



Transcript from Mobility Management Forum November 9th, 2021, from Richmond Virginia.

Dr. Tierra Bills, Civil and Environmental Engineering

Transportation Equity

Good morning, thank you so much for having me. It is an honor and privilege to be with you all this morning.

What a great occasion this is and an important time. We're on our way to this new age of transportation and innovation and growing our ability to connect society to opportunities like never before. This is also a defining moment in the quest to advance equity. Equity and opportunity, equity in terms of enabling communities to achieve the highest quality of transportation equity and equity in the provision of transportation services. I believe that those with greatest need are the single most important strategic objective. I believe we all share it.

I've been asked to share and discuss with you today about transportation equity. What does it mean? What is the goal? In terms of advancing transportation equity, why is it important in the transportation industry. And some practical steps that can be taken to move us from where we are now to a more equitable state?

To guide this discussion, I want to do a few things. I want to start by telling you a bit about myself. How I started this journey as an equity analysis specialist. What I've noticed as this conversation about equity continues to grow and how I believe we can advance towards this. Then I'll share with you some notes from my ongoing work, in transportation equity, particularly with small and rural communities. I'll try to distill for you what I think are the five most important action items for the transportation practitioners.

I come to you from the great city of Detroit, Michigan, where I was born and raised. Where I currently work as an assistant professor at Wayne State University. Where I currently live with my three-year-old son and my 12-year-old niece. I'm a transportation engineer and behavioral scientist by trade. In grad school at University of Berkeley, I studied how travelers make all types of transportation choices as well as how those choices are driven, and how they drive the success of a services policy for all. I learned how to model relationship statistics. Relationships that I believe everyone in this room is already quite familiar with. For example, that transit availability and quality impact individual travel choices, things like what modes of transportation to take, when and how often to travel, whether they can get to work and other activities reliably and consistently. Whether travelers can earn substantially in terms of their income potential. Whether they can achieve success and sustainability. I've learned about how

to model these relationships so that we can identify the reasonable transportation improvements that will satisfy current as well as future needs.

In graduate school, I also made the connection between transportation planning and the conditions that I observed as a little girl growing up in Detroit. I learned that the transportation system does not always work the same way in every community. I learned as a graduate student the theory and language for identifying and discussing these conditions that I observed firsthand growing up. I can remember riding the local bus services to Midtown where our main library was located, where many services are located. I would love to share more of these experiences with you. Today I can say that sometimes the bus came and sometimes it didn't. Sometimes it arrived and was on time so I could get to the library in 30 minutes, sometimes the bus was late. At this age, I was only going to the library or mall, but what if I were an employee supporting a family and needed to get to work. But, needless to say, these experiences helped me to understand very clearly the connection between quality of life and transportation services. Services, they may have been planned equally across metro Detroit; they certainly didn't feel they were planned.

Planners and other scholars had been studying the concept of equity for a very long time, long before I came on the scene. But fast forward eight to ten years after I finished my Doctorate in Public Transportation and Transportation Equity Analysis. We are still at a place where we have so much more to learn about equity and how equity affects the lived experience. ~~Accurate transportation data and transportation equity analysis is still at a place where we have so much more to learn about equity and how equity affects the way we live.~~

There are two ways that I want to describe my motivation focusing on equity and transportation, which I think is also true for the transportation field. The first motivation is summarized by a term I will borrow from this COVID pandemic. We all know the term that is used to describe those who are at the most risk for COVID 19 – those with preexisting conditions. People with preexisting conditions are the most vulnerable and have the highest risk for getting COVID 19 and experiencing the harshest effect. Well, I submit to you that the same can be said of transportation and equity. Those who are at risk of experiencing the worst transportation and being constrained the most from achieving quality of life are those with preexisting conditions. For choice riders if the bus doesn't come, what happens? Choice riders can hail a taxi or have other options. They have access to some other mode of transportation that is reliable. However, those who are job or housing insecure, those who are income constrained, those who are prone to experiencing various forms of discrimination or have historically experienced discrimination. If the bus doesn't show up for them, well, what does that mean? That might mean a major setback in terms of their ability to earn income for their families. So just like it's important for healthcare professionals to determine the connection between preexisting conditions and COVID outcomes—death—it is absolutely critical for transportation researchers and professionals like yourselves to have a working knowledge of the preexisting conditions that relate to equitable outcomes and work to combat those conditions.

Now, the second motivation is that new transportation investments can cause further harm to vulnerable minoritized communities. I mentioned earlier that I have a three-year-old son and for some time I've also been taking care of my 12-year-old niece. In our household we do a lot of cooking together. It's almost like a love language, a way to bond, to show love for one another, and sometimes it gets a little competitive – mine is better than yours. But in our family each child starts learning to cook at a very young age. They start with mac & cheese and potatoes, and you are gradually given more responsibility. Anyway, my niece is learning how to cook and my son who's yet only three is so eager to learn and contribute to the household. If my niece is cooking rice, my boy says “mommy I want to make rice” if she is cooking breakfast, “mommy I want to make pancakes” he wants to do everything. How many of you have multiple children? You know the objective is to get food on the table but also to keep them busy. So, of course my answer is yes, you can participate. I'm going to invest in the things that are going to allow for you to be successful and contribute. If equality was my goal, I would purchase a bowl for my niece and the same bowl for my son. So, for my niece, she's about my height so that bowl and that spoon used to mix the batter and for my son who is three foot four, he can't get up on the table. The bowl is too big for him. You're going to need some very specific tools for him to cook. So sure, I can dole out equal resources, but if my desire is for him to be successful, I need to understand his needs and I need to provide them in such a way that he too can be successful. How many of you have seen a three-year-old try to use a full-size mixing bowl? What happened? It ends up creating more of a mess.

So, what's the point here? With new transportation improvements and investment, if your attention is not paid to mapping all types improvements to the existing needs can actually work to widen gap or at best allow for preexisting conditions to prevail. So, I'll repeat this from earlier, transportation equity is one the most important issues facing the transportation industry, and any plan for advancing transportation equity, must focus on preexisting conditions as well.

So earlier I mentioned that I studied problem models and worked on the data, models, the performance measures that are huge components of the transportation process with the goal of advancing a new generation of modeling tools and to make them more reflective of behavior and the constraints experienced by the community. These are tools that are used for short term and long-term planning, and they help us to understand transportation investments and how they can further be used to understand market segmentation for how different people are impacted by transportation systems and policies. And so, these types of tools, they're very common, they are the backbone of regional transportation planning and they can guide as much as \$250 million dollars annually in decision making. But the most important thing, I think, for this conversation is that these models are estimated using public data sets, ones that many of you all familiar with things like customer surveys, big datasets that are generated, with real life base graphs, other GPS data set, and so on. This data tells us valuable information about travel patterns and service quality. Now I'm working on a study funded by the National Science Foundation, where we're developing a small scale-community based travel model in a small region, Benton Harbor in rural Michigan so I don't know if anyone from Michigan is here. We live so Detroit, and Benton Harbor is on the west. To provide a little more context, Benton

Harbor is a very small region about 1000 residents and one of the poorest communities in the state of Michigan. Benton Harbor residents are hardworking, but many of them don't have access to personal vehicles. What I've learned is that this is also the demographic that least likely respond to surveys. I made in generating the data. so going into this project, we knew that we would need to collect some data to ensure high representation of these communities and to also build in opportunities or validate our findings. So, we implemented a series of community workshops along with our data where community members could come to the workshop. They could take our survey on paper or online or download an application. We also had staff there to explain the survey. Why this was important and what they can expect. We had staff available to download more information. I know that community engagement is a big part of meaningful data is. So, I want to just share a few things from my experience, as a researcher and implementing it. The first thing that we learned and again, this might not be new information, but it's really important to talk to community members and beta test. Beta testing meaning testing out your survey instrument with the community that your in. In beta testing our survey we learned a ton about local nuances, we learned common names or trends, we learned of shopping locations, sometimes work locations. And in general, we learned all sorts of things that would have rendered our survey inaccurate if not for a beta test. By meeting with community members. Important The next important aspect that we learned about community engagement and data collection, is this can be done by showing who shows up consistently to other community events, maybe council meetings or open forums or look at who's leading the civic affairs committee at churches. These are the places community members who are usually respected, are of a sizable network and they can get the word out to committee members out in your search. It's important and ultimately helps to establish trust with clear and improved targeted. But this was crucial for our success. Help us reach members of chosen communities and those who were least likely to respond. Third, we learned unexpected lessons about why certain members are likely to engage and why others don't. They're typically reasons that we were aware of, and things we were not, loss of job, family's literacy challenges, and so on. But there are also things like being able to keep up with your software, having a smartphone but one that not updated. We had members come to workshop that were eager to fill out surveys, that can understand very well, simply, but could not afford the time from work. Surveys get diminished. We had members that came with their smartphones that were GPS enabled, app enabled, but required updates, but we had to have staff members physically manually update and download multiple updates. Some of the barriers for surveys are not as simple as they appear that they are. The more we understand about barriers the better equipped we could be to encourage participation on high needs communities, collect better quality data for advancing finding transportation improvements. In my research I've become painfully aware of the importance of thinking about equity not as a project, but as a process. In most presentations you hear, for example, to discuss definitions of transportation, talk about equity measures. There's usually some confusion about equity versus equality. And you'll usually hear about this in reference to some form transportation, new bus route app service. But if you take nothing else from my morning you should remember to challenge yourself with new way of thinking. It's about integrating equity fully into the transportation design, planning, decision making. It's important to always be aware of engagement with communities and engagement not just for the sake of this

process, but actually inform your design. If I didn't know for example, in my project, I didn't know that local travelers preferred to the local fixed route bus service special then I wouldn't have been able to estimate accurate, most shared would have thrown our study off. Equity needs to be fully integrated into the planning form on it. In my study, I also learned the importance of how we interpret our travel data set. Understanding what our data said. The reality is that the data provides records of observed transportation methods but not necessarily preferred. But data simply tell us what people are doing the challenge is that the data does not necessarily tell us what people want. That's because we observe that there are people using transit route doesn't mean that we don't ask people for one just because we observe you bikers, using a particular role does not mean that we don't want or like the reality that we have to recognize is that they're making choices under these constraints are not necessarily the data. Oh, this is a word of caution, that we should be asking ourselves out actors that will correct this. And we also need to be aware how to use these public datasets died or pending. For example, we might be commissioned around because of underutilization, our considerations for the constraints that the removal of this route might be worse. Finally, advancing equity is not so much about compiling a list of projects that will add equity. to be fair if you are doing this, this is a positive thing. The most important aspect is aligning transportation improvements with the needs of vulnerable communities. How to advance equity in one way for one town, maybe completely different from how equity should be advanced in another. I believe that if we're focusing on aligning appropriate improvements with the needs with the understanding of what the needs are, this is going to move us in the right direction. This brings me to my summary for this morning.

First, in order for us to advance equity, it's critical to start with a working understanding and definition that considers preexisting conditions as well as the effects of new transportation improvements on vulnerable communities. Our goal is to move from where we are right now to a more equitable state.

Second, we should continue to improve on our community-based data collection and engagement strategies. There are invaluable amounts of information on transportation planning and decision making and mitigating harmful errors that we can learn from community members.

Third, we should reflect on our data. What is it telling us about travel conditions? Be sure to distinguish between what our travel choices are and what are the actual preferences.

Forth, we should challenge ourselves and our teams to work and think differently about equity. Equity work is not a series of projects where we can define some measures, identify groups, calculate the measures and select the project that will provide the greatest benefit. Now don't get me wrong if you're doing this that is amazing. However, I think that the important thing is that it's less about completing the project and more about integrating equity into the decision planning into the decision-making with planning design, operations and other phases.

And fifth, rather than seeking a list of improvements that may support equity, seek to align appropriate improvements with the needs of vulnerable communities.

So, this brings me to my close. I want to remind you that we're at a critical point in time where transportation equity is more important than ever. I think most of us are aware of the state of income inequality in this country. As of 2020 income inequality for the richest 1% was 196 times that of the bottom 90%, according to The New York Times. Income inequality has been tied to slow economic growth and slowing or dampening of economic resilience. While equity is about fairness, and about improving quality of life among society, it's also about the strength and resilience and health of our economy.

Thank you for listening. Thank you for all of the great work that you're doing. And thank you for having me this morning.