

## Background

The Northland CDEM Group have operated a Tsunami Alerting System throughout much of the coastline since 2010. The siren network is integral to our tsunami readiness and response plans and plays a key role in alerting communities in conjunction with other tools. The network has progressively grown over the past decade and due to its age, is ready for replacement by a state-of-the-art alerting system.

The Northland CDEM Group approached all four of the regions' councils and NEMA in order raise sufficient funds for the project.

## Purpose

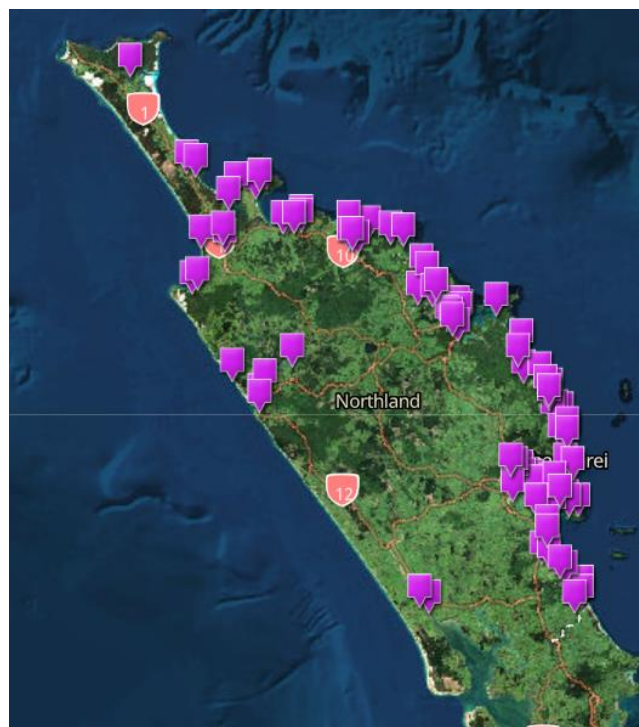
Northland has 3200km's of coastline, much of which is populated but isolated. That high length of coastline is also considered to be Aotearoa's most at risk of tsunami. Ensuring we reduce the risk to our people, requires multiple systems and approaches. Readiness is a core focus for all emergency management groups, a valued tool in the toolkit is the tsunami alerting system.

Northland current alerting system is inadequate for protecting our people. It cannot withstand power outages or communications outages, and it does not meet the requirements of the technical standard. Upgrading to a standards compliant warning system help protect our loved ones in the event of tsunami.

This project will replace the aging, 200+ sirens with an up-to-date alerting system the has robust communication and considerably higher resilience.

## Outcomes

The core outcome of this project is to successfully deliver a tsunami alerting system beginning in 2022 and completing in 2025, that along with other tools such as Emergency Mobile Alerting, will enhance our community's readiness and response capabilities.



In the process of project delivery we are also increasing our communities awareness of tsunami risk, and of the process around tsunami alerting.

## Successes and Challenges

Cyclone Gabrielle caused wide-spread power and mobile network outages throughout Northland. This resulted in the existing tsunami alerting sirens being inoperable as they are only powered and activated using ripple fed mains power. The awareness that Gabrielle raised of this shortcoming has been a huge and timely benefit to this project.

A project of this level of complexity comes with unique challenges. The most prevalent being ensuring not just engagement with diverse, remote, communities, but obtaining support from them. Many of Northlands coastal communities are isolated and getting them on board to install such a large piece of equipment into beach and coastal areas has taken a lot of engagement. Northlands Emergency Management Group already has strong established relationships with Iwi and Hapu throughout Northland, and they were critical for success. The project took the approach that Iwi and Hapu, in their role as kaitiaki and mana whenua, were engaged right from the beginning.

With 95 sites throughout the region, finding locations that meet the criteria and are effective has taken a lot of time and consultation. It's certainly an area of the project that cannot be overstated in its criticality to ensure a complete, considered, and successful system build.

## Products and Materials

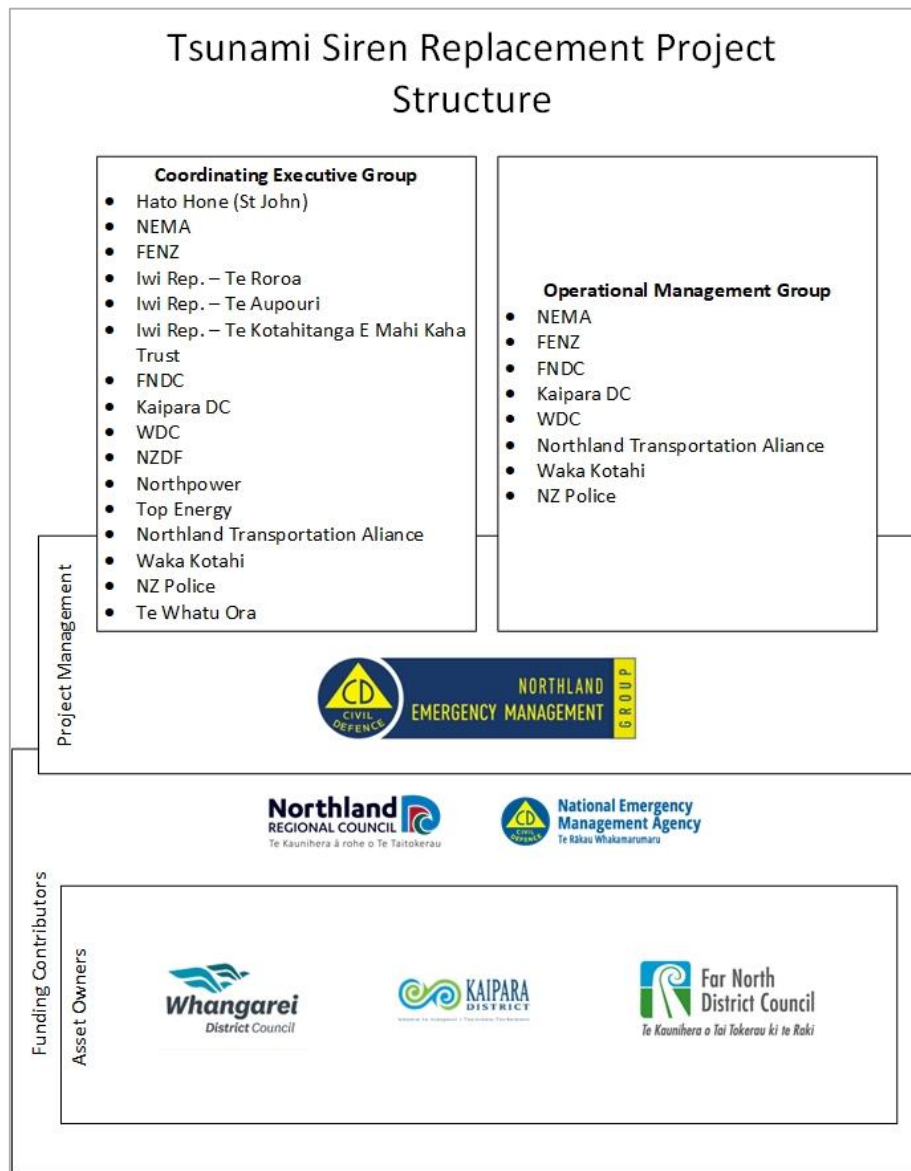
Through a government tendering process, a Danish company was selected to provide the sirens and associated equipment. To ensure the ability to provide continued local support, agreements were made with a local electrical service company to support the sirens long term.

The other components such as steel poles and concrete bases are being supplied through local, Northland based, companies.

The scale models used for community engagement were 3D printed locally using Polylactic Acid (PLA) a recyclable corn based thermoplastic.

## Project Management

Although funded primarily by District Councils, and despite those councils being the asset and main property owners, the project itself is being run by Northland Emergency Management Group. With the project being run at this level, it ensures consistency across the region.



The above graphic shows the project management structure, including the two oversight committees. Northland Emergency Management Group provided the resources for project management and would also maintain responsibility for the asset management throughout the life of the assets, despite not being the asset owners.

## Funding and Budget

All four of Northland councils provided funding towards this project from their long term plans.

Funding	
District Councils Contributions	\$3,999,000
<ul style="list-style-type: none"> <li>• Whangarei, Kaipara, Far North</li> </ul>	
Regional Council Contribution	\$2,000,000
NEMA Contribution	\$250,000
<b>Total</b>	<b>\$6,249,000</b>

<b>Expenses</b>	
Siren hardware	\$2,919,000
Foundations and poles	\$1,615,320
Installation	\$1,063,280
Administration, Consultation, and Consenting	\$240,400
<b>Total</b>	<b>\$6,249,000</b>

The district councils will also need to provide on-going operational funding to cover operational and maintenance costs.

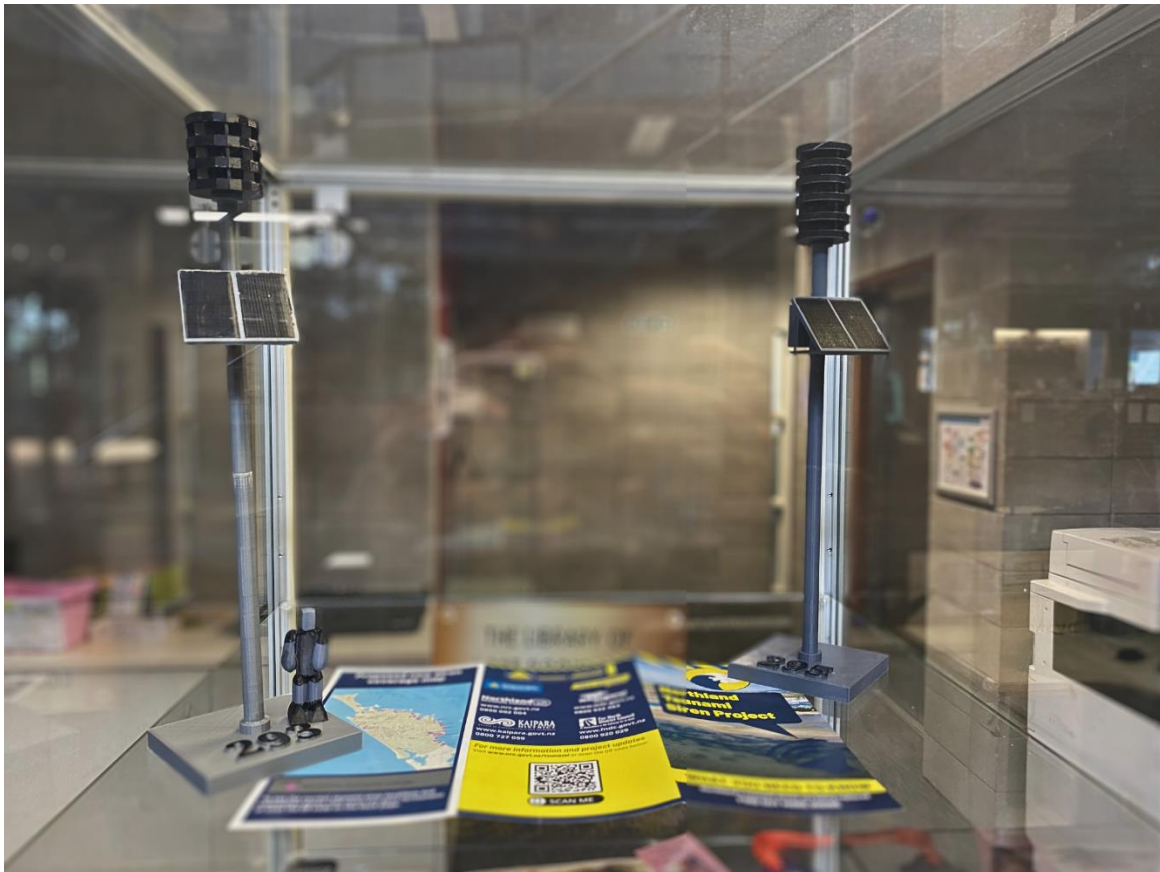
## Lessons Identified

Community Engagement has been the largest piece of work as far as time commitment is concerned. These physically larger sirens, although supported in principle, are a lot more visible than the previous sirens. This means the community have very different opinions of their value. In order to ensure that the communities were not just aware, but on-board, early engagement has been a crucial step.

We also wanted to ensure that we honoured Te Tiriti by engaging with Iwi and Hapu long before we had installation contracts or resource consent in place. Northland Emergency Management groups governance includes multiple Iwi chairs, and they were on-board right from inception, but our engagement needed to press deeper than just in meeting rooms. Northland Iwi and Hapu live and work largely in coastal areas and are often disproportionately impacted by tsunamis. With a project such as this that is about the people of Taitokerau, it was imperative we had their support. This early engagement has helped deliver the project and will form a model for engagement moving forward.

They say a picture says a thousand words. With that ethos in mind, community engagement took on a whole new level with scale models being deployed throughout district libraries and i-sites. They proved to be quite a hit at a very low price point.





The above photos show scale models (1:30) on display in some of Northlands public libraries along with a flyer with the QR code so those that were curious could get further information directly to hand using a mobile phone.

## Ongoing

The continued operation of such a crucial piece of safety equipment requires a significant commitment. Each of the three District Councils will need to continue maintenance programs

(managed by Northland Emergency Management Group) including regular checks, twice-annual testing, and fault resolution, and will continue to provide operational costs towards Mobile and satellite network connectivity over the life of the assets. If maintained correctly, the asset life could exceed 20 years.

Future projects will look to expand the network into other at-risk communities and areas using the same delivery model.



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Manager - Northland Emergency Management Group



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Chair – Coordinating Executive Group