

## **Transcript of “Paul Pisano, Consultant in the Transportation Operations Sector, in Arlington, Virginia”**

Clear Skies Ahead: Conversations about Careers in Meteorology and Beyond

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### **Kelly Savoie:**

Welcome to the American Meteorological Society's podcast series, Clear Skies Ahead: Conversations about Careers in Meteorology and Beyond. I'm Kelly Savoie and I'm here with Rex Horner, and we'll be your hosts. We're excited to give you the opportunity to step into the shoes of an expert working in weather, water, and climate sciences.

### **Rex Horner:**

We're happy to introduce today's guest, Paul Pisano, a consultant in the transportation operations sector based out of Arlington, Virginia. Welcome, Paul. Thanks very much for joining us.

### **Paul Pisano:**

Thank you very much for having me.

### **Kelly:**

Paul, could you tell us a little bit about your educational background and what sparked your interest in science?

### **Paul:**

I'm sure if you go all the way back, my dad was a research biochemist, worked at NIH [National Institutes of Health]. And I inherited his curiosity of the world around us, and I was particularly drawn to the natural world around me. So my first passion was into birds and birding, and I still carry on that passion now. But I'm also a pragmatist to the core and so when I was actually thinking about going to college and what I wanted to study, I didn't think that there was much of a career opportunity in ornithology, which is what I was thinking I should be going into, because I love birds so much, but I was drawn to the STEM world and so engineering seemed like a good fit for me, given my science and engineering interest.

### **Paul:**

So I went into engineering, and civil engineering in particular seemed to be the most humanistic aspect of engineering. So I went into civil engineering and then decided to focus specifically on transportation, because who doesn't like a good road trip. That's how I ended up in transportation engineering, and got both the bachelor's degree and a master's degree in civil engineering with a focus on transportation.

### **Rex:**

Sure, transportation is definitely highly applicable to daily life and everyone can see the impacts of it immediately on a day-to-day basis. Paul, quick question, do you have a favorite bird that fascinated you when you were first getting into ornithology or at the moment?

**Paul:**

I've got a lot of favorites, but I would say probably the Atlantic puffin or puffins in general, were one of the biggest draws to me.

**Rex:**

Puffins are pretty cute. What about them do you like the most?

**Paul:**

Just the character, they just look funny with the humongous bill and just the overall demeanor that they carry.

**Rex:**

So what opportunities did you pursue while you were pursuing your education that you knew would be beneficial for finding and securing a job in your profession, which you did?

**Paul:**

While I was at the University of Maryland in the early '80s, I was interested in gaining some real world work experience. And fortunately the Federal Highway Administration had a cooperative engineering program. So you could work for a semester at the Federal Highway Administration and then go back to school for another semester. And so I went back and forth over the course of my undergraduate years. It took me six years to get a bachelor's degree instead of maybe four or a little more than that, but I came out of that with real-world experience at the Federal Highway Administration. And that certainly helped reinforce my interest in being both a civil servant, but also working in the area of highway engineering.

**Paul:**

I ended up going back straight into my graduate program because I knew I wanted to pursue an advanced degree, because I knew that would give me a competitive edge. And purely by coincidence one of the guys that I worked with while I was a co-op student at Federal Highway, who was in one of my classes and told me of a job opening at Federal Highway in the research office. So I applied for that, it was a perfect segue then from the research I was doing in my graduate program, right into research at the Federal Highway Administration. And then 34 years later, I was leaving the agency, but it was the start of a really great career.

**Rex:**

So that job you got, wouldn't have been possible without your master's degree?

**Paul:**

It would not have been possible without either the co-op experience or the master's degree.

**Rex:**

Okay.

**Paul:**

Both of them were critical to the securing that position. Because they knew me, and also they saw that I had the research experience that I gained from the graduate program that I would not have had just out of getting my bachelor's.

**Rex:**

And what does it mean to be positioned as a civil servant versus in the private sector? How do you see yourself in that perspective?

**Paul:**

Right. So again, this also relates back to just the experience I saw at home with my dad's career at NIH as a civil servant, and the interest in wanting to do what's right for the community and for society. And so that to me was very much at the core of where I wanted to go with my career, was something that was going to be a value to the country. Not to say that you can't do that in the private sector, but there's a much different motivation within the private sector that you don't get when you work for the government.

**Kelly:**

So how did you go about becoming a consultant? You worked for the Federal Highway Administration for quite a long time, and then what got you interested in doing consulting?

**Paul:**

I hit my minimum retirement age at 56, so that was again 34 years working at Federal Highway. As a combination of not feeling quite as influential in my position at Federal Highway and wanting to continue to pursue the work I was doing in road weather in particular, but also wanting to use this as an opportunity to do something different. So as an aside, I am also doing consulting work for the American Bird Conservancy, which ties back to my interest in birds.

**Kelly:**

Nice.

**Paul:**

So being a consultant and being out of the full-time workforce, gives me that opportunity to explore and pursue a lot of different things that I wanted to try out.

**Rex:**

So you could have a diverse set of passions that you can pursue now that you're not full time at the Federal Highway Administration?

**Paul:**

Correct.

**Rex:**

So you were there a long time, 30 years. You were in leadership by the end of your tenure, and I'm guessing started out lower in the hierarchy, could you take us through a typical day on the job now as a consultant and maybe if it's possible, give us an idea of who you consult for in your capacity on the road weather side?

**Paul:**

I am very fortunate in that because I'm retiring and have a pension that I can take on work that is most interesting to me, but it may not be the most profitable in terms of bringing in money. I spend a lot of my time just reading and doing work that actually does not pay but it's really interesting work in the field. In fact, one of the activities that I'm involved in right now that takes the most time is, as chair of the Transportation Research Board's [Standing Committee] on Road Weather. So the Transportation Research Board, as part of the National Academies, oversees a huge array of research and applied programs to further the transportation world overall. Their huge community structure includes work in road weather, and I am able to work there.

**Paul:**

Then I also work as a sub contractor to Virginia Tech, and we have a contract with also another part of the Transportation Research Board called the National Cooperative Highway Research Program. And so I'm doing a project there, actually in a different area than the road weather side, that works on management, and connected and automated vehicles. So a typical day is to work on that project, but then also explore road weather work that I'm doing for TRB. I also am on a committee to put together a series of virtual workshops on supply chain resilience, also through the National Academies. It doesn't pay, but it's a really interesting activity to explore how things like extreme weather and pandemics affect the supply chain.

**Kelly:**

So since you worked for the Federal Highway Administration for so long, and for our listeners who are maybe students who are going to be graduating or early career professionals, what types of things did you do at the Federal Highway Administration? What was that job like?

**Paul:**

I did 10 years at the research center, the Turner-Fairbank Highway Research Center, which is Federal Highway's major research body in McLean, Virginia. And I started out doing work in traffic safety research. Again, purely by chance, my boss came in one day and said, "You're also going to do work in rural intelligent transportation systems." And this one, yeah, what is that? So in the mid '80s, there was a huge amount of money put towards, what did we call? Intelligent transportation systems, it's all about applying technology to the highway environment to improve transportation system operations. It's a huge growth area, and rural applications was one area of interest. It was not the most glamorous part of ITS, actually most of the work was taking place in urban areas. And so now we see traffic cameras and variable message signs and all the things you see on the roadway that are technology-based, all very new 20, 30 years ago.

**Paul:**

I got put into that program, not by choice, but I figured, okay, let me see what's happening here. And in talking to people in rural states and understanding where their challenges lie and where there might be

opportunities to apply technology, weather kept coming up. So I needed to get smart on weather at that point. I was also very fortunate that we had a leader named Christine Johnson, who was a big risk taker and saw this as an area of need. So I was tapped to lead the road weather program. It did not exist prior to 1999, and at that point I came in and shaped that program, which I led then for the rest of my career up to 2019.

**Kelly:**

So, for the present day, does the Federal Highway Administration hire more meteorologists than they used to because of that? Or is it a mix of all different careers?

**Paul:**

No. In fact, actually the one thing about highways is that the Federal Highway Administration does not own and operate any of the nation's roads. Even the Interstate Highway System is owned, operated and managed by and maintained by State Departments of Transportation. So they're the agencies that are really having to deal with weather on a day-to-day basis. And so there are a few states that have hired meteorologists, and that's something that I wish we saw more of that, and we encourage it, but it's up to the states to decide if it's worth their while to bring them on within their ranks or more likely to hire out as a contractor and consultant to provide road weather services to the state DOT's.

**Rex:**

The Federal Highway Administration does not directly operate the roads, but it does valuable research on how to improve the roads and stuff like what you talked about with the intelligent technology. My first thought on what you had mentioned was digital signs that tell you how long a certain stretch of a commute will be, or give you an alert now, like, "Don't text and drive," and I'm sure there's many other applications as well. Could you tell us about maybe another project you're working on either towards the end of your career at the Federal Highway Administration or maybe a particular initiative of the committee you spoke of, that you're the chair of—what they might be working on?

**Paul:**

Right. The road weather committee is working as this Federal Highway on the connected and automated vehicles and how they would operate under adverse weather conditions. We hear about self-driving cars, and that's a really big deal and it's really exciting area of growth and a potential huge change within the highway environment. So you think about these self-driving vehicles, and you think about how they're being tested in Arizona and California, where it's nice and beautiful weather, well, what happens when you try to operate that vehicle in Minnesota in the winter time?

**Rex:**

It's going to slip and slide all over the place.

**Paul:**

Exactly. And so that's where there's a lot of work going on, is trying to understand, how are these vehicles going to work? And if they are going to be reaching the limits of their ability to operate, how do you take over the vehicle? Or what do you do about that? And then there's a lot of unanswered questions right now in that area.

**Rex:**

So autonomous vehicles are really the next frontier for transportation operations?

**Paul:**

Yes, I would say so, and particularly in the area of road weather.

**Kelly:**

I was just listening to the radio the other day, and there was a news segment about an elderly person who had stepped on the gas and drove through a store. And they were asking, I wonder if there's going to be a point where we have cars where if they see you're accelerating and you're going to be hitting something, if it could stop the car, that would be great. I don't know if that's even possible at such a high acceleration, but maybe.

**Paul:**

I think it is possible, but it also, the other answer to that would be, take the driver out of the loop in the first place so they don't have that experience. So the car operates itself, relying on a suite of sensors. And so they're building these vehicles that use cameras and radar and LiDAR to sense what's around it and know not to accelerate in the first place. One of the things that they talk about for these automated vehicles is, this would be a great opportunity for older drivers and younger drivers and people who aren't able to operate the vehicles, they could be the ones who would be most likely to benefit from these self-driving cars, to which I bring this up to my mom and I say, "Hey, mom I know you can't drive now because you're too old, but you could use one of these vehicles." To which my mom says, "Not on your life. I'm never going to get into one of those things."

**Rex:**

Seniors, older folks just don't trust getting into something that's going to drive itself when they've probably driven something that didn't even have automatic transmission when they were first learning how to drive.

**Kelly:**

But when you were talking about that, I'm older but not that old, I would be a little nervous. I would hope that there would be some type of mechanism where you could override the automated vehicle if something didn't go right.

**Paul:**

Yeah. Well, there's different levels of sophistication in terms of the vehicles, those that have some [safeguards]. You can even buy cars today that have some technology on them that helps you keep track in the lane that you're in or the adaptive cruise control, which slows the vehicle down on its own when you're approaching a vehicle too closely, those already exist today. The question is, how far do we go in terms of taking the driver out of the loop? And do you always need to maintain that ability to override?

**Paul:**

The challenge though is that, studies have shown that it takes too long for a human to realize that there's a problem and take control of the vehicle. If they've gotten to the point where they're comfortable with the car just running on its own, they're going to be texting, they're going to be reading,

and then all of a sudden there's a ice slick that the car missed, the driver's not going to wake up or in terms of pay attention, take control of the vehicle in enough time before that car skids off the highway.

**Rex:**

And there's an interesting legal and ethical dimension as well, where a person can be charged with, manslaughter or something similar if they accidentally hit someone, and God forbid end their life. But if the machine is doing the driving, who can be held accountable legally? Do we have a legal framework? Do you think about or work in that area at all?

**Paul:**

I don't personally. No. But there are a lot of people who are, because that is a huge area of interest as well, and huge concern.

**Kelly:**

You do lots of different things with your consulting. And what do you like most about your job, whether it be the consulting portion or when you worked at the Federal Highway Administration?

**Paul:**

Well, something from the consulting side of it, the best part of this job is the lack of bureaucracy. In spite of how much I enjoyed being a civil servant, and although I don't think this is unique to the public sector anyway, that I set my own time and that the time that I spend working, I'm working on things that I want to work on and that are going to be useful, not having to fill out another form and wait for somebody to finally sign off on being able to publish this document. That's one of the major frustrations I had at Federal Highway. So that's one of the best part about being a consultant.

**Rex:**

So certainly the bureaucracy can undermine or slow down the greater good that could come from working for a civil agency. It's kind of a double-edged sword, in that you're working for a place that is not looking to make a profit, it's looking to help the community, help the nation, but at the same time you've got these bureaucratic roadblocks sometimes that are getting in their way. That aside, are there any other challenges that you have faced in your career or challenges that you're facing in your field or that your field at large is facing that you would like to speak to?

**Paul:**

Yeah, I think there's certainly the biggest challenge, particularly on the road weather side is funding.

**Rex:**

Sure.

**Paul:**

It was something that we really ramped up in the late '90s and early 2000s, there was a strong interest in the program, there was strong interest from our leadership in funding this. Congress put in as part of the Federal Highway bill that was on just specifically for road weather, R&D authorized that \$5 million a year for the six years of the highway bill. That was from actually 2006, it ended up going through about 2010. And that was great because there was dedicated funding for road weather research. Once that

went away, it became much more difficult to maintain a level of interest both within the federal government, but also beyond, to continue supporting this particular discipline.

**Rex:**

Do you know of any pending legislation at the state or federal level that's looking to bring more funding to road weather?

**Paul:**

Well there's certainly the next round of the highway bill is being discussed as we speak. And I don't know that there's anything specific to road weather in there. I wish there was. It's something actually that I do hope to explore further in my position at this time. And then that's something that I'm trying to also generate more interest in, in my role at the Transportation Research Board on this road weather committee is to repeat the successes we had 20 years ago to get the funding to support the work that needs to be done.

**Rex:**

Do you think there's a grassroots element of speaking to your local community and encouraging folks to reach out to their legislators and ask them to ask for funds for road weather, because it is such a core public safety concern, something that can save lives in a very obvious and apparent fashion?

**Paul:**

I certainly think that that would help. It absolutely would be useful to have voices across the country expressing an interest and a need. The other side of it though I think is the private sector support would also I think go far in recognizing that there's an opportunity here to address the safety problems that we have, because we still have very large safety problems on the highway under adverse weather conditions.

**Kelly:**

Speaking of traffic safety, could you tell us a little bit about an aspect of traffic safety that most road users take for granted, but that's integral to transportation?

**Paul:**

Certainly. Did you know that severe winter storms increase your risk of being in a crash by as much as 25 times? That a much higher increased risk compared to things like speeding and drunk driving, the risk isn't even that high.

**Kelly:**

That is why I do not drive in the snow.

**Rex:**

I think it's interesting because there's people certainly that say, "I can drive fine when I've had a few drinks." Or, "I'm very good about driving in the snow." People have this self perception that they are the exception to the rule. Is that something you've had to try to find ways to use research and data to prove that opinion otherwise?



**Paul:**

Absolutely. Especially now that you have SUV's all over the place. "I've got an SUV, I can drive on ice." And that's why we in the road weather world, called medians SUV parking lots during the snow, because that's where they often end up. And so just trying to get people to realize that they need to slow down and drive more carefully under these severe conditions is a huge part of what we've been working on.

**Kelly:**

I am a product of that. I had a Subaru with four-wheel drive and I was driving that when I was in college and was not going slow enough and went right off the road down the embankment in the snow.

**Rex:**

Oh no, Kelly.

**Kelly:**

Thank goodness I was fine, but I'll tell you it really was a wake up call that you have to be super careful. I just had to have it towed because I couldn't drive it out of a ditch.

**Rex:**

I'm glad that was a good wake up call, but something that didn't have any injuries for you or maybe even the car too much.

**Paul:**

And in the interest of full disclosure, I had that same experience.

**Rex:**

Learning from experience and teaching from experience is certainly the way to go. For our student listeners and or job seekers, what type of positions are available or would you recommend to students or to early career professionals in the field of road weather? And how's the future job outlook? You've talked a little bit about this, but is there anything more you can say?

**Paul:**

I just would repeat what I said earlier. I think there is a small opportunity within the state government to get a job in the field of broad weather and meteorology. I think that the bigger opportunities are going to be in the private sector. Almost every state has contracts for road weather services to provide better decision support about the road conditions during adverse weather. And so there's a need within the private sector to provide services like that. So I think that's where there's going to be opportunity.

**Paul:**

But I also think as we spoke earlier with regards to the self-driving cars, there are big shifts going on within the transportation world. Not only that moving to these automated vehicles, but also to the mobility as a service and thinking about how people can get around by things like these hailing services like Uber and Lyft and such, but also combining that with all the bike sharing abilities and such. So there's a way of trying to get people from A to B, that goes beyond just getting in your car. And I think there's always going to be a weather layer to all of that. So I think there's beyond just with the services that the private sector provides, state DOT's, I think there's going to be a need within the automobile

manufacturing community and the broader transportation services for somebody who knows something about the weather.

**Rex:**

For some driving conditions, there's catchphrases like, "Turn around, don't drown," for driving through a flood zone. Is there a catchphrase or a reminder for a winter weather driving that you know of?

**Paul:**

There's been a couple of campaigns, but nothing comes off the top of my head. I know that they are out there, but nothing comes to my mind immediately.

**Rex:**

"Stay in the driveway. Don't end up on the median." "If you see snow, don't go."

**Kelly:**

That's a good one.

**Paul:**

That's what it is. "Ice and snow. Take it slow."

**Rex:**

"Ice and snow. Take it slow." That's an actual campaign that's been in the past. Great, good to know.

**Kelly:**

Paul, you were part of the 2003 AMS Policy Colloquium. Could you tell us a little bit about that experience?

**Paul:**

That was a fantastic experience for me because it really exposed me to so much of the fantastic work going on within the meteorological community. And Bill Hooke runs an amazing program there. I did get dubbed the road weather guy there. And I think I irritated some of the other colloquium participants because every time we'd ever go visit somebody, I would say, "What about road weather?" And I think they got tired of that, but it really was a fantastic opportunity. And again, it exposed me to great people. I still run into, and I'm friends with, people who were in that colloquium with me, as well as the programs that Bill brought us to.

**Rex:**

What exactly do you do throughout the time?

**Paul:**

It's just a two week program, but we went to the hill and we got a deep dive into how bills are created and passed and such within that process. We have guest speakers coming in to talk to us about research going on in different areas. It was just a really great broad exposure to policy, and how policy is created and how that influences our day-to-day jobs.

**Rex:**

And so did you meet congressional aides or legislators?

**Paul:**

We did meet a senator and some of their aids, and the people behind the scenes that you don't usually see.

**Rex:**

Sure.

**Paul:**

And we got to hear their work and how critical it is to passing legislation.

**Rex:**

So you'd encourage everyone, especially those interested in road weather, to join the next policy colloquium when we can have it either in a virtual or in-person setting.

**Paul:**

Without a doubt.

**Rex:**

So Paul, we're just so grateful that you've told us everything about road weather, how that was a serendipitous switch and how you learned about atmospheric science, vis-a-vis your interest in civil engineering. However before you go, we always like to ask our guests one last fun question at the end of our show, I have one for you. So you spent 30 years, I believe you were in Washington, DC or close to it working for the Federal Highway Administration, do you have a favorite monument to visit in DC or another place that's particularly meaningful to you in the city that you'd like to share?

**Paul:**

My favorite place to go in the district is a national park, but maybe not a monument. It's the Kenilworth Aquatic Gardens. It's a fantastic location along the Anacostia River and again, particularly from the birding side of it, it is just a wonderful place to wander and realize, imagine you're anywhere, but within a city, and yet you are right in the heart of the district of Columbia.

**Kelly:**

That's cool.

**Rex:**

So a place to get away.

**Kelly:**

I'm happy to hear about something that I haven't heard of before. What was it called again?

**Paul:**

The Kenilworth Aquatic Gardens.

**Kelly:**

Nice.

**Paul:**

It's a National Park Service-owned property. It actually started as a gardens for water lilies in such that they were growing for other departments. And then now it's just become a national park.

**Kelly:**

Sounds like a beautiful place.

**Rex:**

What sort of birds would you find at the Aquatic Gardens?

**Paul:**

There's a great variety of birds. Because it's right on the river, you get a lot of waterbirds and herons and egrets and ducks and such, but also things like bitterns can show up there. And I've seen finches and blackbirds and warblers, and literally everything up there at that park.

**Kelly:**

Definitely a place I'm going to put on my list the next time I'm in DC.

**Paul:**

I'd recommend it.

**Kelly:**

Well, thanks so much for joining us Paul, and sharing your work experiences with us.

**Paul:**

It was really my pleasure.

**Rex:**

That's our show for today. Thank you so much everyone, please join us next time, rain or shine. Clear Skies Ahead: Conversations about Careers and Meteorology and Beyond is a podcast by the American Meteorological Society. Our show is produced by Brandon Crose, edited by Peter Trepke. Our theme music is composed and performed by Steve Savoie and the show is hosted by Rex Horner and Kelly Savoie. You can learn more about the show online at [www.ametsoc.org/clearskies](http://www.ametsoc.org/clearskies), and can contact us at [skypodcast@ametsoc.org](mailto:skypodcast@ametsoc.org) if you have any feedback or if you would like to become a future guest.