

Monty Wilson: Yeah. There's a unique flavor to each municipality. I think you're seeing consistency around the vehicular side of this. Autonomous vehicles and connected vehicles is pretty much a common theme in any smart city conversation. But then inside of that, it's dependent on what each city and what each administration's trying to achieve, what's unique about their economic landscape? What's unique about their citizenry, the things that make their city special? Those folks are trying to solve for specific problems inside this discussion.

Steven Ludwig: Welcome to Inflection Points, a podcast series from Jacobs. I'm your host, Steven Ludwig. That was the voice of Monty Wilson, Global Market Director for The Built Environment. We talked about the trend of smart cities. That's a new way of improving urban services in large and small cities, through better technological interconnectivity. We also discussed the importance of good design that takes into account citizens, business, transportation, and a host of other issues when doing smart city planning. Inflection Points is where we meet the people of Jacobs that help create solutions that deliver a more connected, sustainable world. Just a quick note, we recorded today's episode at a conference, so you may hear some background noise. With that out of the way, it's on with the podcast.

(silence).

Monty, thanks for joining us today.

Monty Wilson: Thanks, Steve. Good to be here.

Steven Ludwig: What's your background?

Monty Wilson: My background is landscape architecture, and then that turned into master planning, and city planning, and urban design.

Steven Ludwig: How did you get into that? It sounds like a really interesting career progression to go from architect design to city planning.

Monty Wilson: One of the fundamental attributes of landscape architecture is a very diverse field of practice. When you tell someone that you're a landscape architect, they immediately think about their azelia bushes in their backyard.

Steven Ludwig: I was thinking about azelias.

Monty Wilson: It happens. And I've gotten asked that question a lot over the years, no doubt about it. But what it really teaches you is to be a systems thinker, and you're dealing with a lot of different scales. And so, while I worked on a lot of design projects that got built, I gravitated, for whatever reason, to the larger scale, and that where you're planning communities, and you're planning districts, and

campuses, and of portions of cities. And it just evolved into more focus, at least for me, at the scale of the city, and the region, and the district.

Steven Ludwig: It's got to be very satisfying to see a plan you've worked on for a long time. And then you see it like, "Oh, this took a few years, or however long, and now it's done and it looks cool."

Monty Wilson: It's very satisfying. It's also a bit scary. It makes you stop and think you better be careful about what you put down on paper, or what you write down for a client, but it is. We love doing the big vision plans and the big strategies, but we want to have impact and see things built, and so that's the real test. And it's, I guess my clients might not want to hear me say this necessarily, but there's some experimentation that goes on in cities. You're evolving. You're testing. It's not going to be perfect, so how do you deal with that at a strategy level, so that the city can continue to grow and evolve over time?

Steven Ludwig: Cities need to have that flexibility, don't they? Because as human animals, we're not always as predictable as we'd like to think.

Monty Wilson: Very true. I mean, we like to draw parallels between how a city functions and how an ecosystem functions, for instance. So, cities are systems of systems. Although we haven't always thought about them that way, certainly haven't designed or built them that way. But if you really step back and look at it, and that's a lot of where, I think, the industry and the conversation has gone today, is around this systems thinking approach to cities, and how you really have to look at that organic component to it and recognize it from every aspect.

Steven Ludwig: So, one of the latest things that is happening in that line of work is this idea or notion of a smart city. What is a smart city?

Monty Wilson: It's a great question, and it's one that's being looked at by folks from every background and every corner of the world right now. No mayor wants to say that they don't want to be a smart city.

Steven Ludwig: Yeah. I'm not a mayor of a dumb city.

Monty Wilson: Yeah. Right. So, it's really a fundamental challenge. And so, how do you think about what is a smart city? And there's a couple of interesting anecdotes, to me, about that topic. When you look at our oldest cities on the planet, those were designed very smart. They were very functional. They were very livable. They had great strategies around how to manage storm water and how to deal with climate. A lot of intelligence went into the design of those. We seemed to lose that consciousness in the age of the automobile, and built cities that weren't very connected and didn't do all those up their things.

And so, the city itself is how it functions, how it's put together. That's a part of the equation. And I think what's happened with this question today about the

smart city, is it's typically viewed strictly through the lens of technology. And while that's critically important, because we have it at our fingertips, it can make a significant difference in the lives of citizens, in the lives of a plant operator, or a transit system leadership team. We cannot lose the other side of that equation into what really does make a city livable and functional, in the most holistic sense, smart.

Steven Ludwig: What's some of that technology people are talking about, and how would that be deployed? So, how does, because yes, it does sound like when you say smart city, one would automatically assume it's talking about some AI, or some machine learning, or everything being connected to the internet. But what technology do you see as helping cities become more efficient, I suppose, or more livable?

Monty Wilson: Well, the one that comes to mind maybe first, not the only one, but top of mind is certainly the question of autonomous and connected vehicles. You can't have a conversation, or read an article, pick up a newspaper, it seems, without that topic being there. And it's from every angle, and by all accounts, we're headed in that direction. And so, one thinks about the benefits that would provide citizens, especially in a metro area that doesn't have robust mass transit. Now they're going to be able to spend some of their time not worried about driving, being able to maybe take care of some other tasks or do other things, and that'll improve their efficiency, if you will, from a livability standpoint. There's also the question about safety and security. So, how do we deal with traffic perhaps more efficiently? Everything you hear, especially once 5G makes its way into the market, that the vehicles are far more safe than the human driver, because there's no human error involved.

So, that's one aspect where we're seeing potential benefit. I think when you think about, another area is a lot of discussion around smart corridors, smart streets, smart districts, and where you've got sensors in the public realm on light poles, on signals, certainly communicating with the vehicles, but also providing wifi hotspots, providing other detection services, if you will, sensors that are detecting gunshots. So, there's a safety issue, sensors that are detecting air quality, other things that allow city operations to communicate better with one another.

So, how is it helping first responders? How is it providing better connectivity for the citizens again? Then when you look at the economic side of it, better connectivity to those that are trying to communicate, let's say, with the public at large, for a service or a retail. You're walking down a street, and all of a sudden you get a popup because now you're close to things that you typically like to frequent. And now you know that you're in an area where you can go access that. So, there's a lot of areas where we're moving towards efficiency and better service, but there's also the big side from a city operations standpoint and safety security, and some of those issues as well.

Steven Ludwig: So, tech vendors, and we all use their stuff, but they're going to be interested in getting their technology used for that particular thing, whatever it is. Why is it important to have a designer like yourself, or design thinking in mind, when looking at how we choose technology and deploy technology, and as you said earlier, have this ability to be flexible and adaptable because the city is like an organic environment, you said? Why is it important to have that design thought?

Monty Wilson: That's a great question. And I think the answer lies in the intersection of those things, because just because a city's connected through technology, if it's not walkable or unsafe for citizens, or not livable and doesn't support quality of life, in what way does that make it smart, is the question that I would ask. And so, I often think of myself as that designer on the shoulder, looking into the conversation of the technologist, to make sure that we're looking at it from a triple bottom line point of view.

Steven Ludwig: What's a triple bottom line?

Monty Wilson: Good question. So, how do we look at the social, economic, and environmental benefits of a decision that we're making, or a plan that we're putting in place? And so, when we think about sustainability, it's typically viewed or historically was viewed through an environmental lens. But then you talk about the economic impact of decisions and investments, what are the social considerations that have to be factored? So, you need to look at that holistically across those three lenses, the triple bottom line, to come up with solutions that really have broad impact.

Steven Ludwig: So, if I have a smart city in a community, I'm next to other cities. How important is it, do you think, for the cities in a given area to have conversations with one another, because if I implement a technology, or a certain design, or a certain thing, and it stops at my city boundary, or whatever that governing body is, how important is it to have those conversations larger than just where I happen to live?

Monty Wilson: I think it's quite important, actually, because when you look at the success of a broader metro area, there has to be collaboration and cooperation across those municipalities. Whether it's county lines, or municipal boundaries, you have to be thinking and working together. Otherwise you're, it's strictly a competitive landscape. And in this case, while yeah, there certainly is a competitive issue for cities to attract business, and to attract residents, and to be seen as being the best, and the smartest, and the most connected, in that scenario, there's a winner and a loser. And I think when we think about our metro regions, especially with all the pressure and urbanization around the globe today and in the coming decades, we've got to find the right role for cooperation and collaboration so that everyone wins.

Steven Ludwig: Are you seeing municipal leaders leaning in that direction, or is that something that still has to be thought about, because of the competitive nature is like, I need my city to thrive in that I'm going to win against this person?

Monty Wilson: I think there are still certainly some examples where you're not seeing the kind of cooperation you would want, but there are probably more stories today than ever, at least in the US, where metro regions are looking at problems, whether it's the passage of a transit bill, looking at issues around affordable housing, looking at issues around technology and deployment, where they're looking at it collaboratively and figuring out what the collective win looks like.

Steven Ludwig: So, I'm going to ask you to put your future hat on. Let's think 10 or 15 years down the road. What would the difference be for a person living in a traditional city? We won't call them a dumb city, that's not fair. A traditional city versus a so-called smart city, what's the difference going to be for the average citizen?

Monty Wilson: Good question. Tough to put those glasses on, but I'll give it a shot. I think what you're going to see, and by accounts from clients of ours, like Ford Motor Company, which says they're going to have a couple hundred thousand autonomous vehicles on the road by 2027, that's a pretty high bar. But let's imagine in the context of your questions-

Steven Ludwig: That's not that far. That'll go quick. Yeah.

Monty Wilson: Yeah. Blink and we're there. So, how do we think about what that looks like for the average citizen? If that's the case, there's a fleet of vehicles in cities around the country and around the world that you're going to have access to, that will make that commute. Let's say you don't live near transit, so your commute, all of a sudden, changes, and you've been able to spend the 45 minutes or an hour being productive, rather than being frustrated. So, there's direct benefit to citizenry. And if done right, connected up with the proper infrastructure that the city's responsible for putting in place, now the city's benefiting as well, because there's a lot of communication and machine learning, artificial intelligence, that's coming out of all those vehicles communicating with all those street lights and all those sensors. So, the city is now more able to derive decisions, react to issues.

If there's an accident or whatever there may be, an incident somewhere in the city, they're able to respond. So, I think you'll see improvement in city services. I think you're going to see stronger building. Think about buildings being connected. So, the smart city needs to be scaled down to smart buildings in smart districts. So, are there savings that we can see in how we're dealing with energy performance? Is there savings that we can see in terms of being able to distribute energy back to the grid in helping out around those important topics? So, I think there are multiple layers where we would begin to see a benefit in a future case, where life is easier for those that are engaging in it. You have more access and easier access to, let's say, data and services. And then if you're

operating the city, you've got more information at your fingertips and more decision support as a result.

Steven Ludwig: Now, it seems like larger cities would generally have greater budgets to invest, although they have a lot more infrastructure to take care of, and whatever updates they need to make a smart city. But it seems like smaller, mid-size to smaller communities, that could really use the extra cash from the savings that a smart city would likely provide, might not have the resources that a larger community has. How do you work with them to like, "Yes, these could be some things you could implement," how do you talk to them about that if they don't have the money at hand?

Monty Wilson: Another great question. And it deals, the issue of capital is the critical issue in this conversation. Because you said it yourself, no mayor wants to be leading-

Steven Ludwig: A dumb city.

Monty Wilson: A dumb city. But what do they do about it and how do they define what they're going to do with the data they're going to gather? So, there's so many aspects to it. And even if they've got the aspiration, and let's say they can afford the initial capital outlay, how are they going to deal with the fact that in three years, that sensor's going to be outdated and need to be replaced, or how they going to deal with long term maintenance? Can't keep going back to the citizenry every 18 months for more tax money to do that kind of thing.

So, what we're seeing, and we've got some really strong partners in this area, are folks like Smart City Capital, that are bringing capital to the equation. And bringing that from global sources, that are in interested, that are bullish on the smart cities market. And that are bringing creative strategies to cities where we're able to bring the engineering, and program management, and technical expertise, Smart City Capital is able to bring the financial structure that allows the city to see real improvement in the particular things they're trying to solve for. And they don't have to, they get their return over time. They get access to the data, they get all the benefits, and then the consortium is able to also appropriately benefit from the relationship, and everyone wins.

Steven Ludwig: Sounds like a good partnership.

Monty Wilson: It is, and I think it's a trend that you're going to see more and more of. And to your point about big city, small city, we're seeing a lot of momentum in tier two, tier three cities. So, it's not just the big boys that are talking about how to solve for this. Although you see great examples in London, and in Sydney, and other parts of the world where they're really pushing things on the transport side, or in the water utilities as an example. But a lot of the smaller cities around the world are wrestling with this and coming up with creative solutions, as well.

Steven Ludwig: One of the things that was interesting when mobile phone technology came out, so communities that didn't have a robust landline infrastructure, leapfrogged that and went to mobile phones. And that had a huge, for mobile payments and economic development and wellbeing of very small businesses was incredibly helpful. Are there cities that are in the developing world, could they leapfrog into a smart city environment, if not fully flushed out, somewhere to, "All right. We missed this part, but we're jumping to the future." Is that possible?

Monty Wilson: I think it gets back to your prior question around capital. So, with creative strategies on bringing capital to the table, and again, scale of solutions might be another interesting element of that conversation. I mean, what does it mean to be a smart city? Does it mean that every linear kilometer of roadway has to be connected or not? Can we think about it in terms of districts and neighborhoods. In certain aspects of the city, you see a lot around microfinance and things that have happened in the development world. So, how can creative strategies around capital with creative delivery strategies on the engineering side still help a city make improve movements and become smarter, perhaps just at a different scale as other parts of the world?

Steven Ludwig: So, if I'm hearing you correctly, where you start is really dependent upon where you are today. So, if I have a midsize city, my choices for helping become more, quote, unquote, smart, might be area A. [inaudible] I'm a big city, Area B, and a small city, Area C? Does that sound like it's all dependent on what's going on in the local area?

Monty Wilson: Yeah. There's a unique flavor to each municipality. I think you're seeing consistency around the vehicular side of this. Autonomous vehicles and connected vehicles is pretty much a common theme in any smart city conversation. Then you might overlay the whole public safety piece, as another common thread. But then inside of that, it's dependent on what each city and what each administration's trying to achieve. What's unique about their economic landscape, what's unique about their citizenry, the things that make their city special, those folks are trying to solve for specific problems inside this discussion.

Steven Ludwig: So, one of the things, when you say smart cities, there's a lot of buzz right now about 5G. So, many of us had mobile devices with 3G. Then it went to 4G, and I don't remember my life changing dramatically. But everyone saying 5G is going to be revolutionary. First of all, from what you know, is that true, or is it just hype? Or how will 5G actually make a difference for city planners, or people thinking about city development?

Monty Wilson: So, I have to preface this by saying that I'm not the technologist at the table, but what I do understand having been in a number of these conversations, and like you read a lot or listened a lot to this discussion, everything is telling us that it is going to be completely transformational. It's a step change in terms of latency,

which is the whole story around speed. What's the time between when I hit the button on my phone, and I get a response?

Steven Ludwig: And I'm more impatient than ever. And I have all the access to human history in my hand, but it's like, it's not fast enough, which is ridiculous. But I get what you're saying.

Monty Wilson: Yeah. Give it a minute. It's going to outer space, coming back. So, but what they're telling is that that's going to be transformational. So, when you think about thousands of vehicles on a city street at any one time, communicating as it moves down a corridor with every street light, with every traffic signal, the speed with which that can happen is going to allow that to be safe, and allow it to be trusted, so that the three of us don't have a problem with going and getting into one of those cars and feeling okay about it.

The same thing when it comes to the volume of data that's being brought to the table and needing to be distributed through a system. So, think about a city with hundreds and thousands of connected street lights, that's gathering, sensors are gathering all kind of data, what are they able to do with that? How are able to process it? So, again, with the non-technology hat on, and I admit I was a bit of a skeptic at the beginning as well, trying to understand, well, what are they really talking about? Everything's leading to this is step change, transformational, for everything to do with internet of things, smart cities, and all of this.

Steven Ludwig: So, when people hear smart cities, this is not, we had a committee meeting, we made a decision, we're smart city tomorrow. It sounds like from what you're sharing, this is a very long, deliberate, messy process.

Monty Wilson: I think like most things that involve city building, yes, is the answer. And it's one where, while it feels like the conversation's been going on for a while, we're still at the front end of this thing. So, everyone's still trying to figure it out. I sat in a public meeting in my hometown of Atlanta, Georgia, a couple of years ago, where the city had put some money together and they wanted to make a particular four mile stretch of North Avenue, so in the center of Midtown Atlanta, a smart corridor. And so, they partnered with one of the local universities, with Georgia Tech, and they were holding public meetings. And we weren't working on the project, but I was interested to see what they were talking about. So, I went and sat in one of these public meetings where the facilitation that was going on with all of the neighborhood folks, and they described what they were going to do.

"We're going to have all these sensors on the streetlights. We're going to be gathering all this data, and we're going to have it for this four mile stretch." And then they looked at the citizens and they said, "What do you think we ought to do with it?" And I thought, wait a minute, they're embarking on a smart city corridor, smart corridor program, and they don't even have an idea what they're

going to do with the data that they're going to gather. So, it really illustrated to me how far on the frontline we still are with this conversation.

Now, a lot's changed in the couple years since that meeting took place. And we're seeing creative partnerships and we're seeing a lot of momentum. A lot of momentum in Canada right now. A lot of momentum in other, as I mentioned, tier two and tier three cities around the US, as well as the big folks, innovation districts in Houston, Texas, or strategies in New York, and I mentioned London. So, a lot's changed, but we still are on the front end. And I think while all the prognosticators want to talk about where we're headed, it's going to be interesting, but none of us really have a clear picture of what it's going to look like.

Steven Ludwig: And I think that's the only fair answer. Yeah.

Monty Wilson: Yeah.

Steven Ludwig: Why is this important to Jacobs? Why smart cities? Why is that a focus for the company?

Monty Wilson: It represents an opportunity for us to connect who we are as an organization in a very powerful way, and who we are becoming as a company as well. I mean, when you think about a company with the deep roots in the technical side, the engineering side, yet a company with industry leading technology and capability in everything from internet of things and data analytics, and cyber security is a critical component of this whole conversation, and then overlay that with the ability to look at real estate and think about city planning, and urban design, and the integration of transit. So, it just represents for us an opportunity to bring the best of our best to the table, and help our key clients figure out the future.

Steven Ludwig: You brought up an interesting point that I hadn't considered. If someone hacks a smart city, they're in trouble.

Monty Wilson: Big problem. There are a lot of diagrams out that talk about what does that security protocol look like? And how can you provide, you can come in, again, the technology firms can come in and talk about how they're going to provide city A or B with this great platform, and what they're going to do with the data and how they're going to handle it, but there's got to be surety that it's secure. And that can't be under-looked in the conversation.

Steven Ludwig: And how about privacy concerns? Because we're beginning to track. I mean, I carry a mobile device. I'm tracked everywhere I go, because I've chosen that. But I'm sure privacy folks are concerned about smart cities even being more intrusive. Is that something you've seen?

Monty Wilson: Well, you think about the example I mentioned a minute ago. You're walking down the street and you pass a certain district, and now you get a popup that

says, "Hey, you shopped at Target the last three days. There's a target around the corner, or a Starbucks down the street." I think that represents another place where you're being tracked. And like we're seeing with some other apps that we maybe use now, where we buy things and an ad pops up on your social media. So, it's an issue. I'm not, again, the legal expert in the conversation, but I think it's yet another example of the complexity that this represents.

Steven Ludwig: And a designer, that's why it's important. I'm sorry to interrupt, but it's like, that's why designer is important, because the tech guy might just be, "This is great tech. Let's use it," the tech person. And the designer might go, "Well, we have these. We have to think about this, and we have to think about this." Does that sound? Yeah.

Monty Wilson: Absolutely. It's about that holistic approach. You mentioned design thinking a minute ago. So, how are we looking at all the implications? Triple bottom line. How are we looking across all of the factors in thinking through what the impacts and benefits of those solutions are going to be?

Steven Ludwig: This has been a very interesting conversation, Monty. Thank you. Where can people find more information, if they want to learn more about what Jacobs does around smart cities.

Monty Wilson: Go to [jacobs.com](https://www.jacobs.com) and take a look at what we're doing around all aspects of the business, but certainly around smart cities. It's been a great conversation from my point as well. I appreciate you having me.

Steven Ludwig: Thank you.

Thank you for listening to Inflection Points, a podcast series from Jacobs. To find out more, please visit [jacobs.com](https://www.jacobs.com). Jacobs, challenging today, reinventing tomorrow.