

Curb Enthusiasm Episode 6 Transcript

00;00;00;00 - 00;00;03;24

Emily Weidenhof

Welcome to Curb Enthusiasm. I'm Emily Weidenhof.

00;00;04;00 - 00;00;05;03

Nick Carey

and I'm Nick Carey.

00;00;05;05 - 00;00;08;12

Emily Weidenhof

On this episode we chat with Dr. Wes Marshall.

00;00;08;15 - 00;00;15;03

Nick Carey

Wes is a professor at the University of Colorado Denver, where he holds a joint appointment in civil engineering and urban planning.

00;00;15;05 - 00;00;23;08

Emily Weidenhof

Wes is also a licensed professional engineer and the author of the recently published book, Killed by a Traffic Engineer.

00;00;23;11 - 00;00;38;14

Emily Weidenhof

Hello up there in the Mile High City, Wes. Thanks so much for joining us today to talk. We'd like to start by hearing a little bit about what motivated you to write your book, Killed by a Traffic Engineer.

00;00;38;17 - 00;00;44;26

Wes Marshall

So, thanks for having me. And I guess to start off with, I sometimes joke that a lot of this book came out of just anger.

00;00;44;26 - 00;01;00;14

Wes Marshall

Like when I was a consultant doing transportation work, it drove me crazy that the stuff we were building was never as good as the stuff I saw in and around me near Boston, where I grew up in Watertown, right next to Boston there. So, I'm the kind of person that likes to ask why. So, I would ask why.

00;01;00;14 - 00;01;18;15

Wes Marshall

And, you know, sometimes you get an answer or sometimes you did it, but usually there wasn't nearly as much good stuff or science behind that than I ever thought. I mean, those frustrations ended up leading me back to graduate school and really wanted to learn more about this stuff. And my first project I worked on was a parking project.

00;01;18;15 - 00;01;39;10

Wes Marshall

So, I know you had Donald Shoup on recently and he just passed away, which is very sad. But his work was really influential because you saw, you know, the pseudoscience, he would say, behind parking ordinances and regulation, those numbers like the I.T.E parking generation and, you know, eventually I had the time and wherewithal to go down a lot of other rabbit holes other than just parking.

00;01;39;12 - 00;01;55;02

Wes Marshall

And there was a similar thing. There wasn't nearly as much science as I was led to believe. Like in my classes, like in those manuals were given as young engineers. But the science wasn't what I thought it was. And I was, you know, really what it came from,

00;01;55;02 - 00;02;05;01

Nick Carey

Wes, I've been working as an on again, off again traffic engineer for almost 20 years, and reading your book was a very cathartic experience.

00;02;05;04 - 00;02;28;22

Nick Carey

Because so many times I felt frustrated with outdated standard design, best practices, skeptical about some of the basic assumptions. And reading your book, you really delve into some of the logical fallacies and bad data that can drive poor decision making in our field. So, it felt very freeing to read this like, I'm not crazy, but you know,

00;02;28;22 - 00;02;34;25

Wes Marshall

I did feel crazy, at some points as I was putting this together, but I'm glad to hear that, that makes me happy.

00;02;34;27 - 00;02;47;23

Nick Carey

You also had some very egregious examples of bad policy leading to terrible outcomes. So, we wanted to ask, with all your time in academia, what's the most interesting or unexpected research finding?

00;02;47;28 - 00;02;54;08

Wes Marshall

You know, when I first thought about what this book would be like, I, you know, I think my thinking was like, man, we are so stupid.

00;02;54;08 - 00;03;15;06

Wes Marshall

Like, why do we do X, Y, and Z? Like, and I can just point those things out. But then I realized that that wasn't enough. I really needed to understand why we did what we did, and that's why I went down those rabbit holes. I was, you know, ordering tons of old books from 1930s, 40s on eBay and reading like hundreds of old journal articles to really understand what the engineers were thinking at the time.

00;03;15;09 - 00;03;33;05

Wes Marshall

And in most cases, they weren't stupid, they weren't being evil. They were just saying, like, here's what we know as of today. You know, here's the study that makes us think that, for example, wider roads are safer. You know, that's something I was taught in school, like wider roads are going to be safer. It gives people a factor of safety.

00;03;33;07 - 00;03;52;19

Wes Marshall

And when you look at the original studies that say that, you know, there's three studies in the 1930s that we used to cite all the time. And what's interesting about those is like the widest road they even looked at was only 24ft, curb to curb. So, they compared 18 to 20 to 22 to 24. And yes, 24 was safer than 18 in that study.

00;03;52;22 - 00;04;16;02

Wes Marshall

By no means does that suggest that 60 or 80 or 100 or 120ft is going to be safer than 24, but we just sort of perpetuated that theory through time and kind of stopped citing the original research and stopped even looking at it. So, so many of those rabbit holes, I would find stuff like that's like, and I don't know, you find that you get to the bottom of the rabbit hole.

00;04;16;02 - 00;04;47;00

Wes Marshall

You're like, what? Like, really? This is seriously why we do this? Like because of this or because, like, some guy named Karl raised his hand in one meeting when they were trying to decide on level servers. Like so many of those stories you get there, and it is like, oh my God. Like, I hope people realize how crazy it is that like, we think this was steeped in 100 years of scientific study and safety research, but it was just early engineers like they're trying to do their best and admitting they didn't know everything.

00;04;47;03 - 00;05;06;27

Wes Marshall

But over time, you know, this stuff kind of got cemented into our manuals, into our thinking, into our mindset. So that, I mean, bigger picture, it was the interesting findings like that is more, you know, I mean, obviously than some of the rebels. I did find some people like the CEO of a car company trying to get us to measure safety, to make us think cars are safer.

00;05;06;27 - 00;05;09;24

Wes Marshall

But for the most part, it was engineers trying to do their best.

00;05;09;26 - 00;05;37;19

Emily Weidenhof

Yeah. When we're designing projects at D.O.T., working in diverse communities all across New York City, one of the challenges we face is perceived risk versus actual risk. And you talk a lot about the importance of both data driven outcomes, but also storytelling. And I think those two components are incredibly important for communicating the benefits of a project.

00;05;37;19 - 00;05;39;24

Emily Weidenhof

Could you talk a little bit about that?

00;05;39;26 - 00;06;03;28

Wes Marshall

Yeah, see that's a good question. I mean, one of the things we all want is a more data driven approach to safety. Like it makes perfect sense, but, you know, one of the big themes in the book is how we misunderstand human error. So, whenever any city is sort of looking at the crash data, you quickly realize you have this huge, massive human error problem and it tends to lead you straight into things like education and enforcement as your solutions.

00;06;03;28 - 00;06;25;23

Wes Marshall

You know, I'm totally not saying we want to ignore bad road users doing unsafe things in the transportation system but blaming them is only useful for like the police and the insurance companies. Like engineers and planners need to ask like why these road users were doing what they're doing, and you know, treat every fatal crash or severe injury crash as if there's something we could do with engineering.

00;06;25;23 - 00;06;42;17

Wes Marshall

So, the storytelling aspect like that gets into it. So, like one example, you know, for some reason I happened to come across, a crash one morning were two kids in Vancouver, Washington, were killed, I mean, jaywalking on the way to school. And I try to follow that news throughout the day. And, you know, there was two kids.

00;06;42;17 - 00;06;59;26

Wes Marshall

They crossed the street where they shouldn't of, they get hit by a speeding car. And the way that crash ends up in our database, you know, it's either going to be a speeding crash where they blame the driver, or it's going to be a jaywalking crash where they blame these kids. But if you take a second to try to figure, well, why were these different people doing what they're doing?

00;06;59;26 - 00;07;15;00

Wes Marshall

You know, for example, if you look at the roadway, it was it's a five-lane roadway with like a 30 mile an hour speed limit sign that was really built with the design speed of like 70. I mean, so it makes perfect sense why the driver is doing what he was doing. In fact, everybody in the road probably was speeding.

00;07;15;02 - 00;07;30;13

Wes Marshall

So, it was a really an error of everybody's doing it? And then when you think about what these kids were doing with the situation, we put them in like the nearest crosswalk was like a half mile away. And then you look at that crosswalk that we provided them that's a half mile wide. It's not that safe. It's not that great.

00;07;30;13 - 00;07;48;02

Wes Marshall

It's it would be a tough place as you're crossing like 8 or 10 lanes because they have the turn lanes up there. And then you look at the pedestrian environment we gave these kids between where they were in the crosswalk, and there's missing sidewalks like it's just a mess, like, so there's no good way as a pedestrian to even get to that crosswalk.

00;07;48;04 - 00;08;05;26

Wes Marshall

So it's a combination of really understanding what the data is really telling us and what it really means, and not just taking it at face value, but also integrating that why question and, you know, understanding what these road users were trying to do given what they were experiencing because they weren't trying to get hurt, they weren't trying to die.

00;08;05;26 - 00;08;09;03

Wes Marshall

But, you know, we put them all in a bad situation.

00;08;09;05 - 00;08;28;15

Emily Weidenhof

Absolutely. And I love that example. Nick and I were actually just talking about this. You know, we have done so much at, New York City, D.O.T to think about how we center pedestrians in our street design. And so, we created the Pedestrian Mobility Plan, which comprehensively looks at pedestrian demand across the city.

00;08;28;15 - 00;08;52;06

Emily Weidenhof

So, we can really use that metric as a as a tool for what is guiding our design. We also think a lot about crossing frequency and how we need to be providing more crossings to accommodate the needs of people every day. But one thing that we're challenged with is the federal warrant, and also trying to explain the rationale of a crossing warrant for a signal.

00;08;52;06 - 00;09;09;02

Emily Weidenhof

And you have a great example in your book of how, you know, we probably weren't counting people's swimming across the San Francisco Bay, when we decided to build the Golden Gate Bridge. So, I'm curious if you could share a little bit about that yeah.

00;09;09;03 - 00;09;14;15

Wes Marshall

Yeah. That's, you know, that is another, some research we did that was not in the book all that much.

00;09;14;15 - 00;09;30;01

Wes Marshall

I mean, we, you know, I think if we have a pedestrian safety problem or even a bicyclist safety problem, like the easiest way to fix that is to make our roads so unsafe that you'd have to be crazy to walk or bike on them. So, when you look at the crash data, you don't have any pedestrian crash, you don't have any bike crashes.

00;09;30;01 - 00;09;48;01

Wes Marshall

You seem like it's safe. So just looking at where pedestrians are, where they're crossing, it's like doesn't really give us the whole story. So that project was more, you know, instead of taking the reactive approach to safety, take a more proactive one. So, we asked parents around Denver, like, would you let your kid walk or bike on the street?

00;09;48;03 - 00;10;04;28

Wes Marshall

And then we say, well, here's where your kid lives. Here's where the school is. This is the shortest route. But given, you know, sort of that level of traffic stress type thinking, you know, it doubles, it goes from a 300ft walk to like a half a mile walk, because these are the roads your kids have to take to get there if they could get there at all.

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Wes Marshall

So, it shifts you into a more proactive sort of thinking in terms of safety and, and, it is so hard, like when you're trying to be more proactive as opposed to reactive, but it speaks to like a different set of issues. And I think we typically think about. It's tricky, but I think if we can do something like that, we start heading more in the right direction.

00;10;27;05 - 00;10;48;26

Emily Weidenhof

Hey listeners, we hope you're enjoying this episode of our podcast. For those of you who are as enthusiastic about transportation and planning as we are, we'd like to hear from you. You can submit topics and questions that you'd like us to cover at nyc.gov/curb enthusiasm. And now back to our conversation.

00;10;49;05 - 00;11;10;18

Nick Carey

I want to ask you a question about some of the tools we use and what you think of them, you mentioned in your book that after the Interstate Highway Act was passed and there was federal funding up for grabs, that engineers, traffic engineers became obsessed with building highways, and they were maybe a little disconnected from the actual problems they were trying to solve.

00;11;10;18 - 00;11;30;20

Nick Carey

And it just became all about building highways is kind of an end in and of itself. I'm wondering, is there something similar to that today? Like, as a researcher, do you ever come across like a new instance of a bright, shiny object that maybe promises to magically solve all the problems despite being totally unproven?

00;11;30;22 - 00;11;35;05

Wes Marshall

Of course. I mean, I think, I mean, you could say that with a lot of technologies, right?

00;11;35;05 - 00;11;58;07

Wes Marshall

I mean, and I would we talked about human error in the idea that education or enforcement are kind of what we lean into to try to fix those sort of safety problems. But the other approach is to sort of hope technology will save the day. And there's always that technological carrot hanging five years in front of us that, oh, don't worry, if 94% of your fatalities are human error, AVs are going to fix that.

00;11;58;07 - 00;12;16;01

Wes Marshall

And historically, if you look at the history of technologies, it hasn't done that, at least the sort of different ones. Like there's, you know, one example in the book, I found of the Ford crash avoidance technology. So, the cars that have this, that would stop, like the idea is that it would help you from rear ending somebody. Right.

00;12;16;01 - 00;12;35;25

Wes Marshall

So, the car will understand that you're about to do this and stop. So, the thinking is that it would fix that problem. But when he looked at the insurance data, like the kind of cars that had that technology, instead of fixing like 90 or 100% of those kinds of crashes, it only reduced it by like 7 to 14%, like it wasn't nearly what we thought it is.

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Wes Marshall

And typically, with technologies, it leads to other problems like, hey, I give this example, sometimes a neighbor of mine, we were like ten years ago, we were driving up to the mountains to go snowboarding and he had a new BMW and he was he was changing lanes like willy nilly and not looking good. He's like, oh, my car will tell me if there's another car there.

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Wes Marshall

So, when you think about human behavior, if we had added technology on top of what we normally do, like look over your shoulder or use the mirror or both, then you know it would probably add to safety. But when we start replacing what you normally do with technology, maybe it doesn't quite work all the time. So, like if the car gets dusty, which it does, and those sort of trips like is it really working?

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Wes Marshall

And like we know that with the pedestrian avoidance technology the cars have now, it doesn't really work at night, doesn't work well with kids, and it doesn't work with people with darker skin as well. Like so if people start relying more on that and then maybe they look down at their phone a little bit longer because they think the car will fix those problems, it might actually make safety worse.

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Wes Marshall

And like Peter Norton's book, Autonomorama, like he goes through that history and like every 20 years, we always have that technology dangling in front of us that is going to save the day, and it fixes some things, but it doesn't fix the underlying bigger problems. It's just like that carrot keeps moving ahead of us, and it's distracting us from doing the more fundamental things that we need to do.

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Nick Carey

Well, let me ask, what about like roadway engineering treatments? Because one thing I kept thinking, reading your book is that we often vilify mid-century traffic engineers who built highways. But you pointed out that they're not bad people. They really thought they were solving the problems with the best solution available. And it, scared me reading it. It made me think, are we doing the same thing?

00;14;25;10 - 00;14;29;23

Nick Carey

Is there some treatment that's really hot right now that we'll come to regret?

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Wes Marshall

Yeah. I mean, back then they thought cars were the savior. And just like you asked in the previous question. So, they were trying to design around that. Like now we think things like autonomous vehicles are going to save us from that. You know, but some of the differences between that is, I think I said this at the very beginning, like the early engineers admitted what they didn't know, they would say so time and time again.

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Wes Marshall

Like today's engineers too often think that those early engineers already figured out everything for us, that everything we do is steeped in that 100 years of safety research. And like, really, nothing could be further from the truth. So that is sort of the difference is like back then they admitted it. You know, in the book I also connect the idea of medicine.

00;15;11;11 - 00;15;32;24

Wes Marshall

So, doctors have been around for 5000 years. For the first thousand, you could argue pretty easily that they might have killed more people than they saved. But it's an empirical science. Like they get better and better and like slowly they learn things over time, like transportation engineering, traffic engineering. We're like 100 years old. We're still kind of in that stage where we're killing more people and then we save.

00;15;32;26 - 00;15;53;11

Wes Marshall

And if we are an empirical science, we're going to get better and better. One of the problems I see is that we've become more theory based and empirically based. Like, we think the theories that these early traffic engineers came up with and tried is what works. But, I mean, one of the fun things about transportation is so much that we do is counterintuitive, and the results are counterintuitive.

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Wes Marshall

So, like, we're not getting the results that we expect in our empirical data. So, if we get back to being more based on empiricism, we can get back to building safer streets and safer roads and really start heading in the right direction and get out of what I think someday will be considered the dark ages of traffic engineering.

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Emily Weidenhof

Yeah, and I think it also speaks to another point you make about feedback loops. And I think we're really privileged at D.O.T., we are an operational agency and we are the stewards of our streets. So not only are we the teams that are planning and designing and engineering our streets, but we're also taking care of them and, you know, being held accountable to the public.

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Emily Weidenhof

And that creates a really robust feedback loop. And we're kind of constantly learning and evolving and, you know, being nimble and responsive to the challenges that are in front of us. And I'm curious to hear about examples of strong feedback loops, that you've seen between your research or your colleagues research and the design and implementation fields?

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Wes Marshall

I mean, yeah, there are simpler things we can do, like road safety audits is a thing that's been around for a while where you actually go out to location, try to understand how humans are actually using it, which isn't usually like we see in our microsimulation models.

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Wes Marshall

Like people are following all the rules in those models, but they don't in real life. So why like, what are the real problems here? You know, that perspective leads people to focusing more on what we can do with design, what we can do with infrastructure. And like they've just been shown to be successful time and time again. At the same time, like those sort of efforts, like it feels like we're playing whac-a-mole, like we're doing fixing one problem at a time, reporting a Band-Aid here, a Band-Aid there.

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Wes Marshall

We're not fixing the underlying problems with the discipline, with our protocols and traffic engineering that led to these problems in the first place. So we need something more fundamental, like the other feedback loops that I see, like Denver has what's called the Rapid Response Team. And we're one of the few cities like New York City. I think you guys have also called S.A.F.E, the Severe Accident and Forensic Evaluation team.

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Wes Marshall

So after a fatal crash happens like these teams go out to the site and do something similar to the road safety audit to try to make that location safer. You know, the problem was with that is that it's more reactive, like we're sort of waiting for someone to get hurt before we do something. But at the same time, it's still so important because a lot of cities will just stick their head in the sand.

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Wes Marshall

They feel like, oh, if we go fix that street now, it'll feel like we're admitting blame to that person having just getting hurt. And that's not the mindset you want to have either. So like we need to have feedback loops. Ideally they'd be more proactive, but the reactive ones are still better than what we're typically doing.

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Nick Carey

That's interesting.

00;18;48;12 - 00;19;12;04

Nick Carey

Our culture seems to have shifting expectations around safety, and even changing definitions. You know, phrases like, safe spaces or, microaggressions have entered the public lexicon. My kid is in elementary school, and bullying is a much bigger taboo than it was, when we were kids. And schools are very active about discouraging it as a means of improving safety. In the transportation world,

00;19;12;05 - 00;19;42;24

Nick Carey

Specifically, we've seen the conversation shift from a more permissive approach that highlights personal responsibility. You know, and maybe this unfortunate notion that crashes and injuries are inevitable to an expectation that there are no crashes and that the risk of injury should be zero, and that it's the responsibility of government to prevent dangerous behavior like speeding. And I think this is a good thing, and it forces traffic engineers to, you know, not hide behind standards as much.

00;19;42;26 - 00;20;01;00

Nick Carey

But can it go too far? Is there a risk that in this pursuit of universal safety, we end up designing streets that are so cumbersome that the, users ignore the rules and opt out? You know, like, how do we take this mandate for safety, not to an aurelian extreme?

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Wes Marshall

Yeah, I don't know. I'm trying to picture like, what a street even looks like in that sense.

00;20;04;25 - 00;20;22;25

Wes Marshall

Like to me, when we start building streets that are more, you know, safer for pedestrians or safer for bicyclists or safer for kids or older people, like, really, I mean, we're granting people freedom. To me, freedom isn't a car. And being able to drive a car everywhere, it's the freedom to be able to use whatever mode you want.

00;20;22;25 - 00;20;41;12

Wes Marshall

You can use other things and walking, biking are part of that. So like the shift from the personal responsibility, like part of that is because it hasn't worked like we've been telling people to be safer for 100 years. And we know the research shows us that that doesn't work. We've tried scare tactics and we've seen research to show us that actually makes things worse.

00;20;41;15 - 00;21;01;09

Wes Marshall

I think we need to understand that culture is a part of it. Like the rules, the laws don't fix the problem. And we saw this with jaywalking 100 years ago, like when they tried to institute jaywalking and they made a law. Pedestrians didn't care. They just did what they always done when they tried to educate them. They had Boy Scouts handing out the little cards.

00;21;01;13 - 00;21;22;09

Wes Marshall

It didn't really help either, but when they started making fun of pedestrians and trying to shift the culture, like that's when big things shifted. And that's from like Peter Norton's great work, from Fighting Traffic. But like, that story, you know, probably speaks to how we need to think about things now. We can't just rely on policy and laws and education to fix it.

00;21;22;09 - 00;21;25;07

Wes Marshall

Like it's got to be shifting the culture too.

00;21;25;09 - 00;21;26;06

Emily Weidenhof

Yeah.

00;21;26;08 - 00;21;44;21

Nick Carey

There's a passage in the book that I want to mention. It details very nicely how transportation is unique in civil engineering. It is short, I promise. You wrote, "When we put

in a bigger beam, the wind doesn't care. The design load remains the same. When we install a bigger drainage system, the rain doesn't care.

00;21;44;21 - 00;22;08;24

Nick Carey

The peak flow remains the same. But when we build a bigger street, people know they may not realize it, but they know. They drive faster, they pay less attention. Safety doesn't remain the same." I love this passage for highlighting how human behavior is such a significant factor in our work. And on one part, on one hand, this is a big part of how transportation planning is such an interesting field.

00;22;08;26 - 00;22;32;26

Nick Carey

Because there's no straightforward right answer, and it's iterative and it's messy, but it also highlights what I've come to see as one of the central challenges of the profession. In that in engineering, you identify a problem and you solve it. But in transportation, the solution often changes the inputs, and your design can alter how people behave and maybe leads to new problems.

00;22;32;28 - 00;22;51;19

Nick Carey

Sometimes we throw our hands up and say, this is an enforcement issue. And you mentioned that in the book, too, how this is a crutch that a lot of traffic engineers, rely on passing the buck, saying that the police needs to step up enforcement. And this struck a chord with me because I'm definitely guilty of saying this.

00;22;51;22 - 00;23;03;00

Nick Carey

But I think that design has its limits. How can we design for safety with an eye towards behavioral science if we can't rely on roadway users to follow the rules?

00;23;03;03 - 00;23;10;24

Wes Marshall

The problem is, like you were saying, is that, you know, the way we figure out how big a beam needs to be, we figure out the design load, we multiply it by three.

00;23;10;28 - 00;23;29;27

Wes Marshall

And, you know, we pick a beam that fits that, and anything bigger is even better. You know, same with like, a culvert. Like you're saying is, once you figure out the hundred year flood, we design the culvert to be big enough. We can make it bigger. And like you said, mother nature doesn't care. Like. But with transportation, that factor safety mentality doesn't work nearly as well.

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Wes Marshall

If people behave the exact same way in a wide street as a narrow street, yes, it would work, but human behavior doesn't work like that. So there are things we can do with design, with the infrastructure. And you're right, there probably is a limit to it. What we're often not willing to do is also think about how like vehicle design plays a role in this.

00;23;50;22 - 00;24;17;09

Wes Marshall

Like we could, you know, limit our vehicles from going more than some set mile per hour in our city centers. Like we could do that. We have the technology. That's a place technology could help us. Like if you look at the research on, at what speeds a pedestrian would die versus survive, like, we know there's a big shift around 20mph when you go from 20 to 30 like that, change increases so much.

00;24;17;09 - 00;24;35;09

Wes Marshall

And like, yes, people aren't going to behave exactly like we want them to, just based on the design of the street. But for the most part, we know they respond to the street much more than they do to a speed limits sign. At the same time, if you started layering some technologies on top of that, and we like we seem to be fine to do that with micromobility.

00;24;35;09 - 00;25;00;19

Wes Marshall

Like we limit our scooter speeds on the pedestrian mall in Denver or in DC, but we don't do that with vehicles. I mean, part of it is sort of the American way, and the American thinking is like, how dare the government do this? But at the same time that the discussion devolves away from safety. So, I mean, all these design things can be used in conjunction, like we haven't even talked about the vehicle size and all that stuff, but at the same time, that's a part of it.

00;25;00;19 - 00;25;11;12

Wes Marshall

So we can use design in all these different ways to make things safer. And like there might be a limit in terms of what the street can do, but we need to keep trying.

00;25;11;14 - 00;25;26;05

Emily Weidenhof

Yeah. I read that you are very passionate about mentoring and mentorship, and I'm curious if you could share your kind of hopes for the next generation of traffic engineers.

00;25;26;07 - 00;25;57;02

Wes Marshall

That's a good question. So, I mean, yeah, you know, that factor safety discussion kind of leads into it a little bit because, I mean, when I was a undergrad, I only took one transportation engineering course, like, we're taking structural courses and hydrology course and all this other stuff. Geotech courses. I only took one transportation course, and I ended up getting my professional engineering license in transportation, having taken only one course, I eventually went back to grad school and took like ten more, and I realized I knew nothing.

00;25;57;08 - 00;26;27;02

Wes Marshall

But I've talked to so many other traffic engineers and transportation engineers that actually took zero. Like the way our accreditation system works, civil engineering programs don't even have to offer a single transportation course. And those people have been working like 20 years in this discipline, having taking no courses. So when I think about what the next generation of engineers needs, starting with some transportation courses, right at the same time, what else do you want them taking courses, then?

00;26;27;02 - 00;26;50;06

Wes Marshall

It might not be a course in hydrology like I might rather them take a course in public health or human ecology or statistics. I think there's so many other useful things that I could see going into, like how we could best educate our engineers and I mean bigger picture. I feel like we need people that are more generalists than specialists.

00;26;50;06 - 00;27;09;04

Wes Marshall

I talk about this in the book a little bit as well. Like the specialists like are so focused on that highway and what that highway is doing. Like the generalist is going to understand, like what is the highway impact on the people that live in and around this highway, and you start understanding that aspect of it. Like two of my best master's students did not have a civil background.

00;27;09;04 - 00;27;36;15

Wes Marshall

For whatever reason, they both had, undergraduate degree in biology, like one had a like a double major with French, the other had a minor in French literature. But they, you know, had a hard time kind of getting into the engineering bits but they did so much better at understanding the context of the work we do. So I feel like we, you know, maybe not taking all biology courses, but we need people that have that sort of broader education.

00;27;36;17 - 00;27;56;04

Emily Weidenhof

Yeah. No. That's great. I mean, I often think of working at D.O.T. as my third degree because I went to architecture school and then went to urban design school and, you know, as an

architect, you can barely get people to draw the sidewalk. You know, they really didn't want to leave the building envelope. Urban design, great from a systems thinking perspective.

00;27;56;06 - 00;28;16;08

Emily Weidenhof

But there was never a transportation course or mobility and economics. And so, you know, being at D.O.T. and getting to think about all these things, I mean, the majority of what we think about now is outside of the building envelope in the right of way. And yeah, so, so important to think about all the different layers.

00;28;16;10 - 00;28;33;24

Wes Marshall

Yeah. And transportation engineers, very few of us are even offered a road safety course, like there was a big study that looked at nationally how many there are and there's like 19 total around the country, like, so not only are we educating them enough in terms of just the basics of transportation engineering, we're not giving them anything on road safety.

00;28;33;24 - 00;28;38;26

Wes Marshall

Like it's sort of throwing them into the fire and hoping they can figure it out.

00;28;38;26 - 00;28;59;07

Nick Carey

Well, speaking of asking the right questions, you mentioned growing up in the Boston area and walking and biking and using public transit as a kid, and now that you're a seasoned professional engineer, with an accomplished academic career, what do you think is the biggest breach of public transit etiquette?

00;28;59;10 - 00;29;06;03

Nick Carey

Is it manspreading? Is it, iPod music, speakers?

00;29;06;03 - 00;29;16;05

Wes Marshall

No. I actually think it's people that try to get onto the train or the bus before they give people getting off a chance to do so. It drives me crazy.

00;29;16;06 - 00;29;18;24

Emily Weidenhof

That's mine! That's my top, yeah.

00;29;18;27 - 00;29;20;26

Nick Carey

It limits capacity, I'll tell you that.

00;29;20;28 - 00;29;22;18

Wes Marshall

But it's just it doesn't make any sense.

00;29;22;18 - 00;29;38;16

Wes Marshall

So. Yeah, just hold off a second. Like a lot of times I'm, you know, taken to a line to my neighborhood. I'll have my bike on the train. And if people start coming on, I'm trying to get my bike off. It just doesn't work. And it seems so simple. But for some reason, it never goes right.

00;29;38;18 - 00;29;45;16

Emily Weidenhof

Yeah. Wes, what are you most enthusiastic about for the future of transportation?

00;29;45;19 - 00;30;02;17

Wes Marshall

When I put this book out there, I just sort of thought I'd go back to my job and not have to really talk about it or do that sort of stuff, and I knew there'd be, you know, some attention maybe from the advocacy community. But what I've been really enthusiastic about is how the engineering community has embraced it.

00;30;02;17 - 00;30;23;27

Nick Carey

Like a lot of them were thirsty for this sort of stuff. Like, of course there is, it feels like a small minority of engineers that hate the title. Like even though if they actually read the book or see would see that I'm not actually blaming them, but they refuse to. Like I joke that they're sticking their head in the proverbial sidewalk, as opposed to kind of taking this criticism, because for me, it is self-reflective.

00;30;23;27 - 00;30;51;14

Wes Marshall

I am one of these people that was taught this, that use this in practice. So that has been something I've been enthusiastic about is how, you know, I've spoken at the I.T.E National Conference, International Conference, in places like that, and like, no one's thrown a punch at me and and people are actually very receptive to it. I think the other thing I'd say is I'm enthusiastic that about the fact it feels like we're getting back to fundamentals to some extent.

00;30;51;14 - 00;31;10;01

Wes Marshall

Like I think sidewalks is like the most fundamental thing we can put into a transportation system like New York probably doesn't have this problem as much as other places, but I

don't have to go far from my office in downtown Denver to get to some streets where the sidewalks just disappear or like, they're two feet wide and you can't even get a wheelchair on them, you know?

00;31;10;01 - 00;31;34;27

Wes Marshall

And you compare that to all the distraction we were talking about before in terms of technology. Like people are excited for AVs or Hyperloops or whatever. And for me, it's hard to get excited about that kind of stuff when we can't even get the dang sidewalks right. So the fact that it feels like we're getting back to those fundamentals, like Denver has a new bill where now homeowners are putting money into a pot that's going to fix the sidewalks as a city, as opposed to just putting the onus on the property owners.

00;31;34;27 - 00;31;49;20

Wes Marshall

So like those sort of fundamentals is where we need to start when it comes to things like safety and accessibility, and we can lead in the right direction from there. But start with the sidewalk, start with the fundamentals. We'll be better off.

00;31;49;22 - 00;31;57;08

Emily Weidenhof

Love it. It is so reassuring to know that you are doing this work on such important foundational infrastructure.

00;31;57;08 - 00;32;00;24

Emily Weidenhof

Thank you so much for your time and your insight today, Wes.

00;32;00;26 - 00;32;01;19

Nick Carey

Thanks, Wes.

00;32;01;21 - 00;32;06;05

Wes Marshall

Yeah, thank you Nick. Thank you. Emily. This this was fun.

00;32;06;08 - 00;32;23;28

Ydanis Rodriguez

Hi. My name is Ydanis Rodriguez, commissioner of the New York City Department of Transportation. Thank you for listening to Curb Enthusiasm by New York City DOT. This episode was produced by Michael Santos with video support from Sigurjon Gudjonsson, Juan Vega, and Nazareth Battice. Theme music by Michael Santos. Curb Enthusiasm is available on Spotify, Apple Podcasts, and other major streaming platforms.

00;32;23;28 - 00;33;09;21

Ydanis Rodriguez

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