

Playing the long game

Infrastructure for a better future

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Please note: the transcript has been edited to make reading as easy as possible.

Introduction: Welcome to Infrastructure for a better future, a series where we have honest conversations about the infrastructure challenges we are facing and how we can build a better Aotearoa. In each episode we talk to experts from here and overseas about what works, what we can learn from and where we're going.

Chuck Marohn: Hey everybody. This is Chuck Marohn with the New Zealand Infrastructure Commission, and I want to introduce you to my good friend Graham, who's going to get us all started today.

Graham Campbell: Thank you, Chuck. Infrastructure lasts a long time. It can improve our connectivity, health, our productivity and our well-being. However, because infrastructure lasts a long time, it's important to take a long-term view of it, particularly whether we are able to support its eventual maintenance and future renewal. The Infrastructure Commission recently released its draft National Infrastructure Plan, which has a focus on making our investments sustainable and affordable into the future, and

highlights the importance of maintaining what we already have. Our guest today, Chuck Marohn from Strong Towns, has been advocating for these types of practices in the United States for years. Chuck is a land-use planner and civil engineer and the founder and president of the organisation Strong Towns, an American-based nonprofit. He's the author of three books related to local government, infrastructure, housing, and transportation. Chuck, thanks for joining us today.

Chuck Marohn: Thanks, friend. Let's hope infrastructure lasts a long time. I mean, that's the goal, right?

Graham Campbell: Indeed it is. I want to begin by asking you what you think makes a "Strong Town," and how infrastructure can support a Strong Town.

Chuck Marohn: So way back, originally, when I started writing the blog that became the Strong Towns movement, what I said was, if you can't maintain your own critical infrastructure, you're fragile. You're not a strong place. A lot of the cities that I had worked with as an engineer, as a planner, were small cities that were nowhere

near strong. They couldn't maintain. If it were not for grants they were getting from the federal government, if it was not for them taking on large amounts of debt that really was not serviceable, ultimately. If it wasn't for them deferring critical maintenance on things that people cared about, like libraries and parks and all that, they couldn't provide drinking water to people. They couldn't provide sewage treatment to people, you know, you couldn't fix the road. To me, those are fragile places.

And so, the antithesis of that, the idea of a Strong Town was a place that first and foremost has the capacity to take care of their own critical stuff. Beyond that, then, as time has gone on, we've kind of expanded the idea to having local governments really step up and recognise that their role is less of an implementation arm for — in the U.S., it would be state and federal policy — and really the highest form of coordination for how we work together in a place to make a place, not only financially strong and resilient, but also safe, livable, inviting. All the things that kind of interact with each other to make a place you fall in love with and want to be in.

Graham Campbell: I want to touch on this a little bit, because, having read your first book, it talks about how the community is sort of supporting the infrastructure that's there, right? Do you think there's a relationship where the infrastructure is supporting the community, or is this one where infrastructure is sort of coming after a community is already there?

Chuck Marohn: See, now you're asking a dangerous question of an engineer. Because, you know, at the end of the day, when you start to ask engineers this question, a lot of times, we just get stuck in the art of building.

We are weird. We say the infrastructure should support the community, but oftentimes the infrastructure becomes an end unto itself, that we just build, build, build. Then, yeah, we've got to raise your taxes because we've got to build more infrastructure.

I think, in a historic sense, what we see is that when we build great places, the more we mature them, the more we thicken them up, the more we make them better places, they support more infrastructure.

You know, people come together in the U.S., in a frontier community, not really much going on. More and more people move to the community. All of a sudden, you can afford a bucket brigade, and then you can afford maybe a full-time sheriff,

and then you can put in a drainage ditch. The more people that move there, the more capacity you have. What we have done today in the U.S. is said, infrastructure is a prerequisite to building. And you know, in comparison to human history, that is a radical diversion. Our affluence has allowed us to take that approach and say, if we're going to go build a new subdivision, we have to have all the underground utilities, all the roads, all the parks, all the fire and police department and everything in place on day one. What that does is it makes cities and by extension, taxpayers, in a sense, developers-slash-gamblers in this development scheme that we're doing, which is a very different role for government. It's not the role that government thinks themselves in. So they're often like suckers at the table. But it is a different role than what traditionally governments have done.

Graham Campbell: What does this look like in what I'd call in the context of a mature infrastructure network? So, you know, back in the '20s, '30s, particularly in New Zealand, we were really building out networks. We were putting new pipes in the ground. The flush toilet had just been invented, and we're doing all this stuff. So you were seeing immediate sort of bang for buck. Or you were installing infrastructure in response to some innovation, or a growing city. Whereas nowadays, we have relatively mature infrastructure networks, right?

So if you think about this relationship of how infrastructure can either support or be part of a growth story, for instance, how should we be thinking about this in this context, within the current set of infrastructure networks that we have?

Chuck Marohn: So this is, I think, something that all the professions that deal with building cities have to come to grips with. There's a part of every planner, everyone who does planning, who ultimately thinks that they're going to build a brand new city from scratch. They're so smart, they would do it right, where all the people before them have done it wrong. I think post-World War II, and certainly you saw here in the last century, as well, that we could go out and build brand new places, extend sewers, extend water, extend roadways, and build brand new neighborhoods. It was really exciting, because every time you made those investments, all you had to really figure out was how to finance that initial burst of growth. Generally, you can roll that over into a home mortgage or roll it over into a commercial real estate loan, or you can get a

grant from the government. Which, by the way, now is growing, growing, growing, so they've got all kinds of cash.

Graham Campbell: So can you explain that briefly? All you're worried about is financing? Because if you take on debt and you're in that period of time, then you know the growth is coming?

Chuck Marohn: That's the only thing you're worried about is: How do we cash flow this? How do we finance this first life cycle?

I remember as a young engineer, looking at projects that made no sense financially. But if I could find the funders for it, we could piece it together. So we get a little bit here and a little bit there, and a little bit over here, and we piece it together. Then when you build it, you get growth. The homes show up, and the commercial properties show up, and you get all that tax base and all that growth. It creates jobs, and there's secondary economic effects and what have you.

Here's the reality that we face now, today, because, like you said, this is a mature system. When I go out and put a water main in the ground and provide water to a whole bunch of homes, I have improved their lives meaningfully, and we can tax them for that. They're going to see property value increase for that. We figured out how to do that financially.

When that pipe goes bad and you have like, 45% leaks in your system. The pipes are ageing here. When you go out and dig that pipe up and replace it with a new pipe. For the person living in the home, I turn the water on one day, the next day I've got a new pipe. I turn the water on — there's no difference. You haven't changed their life, you haven't improved things, you haven't raised their property values. If anything, you probably inconvenience them, because you had a year of construction outside their house, right? You've annoyed them.

What we have not figured out how to do is take that renewal type investment and actually have it result in property values improving. You know, adding more people, adding more homes, adding more stuff.

Graham Campbell: This is a question that we're grappling with in New Zealand. One of the things we benefit from in New Zealand is that the statistical agency puts out these Yearbooks every year, which and they've been doing this since 1870. So we have a good idea of how much local governments have spent on infrastructure and

how much money they collect on infrastructure. One of the things that we did at the Commission was, we looked at when was local government investing a lot in infrastructure, and how are they financing and funding it, right?

We found that there were three waves of this happening: at the turn of the century, shortly before the Second World War, and then again, in the '50s through '70s. Then we have sort of a little blip right now. What we found was that during those previous cycles, before the one we're experiencing right now, revenue growth was sort of growing at the same time as debt growth, right? So they're able to keep their debt ratios, as we would call them, relatively stable. Whereas nowadays we see debt rising quite a bit faster than income. One of the things we found is, this is potentially because a lot of local government here is renewing assets, just as you suggest. Where it's very difficult to charge someone a new tax or a new levy to help pay for renewal, because the residence is already in the ground.

Chuck Marohn: Especially when they've been paying taxes and utility fees for many years, under the assumption that this money is going to renew this stuff.

Graham Campbell: Exactly right? So my question to you is for local government, not just in New Zealand, but elsewhere. When you're in that position where you need to renew, but you're caught out without money that you've potentially not been squirreling away, what is the best approach that you could take? Is this simply a financing problem? How do you find the money to redo those important pieces of infrastructure?

Chuck Marohn: I want to be very polite to you all. So let me speak in an American context, because in an American context, I get asked this question a lot. The first thing I would say is it's not a financing issue. You can't borrow enough money and finance it over a long enough term to actually make this work financially. Part of the answer in the U.S. context is just by sheer numbers, there will be infrastructure you won't maintain. That means there will be bridges that you close and never reopen. There will be pipes that go bad that you never fix. We see that happening in cities that are a little more ahead of the curve. So cities that either got started earlier, like a place like Detroit, or cities that did not experience the growth, but experienced decline, like some of our Rust Belt cities, or some of our Southern cities that have had huge population loss

without corresponding suburban growth to prop things up. In those places, the end has come a lot sooner, and we see them kind of passively watching things fall apart.

Jackson, Mississippi, is a recent example where they've just had ongoing water system issues. Breaks, pipes not being maintained, to the point now where having water shut off for days or weeks at a time is fairly common if you live there. I think that we can do better and be, in a sense, more intentional. But it requires us to think about the systems that we have differently.

I wrote an article a few years ago about the difference between insolvency and a cash shortfall. A lot of times engineers, because we're so geared around the idea of, 'How do we finance the next project?': Treat every imbalance as if it's a cash flow problem. You can solve a cash flow problem by borrowing more money. Because we built this 30 years ago, now it needs to be renewed. We borrow the money and we can finance it over 30 years, and then do this again and again and again.

Graham Campbell: Just to clarify, the cash flow we're talking about is the money that you're getting from an asset or something like that, matching the cost that you have to outlay.

Chuck Marohn: That's exactly right. The costs for infrastructure are lumpy. So your tax comes in every year the costs are lumpy, so in some cases you'll have surplus, and in some cases you'll have deficit. But the idea is you can leverage debt to even that out. So you can deal with the lumpy cost by financing over a period of time.

But if you are underlying, functionally insolvent, if your land use pattern, if the businesses and homes and everything that you've built are not generating enough revenue to actually pay for the liabilities that you have in the ground — all the renewal you have to do. It will feel like a cash flow problem. It's actually an insolvency problem. You actually don't have enough money coming in year over year after year to take care of this problem. When cities confuse those two, what they do is they start to borrow a lot, because the engineers and the finance people will say, 'Well, hey, we got to do this. Let's finance it.' And you take on debt. But you do that over and over and over again. By the time you need to renew things again, you're still paying off debt from it.

Graham Campbell: Speaking of debt, how do you reconcile this view with the idea that infrastructure has a long benefits tail, right? So

people who put infrastructure in the ground now will benefit from it, but their children will benefit from it. You know, potentially their children from there on. So people who are benefiting from infrastructure should be paying towards it. And so, debt helps smooth that benefit profile.

Chuck Marohn: I feel like when I hear that statement, I hear that from project advocates that have not actually done the math on their project.

You know, let's say that I go home to my wife and I say, 'We should really get a new shiny car, and that would be great, and we'll benefit from it, and then we'll pass it on to our kids. To do that, I think we should take our kids college fund and buy it, and then, maybe borrow some more money on top of that. And, oh, by the way, we're 85, so when we die, we'll still owe a bunch of money on it, and, pass off this depreciated asset.'

You would look at that immediately and say, well, you're being completely self-serving. You're not actually thinking about your kids. You're just using that platitude.

I think, if you want to get around that, if you actually want to believe the words you're saying, what you would do is you would look at the investments that you're making and say, 'Okay, we're putting this pipe in the ground, we're fixing this road, we're renewing this asset. Who does this serve? What is the tax base that are directly paying for that?' My sense of things here in New Zealand, especially with the topography of yours being really challenging and lots of added cost that we don't have - that your imbalance is going to be even greater.

Graham Campbell: So are you suggesting that it needs to be a level higher than just saying, 'Future generations will benefit from the infrastructure you need' to say 'Future generations will benefit better economically, financially from this in order to support the debt and the eventual renewal?'

Chuck Marohn: If you think about a future generation and you give them a 30-year-old road that needs to be renewed along with debt from the last time you renewed it, what have you handed them? I mean, you've not really built anything for them. You've just mined their future wealth and capacity, and given them something that they now have no choice over.

I do think — I've said this many times in an American context: What we have bequeathed the current generation, and I think what we bequeath the following generation, is really the leftover of

a big growth party. We thought, the more roads we build, the more highways we build, the more infrastructure we build, the better off we're going to be. Now we find we don't have even 20 cents on the dollar of the tax base, we need to take care of all this stuff. Then we look to the younger people and say, 'Go take care of it. Why aren't you willing to pay more? Why aren't you willing to cough that up? You know, we're going to borrow money on your behalf and fix it for you.'

These are, to me, intergenerational injustices in some ways. Because we really haven't — I try to not go there, because I do think that people had good intentions.

If we look at that post-war generation in the U.S., their intention was, look, we lived through the Great Depression, which was awful. We lived through World War II, which is awful. Now we're demobilising troops and shutting down these industries of war, which is a good thing, but we're just going to slide right back into the Great Depression. How about instead, we take all these industries and all these young people who were just soldiers, and we put them to work building this brand new version of America. Let's build highways. Let's build frontage roads. Let's build subdivisions and new homes. My gosh, that generated all this growth. It felt amazing. It was a big economic sugar high. The lesson we took from that was, if you just invest in infrastructure, you can create growth, and the growth will give you this financial buzz that is good. The reality is, that sugar high only happens once, and we've been trying to relive it again and again and again.

Graham Campbell: Yeah, and I think one of the things that we, we talk about at the Commission, is, New Zealand's a relatively young country. You know, when you look at some of the cultures in Europe...

Chuck Marohn: You mean new... because you are, ageing the same way everybody else is.

Graham Campbell: This is true.

Chuck Marohn: I feel like a part of this challenge is that your demographics are not in your favour. The same way most OECD countries, the demographics are not in their favour.

Graham Campbell: That's correct. We are facing a demographic change that is not unlike the rest of the world.

Chuck Marohn: You are a young country, and it's funny, because you are younger than we are, I think.

Graham Campbell: Correct.

Chuck Marohn: Yeah, which is kind of crazy, because we are ridiculously young.

Graham Campbell: So a lot of the infrastructure was put in a generation maybe two, ago, right? So there's a lot of learning about how to maintain, and when to renew, and how to prudently put in infrastructure. A lot of this is still part of the learning experience for a young country. You know, places like France or Italy have done this for almost millennia, right?

Chuck Marohn: That's such a good insight. I actually was able to spend a lot of time in Italy in my mid 20s, when I was asking some of these questions as a young engineer and planner. To look at places that had been renewed for hundreds of years of sustaining this, and you look around and you say, 'Okay, there's no single-family homes with a two-car garage here. There's no sheetrock palaces like we build in the US. There's no strip malls here.'

Graham Campbell: Sheetrock here is GIB.

Chuck Marohn: OK, a GIB-board palace. You know, you look and you realise that to have a place that endures, there's a dance that happens between what you would say is like the public realm enduring, and the private realm enduring. In order for that dance to work, both of them have to be kind of equally substantial. You don't get there overnight. You don't just go build Rome overnight. Rome is built up over centuries. You don't get Paris overnight — it's built up over centuries.

But when we build Wellington, when we build Minneapolis, when we build a new place, we say, well, here's what they had. They had sewer systems and water and we build it all out to the max right up front. In some ways, we can say, well, we're that affluent. We can do that now.

I think the folly of doing that is, when you haven't been forced to do the hard work of centuries of building, you not only cut a lot of corners, but you discount the need to actually have substance there at the end of the day. Yeah, it becomes more transactional and less human and place-based.

Graham Campbell: I want to circle back to a comment that really stuck out to me. You said when you're a city or an infrastructure provider, that when you're coming up to that renewal period, you need to think differently, right? And some of that might involve retiring or

decommissioning an infrastructure asset that was already there.

Chuck Marohn: I do think — and I'm going to say this, and I realise this will be odd in the context, but I think we are pretty much done building new stuff, or we should be.

I'll say it in a U.S. context, and then we can talk about New Zealand. When I look at the amount of infrastructure we have in the U.S., there's no U.S. city that has not got enough infrastructure. They all have more than they have the tax base to maintain. And when you recognise that, you realise that adding another foot of pipe or another foot of sidewalk or another foot of road is just making your financial gap bigger.

So what I tell cities in the U.S. is, you should stop building new, and you have to actually transition to a question of, how do we get more out of the stuff we already have? And that is a different business model.

So if you told me, 'Chuck, we're going out and we're building new and that's the end of the story - we're doing it, how would we do that better?' I would say you really need to have as a primary filter for any new infrastructure project you do — what is the tax base we are going to gain from this? Is that sufficient to actually finance not only the ongoing maintenance of this thing, but its ultimate renewal? If you can't say that with some margin for error, that's not a project you should do.

Graham Campbell: I want to just close by saying you've been in New Zealand for three, four days now. You've been you've been talking to infrastructure experts.

Chuck Marohn: I've been here and been doing a lot of talking. I've tried to do a lot of listening.

Graham Campbell: Because everyone wants to learn from you.

Chuck Marohn: You've all been very generous to me.

Graham Campbell: You've talked to local government. I guess I'd like to know: What's one thing that stood out to you about the infrastructure experience in New Zealand.

Chuck Marohn: I think the curiosity I had coming in was, how different would the development pattern be here compared to what I would see in a typical North American city. You are on an island, and I've joked, in the middle of nowhere. I mean, it took a long time to get here. It's not

a place you get to by accident. Your island has some very challenging topography. Your islands are subject to seismic activity. So there are all kinds of things that make building here very challenging.

I've just been in Wellington, so I'm hoping to get out of the city today and see some of the countryside and learn a little bit more about New Zealand. What I've seen here in Wellington is a beautifully designed city. I mean, there's a lot of great things here. I think the urban design is really good — some places great. I think there's a lot of thoughtfulness that has gone into it. But nothing has really surprised me in terms of, oh, here's how they've uniquely adapted to this place, in a way that I wasn't expecting. It feels like, if we could blink and just transport this somewhere else, that it could be in a different part of the world very easily. I'm not saying that that is a good or a bad thing, but that was like my biggest curiosity. I think the similarity of the approaches that you've used surprises me a little bit.

Graham Campbell: I think that's sort of been reflected in some of the talks that you've been giving, where you have a lot of nodding heads. Where you're talking about Minnesota, or you're talking to other places. 'Oh, this sounds a lot like New Zealand. This sounds a lot like New Zealand.'

Chuck Marohn: Yeah, I gave my talk yesterday, and I prefaced it by saying, I'm an American speaking about the United States, where I have lots and lots of knowledge. I'll speak confidently. I'm not confident that I know and understand what your experience is, and I'm going to listen humbly when you all tell me how it's different here. Throughout my entire talk, everyone just nodded, and when I got done, they said, 'Oh my gosh, this is the exact same thing we're experiencing.' So that makes me sad in a way, because this is such a unique place and such a beautiful environment, and I've met a lot of people here, and I really like them. I mean, this is a generous, warm, welcoming culture. I still am searching, and I think the next couple of days that I'm here, my goal is to try to find the things you do uniquely different because you're on a windswept island in the middle of the South Pacific. I'm sure I will find something.

Graham Campbell: I'm sure you will Chuck. Thank you so much for joining us, and good luck on your search for the differences between New Zealand and North America. Appreciate you

coming on.

Chuck Marohn: Absolutely. Thank you, friend, and thanks for all you're doing. The draft Plan you guys put out is a very good step in the conversation, and I'm grateful I can be here to help you announce it and raise awareness of it and hopefully expand the conversation.

Graham Campbell: Thank you very much. Take care.

Narrator: Thanks for listening. Find out more about the work Te Waihanga is doing to transform Aotearoa at tewaihanga.govt.nz