know, if there's so strong support there, then it, it becomes very, um, you know, very, uh, attractive for investment. Dennis.

Andrew Keatts (00:40:43):
I mean, if the San Diego City Council saw this uh, port read circulates, uh, white paper on it, and suddenly, uh, was totally convinced and decided to give a bus, uh, you know, a bus only laying on Broadway through downtown and, uh, all <laugh>

Clarissa Reyes Falcon (00:41:02):
There,

Andrew Keatts (00:41:02):
It's, and on Adams Avenue and, uh, and, uh, on Garnet or Ram <laugh> just start, started throwing 'em all over the place. Uh, ts would still need to need to have the funding to run buses more frequently if to, to fully capture all the benefits that those bus lines would do if you don't have that money. Um, you know, essentially how do you, how do you work with the city if they, if they want to get on board and, and are willing to take something from, from drivers, um, how often do you have to say, Well, that's wonderful, but we don't have, have money for more buses.

Denis Desmond (00:41:34):
Yeah. And I think that that's a a good point. It doesn't necessarily make sense to build some, uh, infrastructure project for a bus that maybe runs once an hour. However, I think we can start on places where we actually have more food and service. You mentioned Broadway. Um, another one is Park Boulevard. Um, Park Boulevard between University Avenue and downtown San Diego. Um, we've got Route two 15 running every 10 minutes and Route seven operating every 10 to 12 minutes. So, um,
that's, uh, a lot of buses that we're putting through that corridor. And the good news is, the city of San Diego in December is actually gonna be striping a bus only lane. Um, they're gonna be removing lane of traffic, um, converting most of it to bus only lane. Um, that's something we've worked really, really closely with them on. Um, so it's the follow up, you know, said zero projects since, uh, Elco and Boulevard.

Denis Desmond (00:42:20):
This is a new one. And I think we have some lessons learned from Elco and Boulevard that will inform, um, how we roll out this Park Boulevard. But I think that's what we do is we start with areas where we actually do have already existing high levels of bus service so people can see this can be a success, um, and this can work. Um, and ultimately, you know, if we do get that ridership and that extends other areas, then hopefully we'll have that resource to be able to, um, implement higher frequencies in other areas as well.

Andrew Keatts (00:42:45):
Yeah. So I, I mean, I think when people talk about the underground frail systems, they have ideas in their head of places that do it very well, places that they've traveled and enjoyed and wished that we had something like that. Is there a model to you of, of a great bus city, a city that has, has really mastered a, um, uh, you know, fast bus network that did, doesn't rely on major capital infrastructure upgrades? Anybody?

Denis Desmond (00:43:15):
Well, you know, there's a, there's a funny saying in the industry, which is, um, the worst transit system in the world is the one that you have to take to work every day,

Andrew Keatts (00:43:23):
<laugh>.

Denis Desmond (00:43:25):
And it's very

Andrew Keatts (00:43:26):
True. It's like the worst drivers are always from the state next to your

Denis Desmond (00:43:31):
Right. Exactly. So, um, and, and I think that's true. And, and I could say, Well, I think, you know, the bus system in New York City is great. You talk to people from New York City saying, Oh my gosh, MTA is the worst system ever. That's, you know, so, um, I think what we try and do here is, is try and right size and, and do what we can with the funding that we have, um, to put the best service that we can out there. But there are places that are better funded. Yeah. Um, so in San Diego, um, we get an eighth of a, of a penny, um, for dedicated to transit services in, um, the county, Los Angeles. They have a penny and a half, um, that goes to transit service. So that's a huge funding gap. They have a lot more ability to do things there than we have here now. They're doing rail lines and other things like that there with that, um, funding. But, um, you know, the efforts that sand a's going for and what we were trying with Elevate SD was to try and bridge that a little bit to be able to do some of those things here as well. Yeah.
Andrew Keatts (00:44:25):
Uh, BTS always seemed to me to be really the, a solution adopted by South America more than anywhere else in the world. Is there outside of the US is there anything you look to

Jesse O'Sullivan (00:44:35):
Yeah. Um, most of the examples that I've looked to have been within the US partly because, you know, when you're trying to convince us policy makers to do something, it's, there's just a lot more things that will work out in a similar way. If you look in the US and the, there's sort of a nationally, there are a lot of cities that are like starting to move in this direction that we're advocating for. And so I, not sure I can pull out one and say particularly like, this city's doing it absolutely right. But, um, New York City, they're adding a lot of bus lanes. Uh, they have a lot of problem with cars parked in the bus lane all the time, but they're at least doing the bus lanes, and that's hopefully a problem that they can find a way to resolve. Um, in Portland, I know they've done a lot of upgrades to their bus system. Um, they've done some BRT lines, the, um, when I lived in Pittsburgh, there was a BRT line that had like a dedicated right of way that was like, it was like a street that was only for buses. Yeah. Uh, and so I think there's a lot, lots of little examples that you can take from cities around the country of like, here's, here's one piece that, and here's a lesson learned that we can bring to San Diego.

Andrew Keatts (00:45:35):
Great. Do you have any, anything you wanna add in, in here on, uh, on cities in California that have, have sort of been best in class?

Clarissa Reyes Falcon (00:45:46):
Well, I just went to San San Jose and they're, they're doing quite a bit over there, um, on, on bus, the rail, the Cal train. They've, you know, they've got all the multi modes, um, uh, working in, in that city. So, um, I've only been on the commission for a year. Um, and so, um, and most of that has been covid. So, um, I'll get back to you to this <laugh> to you on what, what I, uh, what I observe, but really quick, just on the funding and, and you had mentioned, I don't, I don't think we, I had the opportunity to kind of, uh, comment on, on the regional funding, um, and the inability to get a funding measure, um, in, on, on this, this ballot ballot. You know, we, we, we have a, a very aggressive rtp. Um, it need, it needs new funding.

Clarissa Reyes Falcon (00:46:40):
Um, at the same time, we can't, you know, we can't really wait for some sort of solution because we've got, uh, very, um, assertive gHG reduction and, and climate action goals in the state. So we've gotta do something. Um, and, and we've gotta entice more folks to, to use modes just like, just like buses. Um, and so it's not, it would be nice to have, we've, we've gotta do something. Um, and I think these recommendations that, um, you know, that Circulates San Diego, um, has, has put together, really has some really fine recommendations. I mean, it, it can, we do all of 'em, it would be great, but if, if we can even employ even a couple of those and really reduce the amount of time folks have to, you know, know, spend commuting mm-hmm. <affirmative>, um, I think will entice more people to Yeah.

Andrew Keatts (00:47:33):
To each. So I'm, I'm going through some of the audience questions here, and, um, one we can, we can jump on to that point is, uh, if, if the MTS cities, the cities within, uh, its area, um, want adapt quickly,
um, wanted to go through some of your recommendations, what sort of lessons would they be able to pull out of the, uh, Cajon bus lane example?

Jesse O'Sullivan (00:47:56):
Uh, I think generally the first lesson is that like, you can do it fast and you can do it cheap. Like there's a lot of good lessons to learn from, uh, from the Cajon Boulevard bus lane. Um, that project was, there was a lot of grassroots organizing around it. Um, it went in quickly. The whole process took about a year, I think. Um, and, uh, so it was, I think it's a, it is a great example of how you can do sort of a quick build cheap improvement that makes a big difference.

Andrew Keatts (00:48:27):
What about from ts side? Any, anything stick out as, uh, something you, you recommend to the city council member who decides that they want, they too want their alcohol and fast bus lane?

Denis Desmond (00:48:38):
Well, and I, I think that what Jesse pointed out is exactly it, it was done quickly and it was done inexpensively. Um, it's worth noting it not an exclusive bus lane. Um, it's used by right turn cars, it's used by people parking and other things. So there are some conflicts in there. Um, so I think we have some lessons learned. We're trying to apply to the Park Boulevard, um, that we're rolling out in December. Um, so, but it was great as an example, as a proof of concept to be able to put something out there and see that it, that it can be done. Um, we're fortunate on Elcon Boulevard that it had six lanes that weren't necessarily being used. Um, that's not the case everywhere. So I think it's gonna be a tougher sell politically, Uh, in other places it's gonna be more parking removal, um, more, uh, traffic capacity, um, reduction. So, um, but it was great as a proof of concept, and hopefully we can use some of those to, um, lessons that we've learned there to roll them out to other places.

Andrew Keatts (00:49:34):
Yeah. Jesse, you had a, I had a slide in there of one of these, uh, bus pads basically that sort of, uh, it's reasonably cheap, throw it right on the sidewalk, and it simulates having a transit platform, um, which speeds up boarding on buses for people who have wheelchairs or pushing strollers, uh, or shopping carts. And they, uh, instead of having to walk up steps, they can just roll right on. Um, have you, have you guys, uh, looked into, this is also an audience question. Have you looked into what providing those sorts of, um, of level boarding entry through, you know, riser pads, uh, would cost system wide and h how, how difficult that would be?

Jesse O'Sullivan (00:50:14):
Yeah, so, um, actually, uh, U C S D, it, I don't know whether they, they implemented them the last I heard from them. They had bought them and they were waiting for them to get here. There's like a, a company in Portugal or something that like, makes them out of recycled plastic bottles. And this is for

Andrew Keatts (00:50:31):
Their on-campus shuttle, not mts, right?

Jesse O'Sullivan (00:50:33):
Yes. Okay. Um, it's for UCSD's TR and Transit. Um, but the, uh, the, yeah, so those, those, if I recall correctly, they bought three of them total, all three of them together was a hundred thousand dollars. Um, which like, in terms of re rebuilding a curb to, to do that as a curb extension could cost, you know, 10 times as much. Um, and so doing that, that's sort of the example of the, the cheap solution that we can do right now. And I think in, in a variety of things, circulates advocates for do the cheap thing right now and then also later do the nice thing. But like, we need to do a lot of things right now, and if we try to do the nice thing right now, we're gonna do it in one place and nowhere else. Mm-hmm. <affirmative>. So make the big changes with the quick, easy thing. Yeah,

Andrew Keatts (00:51:23):
Man. What do you think about the, how this would, uh, how that sort of lesson in u CSC might be able to inform what's going on in the rest of the system?

Manu Agni (00:51:32):
Yeah, so the, actually the transit boarding islands did open, um, and they worked pretty well, or one of them opened. They worked pretty well. And the a hundred thousand dollars for three isn't just the cost of like the rubber and plastic, it's cost of including the paint and some other things. So it's actually cheaper than, than, um, you might think, but it works fantastically well. And it's, it's just a rethinking of the hierarchy of how people move around. Like right now the bus stop is in a cut out, then the bus moves away. And so the cars are given priority when a bus needs to come back and merge. And, you know, nobody wants to get stuck driving behind this slow bus. So, like you said, it's hard to merge back. This just flips it around so the bus stops in lane cars if they, um, they can wait if they'd like, or you can go around if that would be, um, you know, faster for, or whatever you want to do, depending on the safety of the situation. But you're just, it's just a simple rethinking of the priorities. So now people who are on the bus go a little bit faster, um, and the, the cars are yielding to the bus rather than the bus having to yield to the car. So it's just a, a simple change and, and a and a cheap change, like you mentioned. And it works fantastically well. Yeah.

Jesse O'Sullivan (00:52:37):
If I can jump back in on that for just a sec, I think that it's, these, these kinds of quick build things are also a, a good example of something that I sort of broader approach, not just about buses that, um, circulates trying to push forward at Sandag and cities, which is we build public infrastructure projects way slower and for way more money than they do in Europe. In Europe, uh, the example that I can think of off the top of my head is subways. In Europe, subways cost about a quarter of what they do in the United States, and they get built much faster. Um, and part of that, there's a whole bunch of reasons for that. Many of them are like way beyond anything that we as San Diego can deal with. But one of the things that we can do is, um, change, change the way that we structure our, uh, planning and input process.

Jesse O'Sullivan (00:53:23):
So for example, on the, the bike lanes on fourth and fifth Avenue, there was sort of this endless cycle of like, we're gonna go get community input and then we're gonna take it back and change the design, and then we're gonna go back to the community again. And then we're come back and change the design and go through several iterations of that. And then we're gonna go to the city of San Diego, and the city of San Diego is gonna say, Actually, we wanna do it differently. Also, we're gonna do our own public input. And so there's this like endless process of, of more and more public input and also those public
input sessions. Like, you should do public input, you should do public outreach. But also there's this danger that it just becomes a forum for opponents of change to just turn out and be really loud and angry. Um, and so yes, do public input, do it on a timeline. Say you're gonna do six months or a year work or whatever it is, but make a timeline and whatever public input you've got out of that, that time period, that's it, you're done. And then you move on to actually building something. Yeah.

Andrew Keatts (00:54:18):
I actually have some numbers here I was looking at this morning. The, uh, average cost per mile, uh, excluding New York and New York City for tunneled projects is 1.3 billion per mile. Uh, that, that's number one in the world. Number two is Japan, 569 million <laugh>. So more than double, uh, from the number two, uh, number nine is Norway. That's just 120 million per mile. So it, it is a significant difference. Um, one, another audience question we had was, was just sort of, uh, tidying up some details. Do you know how much time end to end the Cajon project saved, uh, saved on that trip on, on a bus line on that?

Denis Desmond (00:55:02):
You know, that's a great question. Um, and actually as soon as that

Andrew Keatts (00:55:06):
Looking at each other, like

Denis Desmond (00:55:07):
That's more complicated than <laugh>.

Denis Desmond (00:55:11):
It is. I mean, when you think about it, when the bus goes at 5:00 AM in the morning, there's no traffic anyway. So, so it's the same right now, 3:00 PM in the afternoon, you know, there's, there's a potential for some savings. Um, um, but as Jesse had mentioned, the, the end 10 running time on, on trans is highly variable. So when I look at, you know, even the same trip from day to day, it may take 35 minutes one day and 62 minutes the next day just because traffic signals and passenger variability and traffic and other things. So, um, you know, it's hard to really pinpoint that. And unfortunately, that opened in October of 2019. So, you know, three months later the pandemic happened. So we didn't have a lot of experience with it really before, um, things kind of crashed. Um, so that's why it's a hard, um, question to answer. But I would say probably on average, um, two to four minutes per trip.

Andrew Keatts (00:56:11):
Okay. Um, so one thing I want to talk about is the, so you have, have each of different points mentioned the importance of catering to people who are already using the system today. Um, there is often the desire to get more people who don't use the system today to use the system. People who drive primarily or, um, or, or whatever the the case is, or people who are in high school right now who are going to eventually become adults and with jobs, and they want to make it an option for them to start off as transit rider. Um, I have in the past heard people suggest that it's, it's, it's more intimidating to start using transit on a bus because there's no attendant there. There's no gate, there's no system. How do I buy the ticket? Am I in the right place? Is the bus really gonna come when I, if I just stand next to this pole for the next 15 minutes?
Andrew Keatts (00:57:07):

<laugh>, if it's two minutes late, do you start questioning whether it's really gonna come at all and you start losing your nerve and that they'll, it's just a harder thing to do for somebody who's not doing it already than walking into a subway station and you have a pretty good assurance that you're in the right place and it's gonna work. Um, are we by, by focusing on improving the system and, you know, addressing the needs of the people who ride the system, are we sort of walking away from any desire to grow the number of people who use transit as their primary mode of transportation?

Jesse O'Sullivan (00:57:39):

I don't think so at all. Um, and I, I actually hadn't thought about this that you have, whether a subway is first easier to write, and I, I, that makes some intuitive sense. I don't haven't seen any numbers behind that, but I think the answer to that is like, you know, it would be great if we, if San Diego Unified did a bunch of outreach activities teaching their students how to, like, now we have free youth transit passes. It would be great to have, uh, outreach on how to do that. And I think that MTS has already done a bunch of that, but I'm sure that more of that would be good. Um, really do, you know, teaching people how to ride transit is actually something circulate. San Diego has a planning team, and that's something that our planning team has done in their outreach efforts is like, how do you ride transit?

Jesse O'Sullivan (00:58:19):

How do you get a a pronto card? Um, how do you navigate and make sure you know where you're going? Um, and so there's a, there's a certain amount of, of money that should be spent on just like teaching people how to do that. But I think also when you, you know, you have outreach engagement events like the, um, the free ride day, which was great. And I think that those are are great opportunities to say, Hey, check out this system. But if you want to keep people, if you want, if you've now trained someone to ride the bus and you want them to come back again and ride the bus, if it takes them three times as long and they own a car, it's not gonna work. And so the, the ultimately the thing that's gonna drive ridership the most, even new ridership is making sure that the bus is actually a good service. Is something that is a desirable way to get from point A to point B.

Andrew Keatts (00:59:07):

Anybody else have any thoughts on that?

Manu Agni (00:59:09):

I think the only thing I'd add is like the, some of the improvements are like what you talked about, the permanency. So we know when you're waiting at a pole on the side of a highway, you don't really know whether something's gonna happen or not. If you're in a station, you know, you know that a, a train is gonna come, but you can make a bus station. Like, and part of the thing that happened on El Cajon Boulevard with the two 15 is ridership group, partially because the service is better, it's also more visible. And now when you're waiting at a big bus shelter that has a sign and it has a screen and it has lighting and maybe a ticket machine or whatever, what have you, now you know that, okay, this is a service that I can feel confident about rather than, you know, a pole on the side of the road, which a pole is an improvement. Some cities, um, like in San Francisco, sometimes it's just paint on a light pole or paint on a, on an electric pole, which is even worse than a dedicated pole. Um, so I think that that's all, you know, you can, you can make the permanence as part of it and it, that's also not very expensive. Yeah.
Andrew Keatts (01:00:05):
Um, we're, we're winding down here. I want to give you guys opportunity to, you know, make some closing points and wrap up. If you have any other, any, anything we didn't get to, we maybe start with this.

Denis Desmond (01:00:15):
Yeah. Um, well first of all, thank you everyone for attending. Um, it's been a great session. And, and I, I'll also say that, you know, a lot of these improvements, um, we sort of talk about a dichotomy of transit riders and non-trans riders, but I think that ideally we could make improvements to the point that, you know, people maybe one day a week or two day was a week could ride the bus or maybe for this trip or for that trip, um, they'd use the bus. So it's not necessarily improving things for existing transit riders or trying to get new transit riders, but it's just trying to make the system better for everybody, whether they use the system every day or one or two days a week. If we could get everybody to ride the bus one day a week instead of driving to work, that's 20% less. VMT and G hh. Mm-hmm.

Andrew Keatts (01:00:54):
<affirmative>,

Manu Agni (01:01:01):
How many people are sold on convincing all your friends and family that making the

Andrew Keatts (01:01:05):
Bus down? <laugh>

Manu Agni (01:01:06):
Is a good idea. Hair okay, about half. That's not bad. <laugh>,

Andrew Keatts (01:01:14):
Let's be honest, they can end prime to say

Manu Agni (01:01:17):
Yes. That's

Andrew Keatts (01:01:18):
They already with you. So this isn't a hostile crowd. Claire, cla anything else you wanna add?

Clarissa Reyes Falcon (01:01:25):
Well, I mean, just to go back really quick, Andy, on, on, on, you know, on on trying to entice more of ridership, um, you know, you can't get more intimidating, uh, for, for a, you know, a teenager that, you know, that is learning how to drive than learning how to drive. Um, I have a, you know, just to be get into a little bit of a personal story, I have a 17 year old senior, a boy, um, and he has no desire to learn how to, to, to drive. Um, the opportunity passes have been a enticing thing for him. Him and his friends are having a great old time taking the bus everywhere, and they're not stressed about, you know, uh, learning how to drive or mapping out where they need to go. They just get in. Um, and so those u so
that, that's creating a habit, um, in a mindset, uh, that I think, you know, more and more the, the next generation seems to be interested in, in looking at different ways of getting from A to B and not necessarily being in a car. Okay.

Andrew Keatts (01:02:27):
Jesse, We are right up against it,

Jesse O'Sullivan (01:02:29):
So I'll be quick. Yeah. Uh, first of all, there's like 50 people or so in here to like, hear us talk about this like really nerdy, nerdy topic. And I'd like, I'm really happy that you're here. Thank you for coming. Thank you. Very few empty seats out there. Yeah. Um, read the full report if you're interested in learning more. Um, and also if you'll indulge me, I'm going to take a selfie cuz it's awesome to have this many people here.

Speaker 8 (01:02:57):
I can see. Okay. Nice <laugh>.

Andrew Keatts (01:03:07):
Um, alright, well that's, uh, that we are at the end of our time. So, um, I think there's a coffee break now, uh, followed by the next session in 30 minutes scr. So