**The Future of Transportation Safety  
Podcast Transcript**

**Guests:**Dr. Jesus Barajas, Professor, Department of Environmental Science and Policy, UC Davis  
Meghan Mitman, Principal, Fehr & Peers  
John Yi, Executive Director, Los Angeles Walks

**Host:**Lisa Peterson, Communications and Outreach Lead  
UC Berkeley Safe Transportation Research and Education Center (SafeTREC)

**Dr. Jesus Barajas:**

We are in a safety crisis, I would say. I think we see pedestrian fatalities increasing across the United States. We see bicyclists fatalities increasing across the United States, and it means we really need to get serious about how we bring those back down to where they need to be, which really should be zero, but we have a lot to work through in terms of policy, infrastructure improvements, information, education, to create better and safer road systems.

**Lisa Peterson:**

Hi, my name is Lisa Peterson. I'm the communications and outreach lead for SafeTREC, the Safe Transportation Research and Education Center at the University of California, Berkeley. Our mission is to inform decision-making and empower communities to improve roadway safety for all, whether you're driving, walking, biking, or taking public transportation. For many of us, we might think of transportation as a means to safely get from one place to another, but it's much more than that. Transportation is also having access to the basic needs and activities of our lives, and it's a critical factor that influences people's health and the health of our communities. Today I'm going to be speaking with three experts about the future of transportation safety in the United States, with a particular focus on addressing inequities for people from historically marginalized communities.

When we're assessing transportation safety in a particular community or for a specific road user like pedestrians and bicyclists, crash data plays an important role in identifying safety needs and concerns, and it can tell us who is most at risk of being seriously injured or killed. But because of how this data is often collected and reported, it doesn't always tell us the full story. My first guest is Dr. Jesus Barajas, who is an associate professor and researcher with the Institute of Transportation Studies at the University of California, Davis. I spoke to Dr. Barajas about the need for better crash data.

**Dr. Jesus Barajas:**

My name is Jesus Barajas, he/him pronouns. I live in Oakland, California, and I'm a professor in the Department of Environmental Science and Policy at UC Davis.

**Lisa Peterson:**

Thanks for being here, Dr. Barajas. Can you tell us a little bit about your research around reassessing traffic safety?

**Dr. Jesus Barajas:**

Sure. That project is a look at two factors. One is how streets and infrastructure are impacting safety, so what are the characteristics of the streets that might be more dangerous, create more crashes, more injuries, more fatalities, and so on. At the same time, we're looking at the role of police enforcement in safety. So, I think the premise of a lot of traffic stop efforts where police enforcement are rooted in making sure that drivers are driving safely. There's a lot that's tied into police enforcement with respect to racial justice that we've been hyper aware of over the last three years, at least in the national conscious, and for people of color for a lot longer than that. And the project that we're doing is trying to tie the two together to understand what the relative impacts of police enforcement that might be rooted in safety concerns, but may have other consequences, particularly for people of color, how effective that enforcement is in creating safe street conditions versus how effective in interventions in the built environment, so creating safer street infrastructure might be for traffic safety outcomes.

**Lisa Peterson:**

Can you speak a little bit to the role of crash data in this research? How did it help your work and what were its limitations?

**Dr. Jesus Barajas:**

Yeah. We are using information about location, severity of crash, the type of vehicle involved, whether it was a driver, a bicyclist, pedestrian, and so on, all the information that we could ever want to know about what happened in a crash. So, those data are great for what they are. The challenge with working with crash data or that particular set of crash data is that that's really just the information provided to and by the police. So, if you are in a crash and you don't report it to the police, it doesn't get recorded in that dataset. We don't really know what we're missing out of that information, so we're only getting a slice of the picture. There are biases in that missing data. So, people who might not have car insurance or underinsured may not want to involve the police in reporting those incidents.

People of color who might have had poor experiences with the police may not be willing to get police involved and to report those data, or other people in legal precarity. Undocumented immigrants, for example, may be less likely to report. So, we're only getting a partial picture of the safety. So, along with the bias in who's reporting information, there may be bias in where that information gets reported. And so if we don't have the full picture of what the safety situation is with respect to the data that we have, we may be not prioritizing locations that need interventions over others. So, if we're missing information about a particular neighborhood, maybe that neighborhood won't get the resources that they need for better improvements in roadways and sidewalks infrastructure to create safe conditions.

**Lisa Peterson:**

So, you spoke previously about policy and planning. In thinking about how we can make improvements to collecting crash data, what do you think needs to change?

**Dr. Jesus Barajas:**

It's been the role of the police officer to collect the official information about the crash. And so we want to think about alternative ways to report safety hazards that either result in a crash or don't. There could be instances where there are actually unsafe locations where crashes don't occur, but people feel unsafe in those locations because of some configuration of the intersection or conflicts between pedestrians and vehicles or cyclists and vehicles or so on. So, there are efforts in cities around California in the United States to imagine alternatives to the police in traffic enforcement. And so, one component of that is alternatives to who's collecting data about crashes. So, maybe you're not reporting the crash information to the police.

Maybe you're reporting it to someone in the transportation department, someone who's not a sworn police officer. That might introduce a greater degree of comfort for folks who might not otherwise want to go to the police. So, that's one example. Another might be crowdsourcing information, so where people can go to an official website, database and so on, and report conditions where they experienced a crash, where they felt unsafe. And there are a few websites that exist around that. Bike Maps, Walk Roll Map. SafeTREC's Street Story is an example of that. There's a challenge because it's hard to validate those information without an official source. So, there isn't a panacea, a single solution that can get at this challenge.

One other potentiality is using big data sources. We're thinking about cell phone collected data, for example. My smartwatch has an accelerometer in it, and so if I fall down when I'm running, it can call 911 and call an ambulance for me or something. So, you can imagine that our devices can be sensors for things like traffic crashes too. That introduces a whole host of privacy concerns about who's collecting data, what sort of information is getting transmitted, who owns it, and are we receiving a benefit for sharing all of this information? But again, it's another source that we should be considering and making sure that we have a complete picture of the traffic safety problem.

**Lisa Peterson:**

Dr. Barajas mentioned SafeTREC's Street Story, an online community engagement tool where residents, agencies and organizations can collect information about transportation crashes, near misses, general hazards and safe locations to travel. It's important to make note of all of these things because they can help us paint a fuller picture of peoples' transportation experiences and inform efforts to improve safety in the community. Even features of the built environment, such as how much shade is on a street during rush hour, can make for better data collection.

**Dr. Jesus Barajas:**

We want to know what the factors are that are most likely to contribute to crashes. So, we know that if streets are wider, for example, cars are more likely to speed and speeding increases the chance of injury and death when colliding with a pedestrian. We know that if sight lines are obstructed by certain objects that creates hazardous conditions. We only know that information by collecting data about the built environment, and using that to predict where we can make changes in the infrastructure without the crash needing to have occurred. That information is important. What is the level of information that we need to collect to the pre-crash data that we need to collect?

It seems like the more information that we have, the better. I think there are dangers in overfitting models or, in other words, putting everything, all of the information that we might plausibly get and throwing it into a model and saying, "This is a significant contributor to crashes," when it's just a matter of... Something has to be significant when we're putting everything into a model. So, we do have to think about how they might relate to driver behavior or impact visibility or how they might plausibly influence the occurrence of a crash or a dangerous situation. But yeah, I think collecting more data is not a bad thing.

**Lisa Peterson:**

Ideally, improved data collection can lead to advances in transportation safety technology, policy and road design. My next guest is Meghan Mitman, principal at Fehr & Peers Transportation Consultants. Meghan explains how we should be thinking about the future of infrastructure improvements in our communities. Glad you could join us today, Meghan. I'd love for you to share about some infrastructure improvements that we could use to ensure that roadways are safe, equitable, and accessible for all people in our communities.

**Meghan Mitman:**

This is one of those questions that's both really simple and really complicated to answer. I think that the simple answer, let me connect it into the safe system approach and the fundamental principle of that, which is reducing kinetic energy. So, people are severely injured or fatally killed in a collision because the energy that happens in that collision transfers into their bodies and the bodies can't withstand it, and they are severely injured or die. And so the equation of that is one half mass times velocity squared or times speed squared. And so that's what I mean by it's that simple that if we know why people get injured and we know the key factors that are associated with that injury, then the infrastructure changes that we need to make are specifically on the infrastructure side around speed, and exponentially around speed. So, the solutions to be focusing on, number one, are how do we get the speed down?

And that means 20 or 25 miles an hour, significantly getting the speed down if we're going to have vulnerable road users in the mix. And in a lot of cases we can't do that because there's mobility goals in communities too that we have to be balancing. But that's where separating users and space and in time come in. And so there's a variety of very well-studied and proven safety countermeasures that are out there that focus on that. Roundabouts are quintessential examples of that. Even as basic of retiming a signal with a leading pedestrian interval is an example of that. So, it's simple in the sense that we know the physics of it and we know the types of things that we need to do.

What's complicated is that measuring kinetic energy and systematically assessing risk and identifying the infrastructure improvements that we need to put in place to do so is a pretty fundamental shift from how we have done transportation planning and engineering and identified strategies and prioritized strategies. So, that's the challenge and the opportunity in it is, if we can align the most powerful infrastructure solutions to be those that protect vulnerable road users by separating in space and in time and/or reducing speed, then it's more so what are the barriers to actually doing those things? And that's the more complicated piece than the identification of the tools in the toolbox.

**Lisa Peterson:**

Can you speak a little bit more to the barriers to implementing these improvements?

**Meghan Mitman:**

Funding is a really interesting barrier because it's the most common one that we'll hear, and in two ways I think I'll push back on that as a barrier. One being, we've got more funding than we ever did for safety, and so it shouldn't be a barrier the way it's been in the past. But also, funding is just the allocation of a budget across a variety of different trade-offs. And so to the extent that we've had limited funding for safety in the past, I think that's because of deliberate decisions not to invest and prioritize in safety, and to think of that as something you do on the side as opposed to something that everything is a safety project. And when you think about it that way, then there should be a lot more funding for safety. So, I think there's a barrier there on the political will, on the infusion and institutionalization of safety, but not necessarily on the actual funding availability.

Where I come at the barriers is as much if not more informed by my recent advocacy work in my own community as it is by any years of being a transportation planner and engineer focusing in this professionally. In the recent few years, I've had a chance to work with my community to become a Vision Zero city and did that after a series of tragedies in the community that united what was several different individual groups of advocates who'd been working on their own small projects into being a much more cohesive and aligned and effective group of advocates to be able to push for some attention and urgency and change in the community. We've had some successes. We've had a lot of setbacks and a lot of challenges. I've learned a lot. I've done some things that have been great. I've also learned strategies and approaches that could have been more successful.

But a key takeaway I have on breaking down some barriers to what amounts to a major pivot and shift for most agencies is the need to have this triangle of elected officials and staff and the advocacy community in sync. And when you don't have all three of those working together, the ability to push through and stay committed and hold accountable to the trade-offs that have to happen and to the reprioritization that has to happen to really put safety first in a community, it just wanes. And no one person or one side of that triangle can really carry this. And so that need for all three of them and for there to be support and capacity building across all three of those, I think, is really essential and where we see the biggest success.

**Lisa Peterson:**

The Federal Highway Administration has come up with a kinetic energy assessment framework. According to Meghan, streamlining kinetic energy assessments is one step toward improving our infrastructure in a future-forward way.

**Meghan Mitman:**

I think if I had to pick maybe three things to be focusing on for safety in the coming next couple of years, one would absolutely be on this kinetic energy assessment and making sure that we come up with a tool and a requirement and a mainstreamed approach to having that be a fundamental way that we assess risk and weigh the various design alternatives and investment decisions we're making. So, that would be number one. Number two would be focusing on the institutionalization of safety into everything that we do, both infusing it into things and then checking to make sure we're not doing things that are working at cross purposes. And so that's policy and program and practices, more upstream, more holistic, more at the decision-maker level, and with that triangle of the advocates and the elected officials and the staff and the consultant community all in lockstep on that.

But the third piece, which I don't think we've touched on as much, is the opportunity, but also complexities of the new world that we're in with big data and the potential for machine learning and artificial intelligence to transform our understanding of what's happening out there in terms of the safety risk and safety landscape. And also to be monitoring and be much more agile and nimble in how we respond and prioritize to things that arise and things that change. And I think there's just a need to wrangle a lot of the opportunities that are out there and to move from an exploration of what could be and what the opportunities are to an actual, "Well, let's just try it out." Let's get going. Let's have any comprehensive safety action plan that we're doing have a speed assessment of a community as a systemic surrogate variable be up there as much as important as doing a high injury network or doing a heat map for collisions.

And let's have monitoring programs that look at near misses and that systematically reassess and monitor the efficacy of our interventions. Let's use AI to do better, more equitable and wider-ranging engagement opportunities and to have better insights and to remove some of the bias that we might have in those insights. And let's look at every different milestone and every different component of that safety planning work, and then the before and after assessment of the safety implementation work. Harness the technology both for efficiency and for impact, but to remove bias and also to really enable us to have more objective, well-balanced voice to a community.

I think if we can better understand data, but surrogate data, data that speaks to speed, data that speaks to kinetic energy risk, our ability to do proactive systemic work and to push for the trade-offs and the policy decisions and the political will that's going to be needed to do some of these shifts can be better supported. So, that's an area that I think is still emerging that we don't have a lot of great examples of yet, but could be very powerful and could speak to the comfort and the traditional realms in which transportation planners and engineers typically work, just with some new tools in their toolbox.

**Lisa Peterson:**

One shift in transportation safety that planners have been working on for years is solving what's called the first and last mile problem. This addresses how an individual may use a number of modes of transportation to start and complete their trips to a destination, basic need, or essential activity. They may walk, drive, ride a bicycle, take public transportation, or even use a combination of these modes. So, how do we ensure this process is safe, accessible, and equitable? I spoke to John Yi, the executive director of Los Angeles Walks, for his thoughts on bridging these important connections.

**John Yi:**

Covering the first/last mile is what prevents people from getting into a car in the first place, because it provides that critical connection. So, it's interesting because the first/last mile not only talks about transportation, but also implies other issues like density. Because first/last mile only makes sense if you have a sense of density around it. Another thing it implies is you have density around transit, which also it's a policy issue too. That was in California, having cities build density around transit.

It also implies then multimodal access. So, not just train or bus, but maybe even e-scooters, which I know oftentimes are coming into our streets. So, yeah, I think first/last mile is an important thing. When I talk to community members about it, it's more than just about a transportation, like a concept. It's about, "When I come home from work, on my way to home, is there the CVS I drop by before I go?" Make that a part of my transportation habits. So, I think it becomes a larger network of how people move and are we as a city using the first/last mile lens as a policy mechanism to make sure that everyone is able to make that connection and get people out of the car? So, yeah, it's incredibly important.

**Lisa Peterson:**

What does that lens look like in terms of policy and practices?

**John Yi:**

It's not just about are the modes there to take us to bridge that first/last mile. The modes are important too, to bridge that, but is that mode going through a safe neighborhood corridor? Is that mode going through a street there where there's not a lot of traffic happening? Is that mode going through a place where I can drop by a grocery store or my friend's place? Again, these are things that city engineers can't really pinpoint and design intentionally, but these are things community members think about. We're really coming out of a deficit here in California, Los Angeles too, when it comes to really thinking multimodal because we've been so car-centric. But eventually, I'd love to come to the day where first/last mile includes all these other elements as well, where it's not just about a mode that takes us to that first/last mile, but is that first/last mile actually dignified unto itself?

**Lisa Peterson:**

Can we talk a little bit more about micromobility? What are the benefits and challenges with regard to the first and last mile problem?

**John Yi:**

There's not so many e-scooters here in Koreatown that there used to be, but when there were, during its heyday, the majority of the kids that were using e-scooters were boys of color. They were Latino, Black and Asian boys that were using the scooters, and most of them were actually underage. They were using it illegally, but the fact that they were using it shows there's a transportation gap happening here, that there was a need for these kids to move from A to B that the current system wasn't serving, and so they used these e-scooters. It could have been for school. It could have been for going home. It could have been to meet a friend or to have fun, but there was clearly a demand of mobility that was not being met that these scooters provided to these kids. Now, could we have provided another means of doing it?

Sure. Sure, we could have maybe made our buses more robust or made free transit for students, or there's other mechanisms we could have brought in that could have served that purpose, but the scooters just came in at a time where there was no other service happening. I say that to share that there is a need that scooters provide for certain communities, but are scooters the only solution? I wouldn't say yes to that. I'm sure there's other ways as well. Bikes. Why can't we give these kids bikes as well? That could be another way they can move. But again, I think it provides a solution when there is not a solution. So, oftentimes that's the way that shapes our communities and their designs. But I would say though, there's also the issues of whether these scooters are equitably dispersed in the communities. Are they mostly in areas where these companies see a profit versus in areas where they don't see a profit? And so a lot of times, communities of color neighborhoods don't get those kinds of scooters.

**Lisa Peterson:**

Throughout his work, John keeps sight of why transportation safety is important in the first place, keeping our communities connected and healthy. He argues that the future of transportation safety isn't all technology, data and infrastructure. It's also about improving communication between planners, policymakers, and people who actually use transportation. John suggests that one way we can get there is by taking inspiration from the public health world and implementing methods like Los Angeles Walks' Safe Street Community Promotoras program.

**John Yi:**

The public health world, I would argue, is a few decades ahead of the city planning transportation world, because in the public health world, I'm not saying it's perfect, but there is an acknowledgement that when it comes to family health, personal wellbeing, changing personal behavior that impacts the larger community behavior and public health, that you'd have to have a delivery of that service information, those resources, by someone that you are familiar with, that you know. Having someone tell me about, "I need to sign up for my Medicare benefits," if it's someone from my community who speaks my language, knows my parents, I most likely will do it.

And I think in the public health world, there's an understanding that that is the most effective way of providing services and resources. And it's manifested through the public health program called the Promotoras. And there's a reason why we call it the promotoras in our world, in the transportation world. Because in the same way, I think, we need to have that level of access, and to be honest, respect of our community members where we're willing to meet with them on a face-to-face level. That just coming to a community and putting up a tent and asking people to fill out a survey about their transportation needs is not enough.

You need to be in the community and work through the community. And so for me, I think a great innovation would be a world one day where transportation agencies, LA Metro, LA DOT, Bureau Street Services, they have their own promotoras program where they have people from the community speaking in the language of the community and the cultural competency of the community, knowing the historical context of the community, and that they're able then to engage. Because our communities still talk about issues, for good reason, about redlining. Our communities still talk about issues about the freeways bulldozing our ancestors' homes because they didn't have the economic power because of racist policies. And I think those are things that the community holds, understands, and is an important factor when it comes to city planning. We can't ignore those things. But oftentimes, if you come in just as a top level bureaucrat, you only see the numbers. And so that's why I think the promotoras program is going to be so powerful, because it provides that community insight that makes sure whatever programs, projects, or infrastructure you bring in sticks.

**Lisa Peterson:**

Thank you for listening to this podcast on the future of transportation safety in the United States. For further resources, we encourage you to check out safetrec.berkeley.edu. And thanks to all of our guests, Dr. Jesus Barajas, Meghan Mitman, and John Yi. Thank you also to Charles T. Brown of Equitable Cities. This has been a production of Puddle Creative. This podcast was produced in cooperation with the California Office of Traffic Safety. The opinions, findings, and conclusions expressed are those of the interviewees, and not necessarily those of OTS. Funding for this program was provided by a grant from the California Office of Traffic Safety through the National Highway Traffic Safety Administration.

 