

OPEN NINTH:

CONVERSATIONS BEYOND THE COURTROOM

AUTONOMOUS VEHICLES

DISRUPTING COMMUTES, COMMUNITIES, AND COURTS

EPISODE 89

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(Music)

NARRATOR: Welcome to another episode of “Open Ninth: Conversations Beyond the Courtroom” in the Ninth Judicial Circuit Court of Florida. And now here’s your host, Chief Judge Don Myers.

CHIEF JUDGE MYERS: All right. Good afternoon, and welcome to Open Ninth. This is Judge Don Myers and I’m visiting today with Judge Alan Tiras, a judge in the Nevada area. And we’re going to have a little bit of a conversation around the idea of autonomous vehicles and their impact, projected impacts on the courts. Welcome.

JUDGE TIRAS: Thank you very much. I’m pleased to be here. Thank you for having me.

CHIEF JUDGE MYERS: Well, it’s a pleasure to have you. Let’s begin, Judge, if you could, just tell us a little bit about your background. Maybe some educational pieces and some things that help us to draw the connection to why a judge is talking about autonomous vehicles.

JUDGE TIRAS: Well, I am, educationally, actually a business guy, private sector. My undergraduate degrees are in accounting and finance. But I had two years of engineering, mechanical and electrical engineering, and I’ve always had an interest in technology as a result of that. After I graduated from law school -- I was in the private sector for a few years, went back to school and got my J.D. and my MBA and I still have had a profound interest in business and what’s going on in business, and in technology. In fact, from time to time I have taken a brief reprieve from the practice of law before I joined the bench. And in doing so, ran a couple of tech companies, and really enjoyed that experience and that has kind of stuck with me.

CHIEF JUDGE MYERS: That's fascinating. And now you work as a judge, so tell us about your work there.

JUDGE TIRAS: I was elected to the bench in 2006. I am a justice of the peace at Incline Justice Court which is in Incline Village, Nevada which is on the north shore of Lake Tahoe. I am a part-time judge so I still do have a private practice and as you might expect, I still have some business interests that are in the technology field. I enjoy that. I enjoy following technology and seeing what the impacts might be, you know, on me personally, but also on business and, of course, the business of the court.

CHIEF JUDGE MYERS: Well, I can hardly complain, being a judge in the state of Florida, but I have to imagine that's a pretty magnificent setting on the north shore of Lake Tahoe.

JUDGE TIRAS: We are very, very fortunate. It is a beautiful place. We've been here a little over thirty years and just really, really enjoy it. It's been – it's a wonderful community, and it is beautiful. But it's just full of really beautiful people who are – who make this a wonderful place to live.

CHIEF JUDGE MYERS: Well, that's cool. Tell me, let's start off with some definitional type terms or understandings of what autonomous vehicles, what autonomous networked vehicles, what do those things mean?

JUDGE TIRAS: Well, there are different levels of autonomy that have been established over the years, and there's an association of automotive engineers that have come up with levels from zero to level five. Zero being no autonomy whatsoever and level five being a vehicle that doesn't even have to have a steering wheel or pedals. That it is totally autonomous and drives

itself. And right now we're still in the level two to level three stage as far as vehicles that are out there and that are operating. Tesla is probably one of the best known technologically advanced vehicle that's out there, and it's considered to be a level two vehicle at this point in time. So it has adaptive cruise control, lane assistance. It's does have the limited ability to auto navigate and it's – but it's only a level two. Level three is full autonomy but some attention needs to be paid to it. Level four is where things can really get exciting. That's where the vehicle can actually navigate itself. You give it an address and it will take you there. And generally as long as the lines in the roadway are visible, level four is just fine. Level five is where there are no lines and actually level five is where communities such as mine, where it becomes important because during the winter time, we have snow and if the roads are snow packed, there are no lines and so level five autonomy is what would be required up here during snow country. But level four, for the vast majority of the country, once that comes out in earnest, that will be – that will be a very exciting time.

CHIEF JUDGE MYERS: And I know some of our listeners will have had those experiences with autonomous type of features that are installed in the Tesla's and really even in some Chevrolets for that matter, but there's another level beyond that and that is this idea of networking the vehicles and networking to the community as well, right?

JUDGE TIRAS: Yes, there's in addition and in conjunction with the vehicle being able to navigate itself, they're working on technology, it's called vehicle to vehicle, and vehicle to infrastructure technology where the cars will talk to each other on the roadway in order to avoid accidents, in order to let each other know where they're going, in order to ease the flow of traffic so cars can ease in and out of travel lanes as they need to and exit as they need to all automatically, and other cars are cooperating with those vehicles. But then the other part is the

vehicle, the infrastructure technology and this is like – there's a very popular app right now that's out there called Waze, and this is like Waze on steroids. This allows the vehicles to be able to know where there is traffic backed up and what the most efficient and effective ways for them to navigate the roadways are. You know, perhaps taking alternative routes. I think we all use those types of apps regularly, are reminded by Waze and google maps that if you turn right here, you can save three minutes. You turn left there, you can save five. This vehicle infrastructure, technology will take that to a very, very high level and allow the vehicles to be able to navigate the roads much more efficiently.

CHIEF JUDGE MYERS: So I have this vision of myself being able to drive down to south Florida or should I say to ride down to south Florida in a car that is on auto pilot, allows me to read and prepare the materials for my next meeting, and to arrive perhaps with a nap and refreshed. Is that – is that in our future?

JUDGE TIRAS: Absolutely, it is. It's just a matter of when that's going to occur and I think once level four autonomy is out there commercially and is available, and you do have a lot of the vehicle to vehicle technology that's in place, we will absolutely be able to do that. In fact, that was – that's kind of the catalyst for my interests in autonomous vehicles. I live in northern Nevada. My daughter and son live in southern California and the idea of being able to get into my car at say 9:00 p.m. in the evening and wake up the next morning parked in front of their homes in southern California is very appealing. And so that technology is coming and it's just a matter of exactly when it's here. But it definitely is coming.

CHIEF JUDGE MYERS: For those of us that fly a lot, the option to avoid TSA and security checks, that type of transportation would be attractive. What kind of time frame are we

looking at for the development and adoption of this technology on what sort of a scale throughout our society?

JUDGE TIRAS: Well, the – right now there are level four cars that are out there. There's a company called Waymo which was offshoot of Google that has level four technology and it's quite reliable. In fact, if you look at the accident rates for miles driven, it is far less than that of human driven vehicles already. And they're looking at rolling out level four technology. Actually, some of the major manufacturers are talking about doing it by 2021. We're looking at a year and a half to two years down the road before that technology is actually going to be commercially available. And that we'll be able to own a vehicle that will have that kind of technology. As far as widespread vehicle fleet adoption, there can be a lot of factors involved in that and a lot of it will really depend upon government. If government steps in and they mandate that by a particular year, that level four technology must be included in every vehicle that is sold, that's going to severely escalate the adoption rate. So if government does step in, it's going to be much faster. If government sits back and just let's the normal market forces take care of it, then it could be several decades out as far as adoption at a very significant rate. But the people who evaluate these things, they're forecasting that anywhere from twenty percent to eighty percent adoption rate, within 25 to 30 years. And that's going to be a huge number.

CHIEF JUDGE MYERS: If that works out, I'll be able to, in a perfect world I guess, ride in one of those on that route that you've described.

JUDGE TIRAS: Absolutely.

CHIEF JUDGE MYERS: You've referred to this I think as disruptive technology. Tell me about that.

JUDGE TIRAS: Well, it is disruptive because the way that we do business is going to change as a result of it. And when I say, we do business, everybody from insurance companies to construction firms, to parking companies, to home – home contractors and developers, to law enforcement and the courts, we're all going to be impacted by this technology in different ways based upon the fact that, just going straight to the court, you know, the fact that we're no longer going to have drivers in the car. As you articulated, it would be nice to be a rider as opposed to being a driver, and if we have people that are not in actual physical control of the vehicle, that means that people aren't going to be receiving citations in the event that a traffic law is violated.

CHIEF JUDGE MYERS: And we're going to talk about that in just a minute. But let's take some of these others and I think the impact is somewhat obvious, but let's just touch on insurance and the industry that's around the auto insurance idea.

JUDGE TIRAS: Sure. Well, for one thing, they're looking at orders of magnitude, less accidents by virtue of autonomous vehicles and the network vehicles being out there. So insurance companies, like it or not, they make money when we have accidents because they take it into consideration in their modeling and they charge premiums based upon the probability of us having an accident. The fewer accidents there are out there, the less need there will be for insurance. And certainly the less need there will be for these higher dollar policies. In addition, those people who may have violated the law to some significant level, such as people who are convicted of DUIs who have to get their SR22, you know, their rates will be significantly less because they will not have, hopefully, will not have violated the law in the same way. So they won't have that conviction on their record which would cause them to have to pay more in insurance. So insurance companies are going to have to look at something – look at other areas and model things a little bit differently as a result of that.

CHIEF JUDGE MYERS: One idea, I'm not sure if you touched on it, but the idea of personal vehicle ownership, I've heard some conversation around this idea that as we – as we go more and more autonomous, that personal vehicle ownership may not make sense.

JUDGE TIRAS: And I agree. At some level, I think that is going to be the case. I kind of, in my mind, you know, I foresee that I would want to have a vehicle that is dedicated to me that is on call – you know, I can step out of my car – step out of my home, go into the garage, get in the car and it will take me wherever I need to go and then I can always send it back – send it back home for my wife and my kids to transport them. And then a second vehicle, you know, which I have right now, I have two vehicles, the second vehicle would be unnecessary because we would be able to do a ride sharing scenario with these autonomous vehicles, you know, an Uber type of experience or Lift type of experience, but with the autonomous vehicles out there, where they're standing by ready to take us to places that we need to go. So personally, I don't know that I'd be willing to give up ownership of a vehicle and have it on call for me at all times. That just may be a personal preference, but it may not be necessary and once these things are – are widely – widely out there, I can foresee that perhaps that would change. But ride sharing is definitely going to be a much more prevalent thing that we're going to see. It's going to be so much easier. And the fact that you can send your car home when you're not using it, you know, and making it available for other family members or friends or whomever, you know, that I think will be very impactful as well.

CHIEF JUDGE MYERS: That makes perfect sense and an idea you did touch on is construction and parking. Talk about that for just a minute.

JUDGE TIRAS: Well, one of the things that they're forecasting with the autonomous vehicles and network vehicles is that there's a belief that they'll be able to increase the traffic

density by a factor of five to ten, so you'll have – instead of having the old three second rule that we've had, you know, where you can't follow the vehicle in front of you closer than three seconds or else you'd be deemed to have been following too closely, the vehicles themselves, because they're talking to each other, will be able to drive at a much, much more dense rate. So each travel lane will be able to hold a lot more – a lot more cars and those vehicles as well will be able to travel at a much greater rate of speed because you won't have people tapping their brakes and things of that sort which cause traffic slowdowns. So if you don't have – if the traffic density is increasing by a factor of five to ten, and let's just say by a factor of five, you know, then -- if you have a five lane roadway in theory, you know, might you just be able to reduce that to one lane, you know, and have the same traffic throughput and the answer is, well, in theory, yes. From a practical standpoint, maybe not, but maybe you have two lanes instead. And so that means that, you know, road construction and the number of lanes, travel lane inventory, you know, I don't think will need to be as great as it is now because of that, because of the traffic density. So I can foresee that road construction, road maintenance, things of that nature, you're not going to need it at the same level that we have it here today because of the increased density.

CHIEF JUDGE MYERS: Great. So one of your areas of focus, and rightly so in the court system, is the impact that the adoption of this sort of technology may have on the courts. Give us sort of the thirty thousand foot view on that issue.

JUDGE TIRAS: Well, my court is a justice court here in Nevada, and we are a court of limited jurisdiction so we – we primarily focus our attention on traffic and misdemeanors and in the state of Nevada a DUI is considered to be a misdemeanor. Approximately eighty percent of my court's caseload and I've surveyed other courts in our area and it's consistent with those courts as well, that approximately eighty percent of courts at my level, our caseload is either

traffic or it is DUI. What that means, if you have full adoption where nobody is driving their own vehicle, nobody is in actual physical control of their vehicle, then you have a scenario where there will not be any traffic citations issued. Likewise, there will not be any DUIs because nobody will be in actual physical control of the vehicle. And so, you know, I foresee that we're going to see a significant reduction in our caseload as a result of that. So logically, if there's eighty percent of the cases are no longer – no longer being filed because you don't have the violations, then we're going to see a significant reduction down to eighty percent, or down by eighty percent of our caseload. So that's going to be very significant.

CHIEF JUDGE MYERS: What kind of a financial impact do you think that's going to have with respect to the costs, the fines, the fees associated with those cases?

JUDGE TIRAS: In the state of Nevada, I actually did the math, and I also did the math nationwide, and this is based upon the National Center for State Courts, their data. And in the state of Nevada, I forecast that we're looking at 170 million dollar a year revenue void that we will be experiencing as a result of no DUIs and no traffic violations. Nationally, we're looking at 7.8 billion dollars a year. So that is – those are fees and fines that will be uncollected. Now, one thing I want to mention is that I'm a big fan of the idea of autonomous vehicles and network vehicles because of the impact that it's going to have on our society. I think it's a wonderful technology, you know, from a safety perspective, from an increased passenger efficiency perspective, the transportation opportunities it's going to be giving the elderly, the disabled, the infirmed, you know, I think it's going to be a tremendous technology and I think societally the benefits far outweigh any of the negatives. That said, my focus has been on what is the impact going to be on our courts and on government generally, and in the state of Nevada, 170 million dollar revenue shortfall is going to be significant. And right now that money goes in our state,

and every state is funded a little bit differently, I understand, but in our state that money goes back to the courts for security and for technology, and for specialty courts. It goes to victims, for victims' advocacy. It goes to law enforcement for training. It goes to a lot of the local government entities and a lot of their agencies, and a lot of the specialty programs beyond, you know, the specialty courts. So it's a huge – the funds are used for a lot of very positive things societally and if those funds are no longer available, alternative funds will need to be – will need to be found. And that's – that's one of the challenges I think we have right now is, okay, what is that going to look like?

CHIEF JUDGE MYERS: It's interesting, in addition to that, I think you can see for example how it frees up health care dollars. I think the impacts are pretty widespread, but if there's less accidents, there's a lot less money being spent on health care associated with those accidents, a lot less money that filters then down into hospitals and individual orthopedic practices and neurology practices and all of those things. I think the court system is going to be impacted. I think you'll see financial impact in other areas as well.

JUDGE TIRAS: Well, I agree with that a hundred percent, and that's one of the very interesting things about disruptive technology, is that it's – you can look at a lot of different aspects, society – of society and also business, and you can identify how that technology is going to be disrupting that. And you know, when you think of the term disruptive, you know, that has a negative connotation to it, you know, but I think in this instance overall it's a really positive thing because it's going to be a positive impact on a lot of aspects of our society. And I'm very excited for that. I mean, the idea that we're going to be saving tens of thousands of lives – it's estimated tens of thousands of lives on an annual basis. Hundreds of thousands of accidents on

an annualized basis as a result of network technology. It's a very, very exciting, a very, very positive thing.

CHIEF JUDGE MYERS: And economically all of the positive economic activity that occurs, because we don't have lost time from work. We don't have folks that are taken away from those responsibilities and they continue to be much more productive in their communities.

JUDGE TIRAS: Absolutely, and just setting aside, you know, the aspect of if they're injured, they're away from work, just in terms of the efficiencies. Instead of spending an hour in traffic because of the increased density and the increased traffic flow, that may be reduced to twenty minutes or so. And you're not – you know, you don't have the stress and the frustration of bumper to bumper, you know, traffic and fighting to change lanes and things of that sort. You're able to sit back. You're able to read; you're able to nap perhaps. You're able to prepare for the day, make phone calls, do things that are very productive as opposed to very negative things of having to sit in bumper to bumper traffic. So there are absolute efficiencies in that way as well which I think are very exciting.

CHIEF JUDGE MYERS: Now, selfishly Judge Tiras from Judge Myers, there may be a need for less judges as a consequence of all of this.

JUDGE TIRAS: Well, I think there will be. If the courts like mine, for instance, I don't believe that we're going to need to exist in 25, 30 years because if we're reducing our caseload by 80 percent, we're not going to have a lot to do. And I can foresee that there's going to be changes in our business models, in how we do business as courts and criminal justice more broadly. I think that there are going to have to be changes because it does not make any sense to pay a judge to be working, you know, most time because I'm considered 80 percent, 85 percent

full-time equivalent. It doesn't make any sense to pay me or my successor that kind of – that kind of money and to have a courtroom and to have the security staff, and to have all the clerks if you're looking at a reduction of caseload from where we are now by 80 percent. It just does not make sense so I can see consolidation of the courts, at least here in the state of Nevada, I can see that happening where you no longer have a justice court. You now have, you know, more of a uniform court system here in our state, you know, that would adjudicate matters that we presently would adjudicate here today. I can foresee that, but I think you're right, you know, they are not going to need as many courtrooms. They're not going to need as many courts. They're not going to need as many bailiffs, not as much law enforcement, you know, highway patrol. If you are – if vehicles are much more safely traveling, are we going to need highway patrol anymore? Law enforcement, the way they do business is going to be changed. You know, a lot of their contacts and a lot of their investigative work happens to correspond with those traffic stops. If you're no longer having traffic stops, how are they going to be doing their investigative work and how are they going to be able to find people that they're looking for? You know, they're going to have to change the way that that happens. And it's going to be interesting, you know, the traffic schools, counselors, you know, all of the post-sentencing enforcement providers, the interlock providers, SCRAM, the laboratories, I mean all of these folks are going to be impacted.

CHIEF JUDGE MYERS: So it's a rare thing it seems to me that we have as much notice of a perspective change as it seems we have with this technology. What are the things that you see that we should be doing at this stage to begin to respond to these anticipated changes?

JUDGE TIRAS: Well, and you've identified, I think, what the issue is here today. The issue here today is that as we stand here right now, there's no impact that's really occurring. But

it is going to become – it's a matter of when, you know, and we don't know. We talked about earlier, government intervention occurs and we may be seeing, you know, the adoption rates sooner rather than later, but we don't know. But one way or another, it is coming and that's kind of my, I guess my interest, is what can we do to take steps today so that the courts and the court system, and the criminal justice system as a whole is impacted, perhaps positively. You know, that we're taking steps to reorganize ourselves in the way that we do things in a positive way today before all of a sudden we're in a position where the 7.8 billion dollars nationally, that revenue that everybody was counting on, that that goes away and everybody is scrambling to try to figure out what's going on. This does give us an opportunity to plan ahead and I believe we should take advantage of that opportunity if we can.

CHIEF JUDGE MYERS: Excellent point. Well, I saw that the new Chevrolet corvette has come out, the new mid-engine. It's a beautiful car.

JUDGE TIRAS: Yes.

CHIEF JUDGE MYERS: And I do hope I get a chance to drive one of those before it drives me around. I want to thank you so much, Judge Tiras for visiting with us today. This has just been a fascinating conversation and we're really grateful for the time you've given to us.

JUDGE TIRAS: Well, Judge Myers, thank you very much for having me. It's been my pleasure.

CHIEF JUDGE MYERS: Thank you so much.

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