

# Infrastructure for a better future

## Managing an award-winning project: Northland SH10 culvert project

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

**Introduction:** Welcome to the Te Waihanga 'Infrastructure for a Better Future' podcast. A series where we talk to experts both from here and overseas about the infrastructure challenges we are facing. The episodes focus on the key areas of Rautaki Hanganga o Aotearoa, New Zealand's infrastructure strategy. Find out more about the strategy at [www.strategy.tewaihanga.govt.nz](http://www.strategy.tewaihanga.govt.nz).

**Blake Lepper:** Earlier this year, the State Highway 10 culvert replacement project won the excellence in environment and sustainability category of the 2022 IPWEA (Institute of Public Works Engineering Australasia) New Zealand Asset Management Excellence Awards. At first glance, it might be hard to understand how a culvert replacement project could attract so much interest, but to me, this project highlights the important connection our infrastructure has with our people and places, how important it can be to get infrastructure right for its place, the environment surrounding it, and the people who use that environment. This project represents a unique collaboration between local iwi, the

local community, Waka Kotahi, and contractors. To learn more about this project, we've invited Senior Project Manager Kathryn O'Reilly of Waka Kotahi and Civil Engineer Kat McMullen of WSP to share some of their insights, in this episode of 'Infrastructure for a Better Future'.

Hi guys, great to talk to you today. I've given that bit of an introduction, but perhaps you can tell me a little bit more of the background to this project and how you both came to be involved in it.

**Kathryn O'Reilly:** So, this was quite an interesting project. The community for many, many years have actually been pushing to get this culvert replaced. It basically came through the Capital Investment Partner funding, so that's how Waka Kotahi became involved.

Also, it was under a state highway, so that's also another area that involved us [Waka Kotahi]. But it was really – the whole project was pushed, by the community and the local hapū.

**Blake Lepper:** State Highway 10 is obviously a really important lifeline for the Northland community and a really important piece of infrastructure. But I guess this project also shows that sometimes infrastructure is not without its negative consequences. Can you kind of talk a wee bit about what happened when the original causeway was put in and perhaps why there was the community frustration with some of those outcomes?

**Kathryn O'Reilly:** The original bridge basically came to the end of its life and back in those days, sort of 60 odd years ago, the resource consent process wasn't in place. Instead of replacing a bridge, which, you know, bridges are quite expensive, it was decided to basically put a causeway across the small estuary and put a small 450-diameter culvert underneath to allow some water flow. So, basically the estuary was cut off unfortunately.

**Blake Lepper:** Having seen the original aerial photos of it that seems to have had a really detrimental impact on the surrounding environment and estuary. So, no wonder there was quite a lot of community angst, community frustration, you know. Is that a fair description of kind of the feedback you were getting that ultimately drove this project?

**Kathryn O'Reilly:** Previously it had been used to harvest shellfish in the area, to fish and then suddenly that asset had gone for them. So, restoring it has actually given them that opportunity to go back to their ancestral areas where they actually sort of harvested their kai moana.

**Blake Lepper:** Can you tell me a little bit about the evolution of the project? How did it come about and how did you bring together this team that seems to have worked so well and collaboratively on this project?

**Kathryn O'Reilly:** We started off with a lot of consultation with the iwi in the area and a lot of ideas were actually discussed and optioned. And the initial option was actually to put in a box culvert. And that's where WSP came in. They came in and looked at the potential designs and we thought we had a great option. And we brought along Fulton Hogan and they came back and they said, 'um, we can't actually build this'.

**Kat McMullen:** Yeah, constructability was a massive problem. So, with the required inlet level for the culvert, to build that would've been like the cost for either the temporary works, or the methodology – would've been cost prohibitive. It just would've been a project killer basically. So, we went back to the drawing board.

**Kathryn O'Reilly:** So, we actually pulled, we actually sat in the room. So, there was Waka Kotahi, Fulton Hogan and WSP and we sat in conference room...

**Kat McMullen:** It was this one.

**Kathryn O'Reilly:** ...and with the whiteboard and pen, and we ran through multiple options of how we could actually go about it. We had to be able to keep the state highway open. We had a budget that we had to stay within and we also had a fairly tight timeframe that we had to meet.

**Kat McMullen:** Incredibly tight. I looked up the minutes. That meeting from that memo was late June, and we had to be on site breaking ground by September. It was incredibly tight.

**Blake Lepper:** I mean, these are timeframes we just don't see achieved in government very often. What was the secret sauce? How did you pull it off?

**Kat McMullen:** ECI [Early Contractor Involvement], I think. And our team was pretty well established, so we were lucky. So, it had to be awarded the way it was because of the time constraints, but then that allowed us to use a team that we were already using on the Mangamuka Gorge for the 2020 repair and then also on the Northland Bridges. So, it's a strong, strong team.

**Kathryn O'Reilly:** Yeah, that...

**Kat McMullen:** Lots of trust.

**Kathryn O'Reilly:** I was just going to say, a lot of trust between the team and a really good collaborative working environment. We all respect each other and so when people come up with ideas, you know, you're free to express options and everything and nobody knocks anyone back. So that ECI and collaborative environment was what actually got us across the line.

**Blake Lepper:** It seems to me that that is so often the un-talked about part of project success. You know, people seem to think infrastructure is built out of concrete and steel. But I guess my experience is so often that infrastructure is only great because the people involved in it and the way they come together to create kind of unique ideas and solutions. And it certainly seemed, seeing the team on stage at the IPWEA conference that it really had been a team effort and you'd come together to form those really trusting relationships. How do we learn from that in more projects? How do we create those trusting conditions that you guys seem to have that enabled you to operate so effectively?

**Kathryn O'Reilly:** So there have been some big changes within Waka Kotahi about the procurement processes, but also how we view projects. We are looking at end to end. So, basically you come in at the business stage, you go through your pre-implementation, your implementation and you have a consistent person. Also, we have now started to heavily involve iwi and we are looking at a far more collaborative approach to a lot of our work. And that is starting to come through in projects like this one.

**Blake Lepper:** I think that's a great segue. It seemed to me that local iwi and hapū were really placed at the centre of the project and a lot of the conversations and decisions. Can you explain how that process worked, the kind of value that added, but perhaps also the challenges of taking such a consultative approach to a project?

**Kathryn O'Reilly:** It was challenging because you're not dealing with a single entity. So, on this project we had three clear entities that we were working with. There were actually quite a few more peripheral groups, but we had three who were directly associated with it. So, that was actually open and honest conversations and frequent conversations too. Actually, being willing to listen to their points of view and also taking on board what they were saying and trying to incorporate and work with them out on site. I think it was a case of they learned early on that they could actually come to us if they had any concerns. They felt that they were being heard. And so that definitely sort of smoothed the way for a lot of things.

**Blake Lepper:** How do you think that's ultimately helped build your social license in the community? And I guess given us the permission to keep investing in this infrastructure that is so important for so many of our communities.

**Kat McMullen:** It's good – it's established that relationship now. And now we're going back to them for other projects related in the area. And we've got that relationship to build on now.

**Kathryn O'Reilly:** And I think too, it's helped in the wider area as well because I've actually been able to see what has been achieved with that collaborative sort of approach. So, I think on some of our other projects it's definitely going to help in the future because there's going to be good feedback from this particular one.

**Kat McMullen:** Yeah. They can see they're being heard.

**Blake Lepper:** I mean, that's fantastic. I think so often we can be good at trying to do consultation, but so often people can't see their feedback being incorporated and actually see that they're being heard. I think it's a real credit to everyone involved that time was taken. I guess one of the other things I was really interested in talking about is obviously this project has taken place in a coastal environment and we know that our coastal infrastructure is coming under increasing threats. We are seeing these challenges, I guess, right around the country right now. We understand this area is subject to flooding. Would you be able to talk a wee bit about how you kind of considered resilience in the future and the ultimate design of this project?

**Kat McMullen:** So unfortunately, as you said, that area of State Highway 10 has always flooded and likely will always flood. So, we knew that building a structure that would be above those flooding levels was not feasible with the budget that we had. So, instead we focused on making it resilient for flooding. So, it is designed to cope with being underwater and that was what our focus became: to build something that could cope with the flood rather than trying to build something that would beat it. And opening that channel of water up has also helped lessen the impact on homes inland because it allows everything to dissipate quicker than it was before. That's a win.

**Kathryn O'Reilly:** We basically created a secondary overflow path. The main actual channel or main outlet is about a kilometre and a half down the road. So, we've actually sort of opened this extra sort of exit for the water...

**Kat McMullen:** Reestablished.

**Kathryn O'Reilly:** ...reestablished yes – this additional exit. So yeah, the overall the storm and flooding impact will actually dissipate a lot quicker.

**Blake Lepper:** Which again is just amazing to show the widespread impacts of infrastructure. You know, roads are just not roads, they have those profound impacts on the lay of the land and the way the environment responds to natural events. This in many ways highlights the complexity of infrastructure. We are never just thinking about one thing, but always thinking about its consequential impacts. What a great outcome that I guess transport investment can also have that kind of secondary benefit of reducing flood risks for surrounding properties. It seems that those kind of broader benefits, both physical and the wider community benefits, were a real focus for the project team. We hear a lot of talk about broader outcomes. Can you tell me how you kind of approached that and some of the things you were able to achieve through this project?

**Kathryn O'Reilly:** We were really proactive on actually utilising local contractors as much as possible, to actually help that. One of Waka Kotahi's broader outcomes is to try and provide as much employment and utilisation of subbies (sub-contractors) in the area. There's multiple benefits. We've got our carbon footprint, which we are trying to reduce. So, anything that you can actually utilise locally is better. It adds to the economy of the area if you utilise it. And Fulton Hogan, if at all possible, tries on a project to take on additional staff or even temporary staff or take on some youngsters to actually give them a taste of what construction is all about with the hope that they will stay with them and carry on. So, there's multiple facets that Fulton Hogan in particular really did a really good job on, on this job.

**Blake Lepper:** My understanding is that even worked into kind of developing future nurseries and different initiatives that will provide kind of an enduring benefit to the community. Is that right?

**Kat McMullen:** Yep. Fulton Hogan came to an agreement with the – it's an iwi trust.

**Kathryn O'Reilly:** Iwi trust, yep.

**Kat McMullen:** Yeah, they own the quarry. It's an old quarry site that's right next to where the project is and they had an agreement to use material from that site to build our temporary road, which you can if you look at the bridge – what remains of it has been left as a fishing area and planted one afternoon. So, part of that they used the material that they borrowed from that to then shape the old quarry into what the trust had envisaged to create their nursery. And that involved also providing an accessway off Back River Road to remove that from the state highway to make it a bit safer. It looks amazing now compared to what it was.

**Blake Lepper:** I mean all of those things are a real credit to the project and show the importance of infrastructure not just being something that is designed and delivered remotely. Because at the end of the day, those opportunities can only come from that engagement with the community and understanding place, the surroundings and those opportunities. Are you able to talk through any lessons, things that are particularly top of mind from this project? Any tips you've got that would be useful for others? That are working out there trying to deliver important infrastructure around the country.

**Kat McMullen:** Communication, I think, I think that's our big win. Everybody involved in the project could pick up the phone and talk to anyone else and just have what they needed to say be heard and they knew who to contact as well. So, we all had different points that we were managing because as we noted before, the timeframes were very, very tight. So, everyone had a defined role and helped out.

**Kathryn O'Reilly:** I think that is another thing too. Yeah, everyone had a clear role. They knew what they needed to do to get to that end point. And I think that was something, because it was tight you knew your role, you didn't sort of start interfering in anyone else's area. And so, everyone stuck to their lane really well. So that was a really big positive outcome with that approach.

**Kat McMullen:** It's just a really good team. We're really lucky.

**Kathryn O'Reilly:** We are very lucky. It's been a fantastic project to work on.

**Blake Lepper:** I have to say that good people get lucky and it seems that it's very clear that there probably wasn't so much luck in this but a whole lot of people that were really committed to delivering good outcomes for their communities. I guess I just wanted to finish by passing on our congratulations for what I think was a well-deserved award at the IPWEA conference. Really thank you for your time. I think it is so important for so many of us to remember that kind of impact that that infrastructure has on our communities and that infrastructure is not some intangible thing, but actually part of our community fabric and really influences the way we live in our communities and interact with our environment. So, thank you very much for the conversation today. It's been great to chat with you. And thank you again for kind of the work you're doing to support a thriving Aotearoa. Cheers.

**Kat McMullen:** Thank you.

**Kathryn O'Reilly:** Thank you for having us.

**Narrator:** Thanks for listening to 'Infrastructure for a Better Future'. To find out more about the infrastructure challenges we are facing visit [www.strategy.tewaihang.govt.nz](http://www.strategy.tewaihang.govt.nz).