

# Sustainability Annual Report Summary



O Mahurangi – Penlink  
2023

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# INTRODUCTION

## Project background

O Mahurangi – Penlink will form a vital transport link in north Auckland as more people live and work in Silverdale, Whangaparāoia and the Hibiscus Coast. The new two-lane road and shared walking and cycling path will provide improved travel times between Whangaparāoia and wider Auckland.

## Acknowledgement of Mana Whenua

Mana whenua have been able to observe and interpret change within the environment in Tāmaki Makaurau over many generations. This wisdom has been built upon an additional 50,000 years of mātauranga (indigenous knowledge systems) passed down from ancestors. O Mahurangi is the first Auckland project to have iwi partners embedded in the project including on our Project Advisory Board (PAB). This partnership enables a Te Ao Māori lens across all aspects of the project. With Te Tiriti o Waitangi as a framework, Waka Kotahi and the Alliance work with iwi partners to build strong, meaningful and enduring relationships that achieve mutually beneficial outcomes.

## O Mahurangi – Project name

This project has been gifted the name O Mahurangi which refers to Mahurangi who is an ancestress of Tainui waka and was a renowned tohunga (high priestess). Mahurangi gave karakia to the Atua for guidance and protection of her people as they embarked on their journey from their ancient homelands of Hawaiki to Tāmaki, Aotearoa and the lands known today as Whangaparāoia.

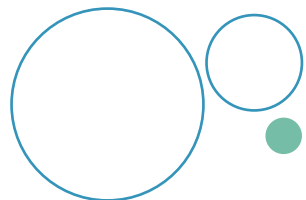
Rangatira, Te Warena Taua, gifted the name O Mahurangi to the new transport project which runs from Whangaparāoia to Paeroara (Redvale). The name, in his words, is an ancient name belonging to the rohe (district or tribal boundary) of Ngāti Manuhiri, Te Kawerau ā Maki and Tainui whānui as the descendants of the eponymous ancestor Maki from whom the name Tā Maki comes.

The project is framed by the rivers of Wēiti and Ōkura, the maunga Pukekauere, and the bay of Karepiro including Ōtaimaro and Te Ringa Kaha ā Manu – all of which speak to the history of the descendants of Maki and his people.

## Project features

The project outcomes are expected to:

- Reduce congestion along Whangaparāoia Road, improving quality of life for residents while providing opportunities for economic activity
- Increase capacity on existing networks to enable planned growth in the region, including potential growth in Silverdale, Wainui and Dairy Flat
- Improve accessibility and reduce travel time to/from the Whangaparāoia Peninsula to provide for business and residential growth on the Peninsula
- Enhance community resilience, with more transport options for public transport, people on foot and on bikes to the Whangaparāoia Peninsula.



# ABOUT THE IS RATING SCHEME

Waka Kotahi is committed to delivering good environmental and social outcomes as part of the design, construction and operation of our infrastructure projects. The IS rating scheme is a rating system for evaluating sustainability across the planning, design, construction and operational phases of infrastructure programs, projects, networks and assets in Australia and New Zealand. IS evaluates the sustainability performance of the quadruple bottom line (Governance, Economic, Environmental and Social) of infrastructure development. The IS rating scheme aims to:

- Provide a common national language for sustainability in infrastructure.
- Provide a framework for consistent application and evaluation of sustainability in tendering processes.
- Help in scoping whole-of-life sustainability risks for projects and assets, enabling smarter solutions that reduce risks and costs.
- Foster efficiency and waste reduction, reducing costs.
- Foster innovation and continuous improvement in the sustainability outcomes from infrastructure.
- Build an organisation’s credentials and reputation in its approach to sustainability outcomes.

There are four rating phases that the scheme can be applied to, planning, design, as-built and operations. Within these phases, there are three rating levels that a project can achieve: Commended, Excellent and Leading. The O Mahurangi Alliance is contracted to deliver an ‘Excellent’ IS Rating for the Design and As-built phases, using v1.2 IS Technical Manual. A score of 50 to <75 is required for an Excellent rating level. Points are awarded for how an infrastructure project or asset performs in each of the fifteen categories below.

Themes	Categories	Abbreviation
<b>Management and Governance</b>	Management Systems	Man
	Procurement and Purchasing	Pro
	Climate Change Adaptation	Cli
<b>Using Resources</b>	Energy and Carbon	Ene
	Water	Wat
	Materials	Mat
<b>Emissions, Pollution and Waste</b>	Discharges to Air, Land and Water	Dis
	Land	Lan
	Waste	Was
<b>Ecology</b>	Ecology	Eco
<b>People and Place</b>	Community Health, Wellbeing and Safety	Hea
	Heritage	Her
	Stakeholder Participation	Sta
	Urban and Landscape Design	Urb
<b>Innovation</b>	Innovation	Inn

# SUSTAINABILITY TARGETS

The table below describes the resource efficiency targets and sustainability goals that have been proposed for the O Mahurangi Penlink project.

They align with industry best practice as suggested in two of the credits in the IS rating scheme, and are also supporting the overall goal of the project to reduce carbon.

Resource Efficiency Topic	Target
<b>Virgin and high carbon-intensity materials</b>	>10% less embodied carbon in core structural materials used
<b>Energy</b>	>10% reduction in energy use across construction and operational phases
<b>Recycled and alternative materials</b>	>10% use of materials with recycled content
<b>Waste</b>	>80% diversion by volume of clean spoil >90% diversion by volume of inert and non-hazardous waste to landfill >60% by volume of office waste is diverted from landfill
<b>Water</b>	>10% use of non-potable water

The project is also aiming for sustainable procurement outcomes and designing for the impacts of climate change. This includes evaluation of sustainability policies and objectives of potential suppliers.



## OPPORTUNITIES REALISED

So far there have been over 30 sustainability opportunities realised across the project. The benefits range from carbon reduction, innovations, resource efficiency and optimisation, waste reduction. Below are some highlight opportunities that have been implemented:

**Optimised Weiti River Bridge Solution** – An extradosed bridge form was designed during tender instead of a cantilever box girder bridge which would have been business as usual. This provides significant carbon savings as it:

- Substantially shortens the bridge reducing the number of piers.
- Reduces the deck volumes.
- Optimised bridge design to reduce temporary staging requirements.

**Grass Turfed Bunds** – This is an opportunity which has been implemented onsite during the early works. It involves the turf layer being gently picked up and set aside, while a bund is created from the remaining topsoil by pushing it over. The turf layer is then placed back on top of the topsoil bund. This reduced the need for approximately 2,500m<sup>2</sup> of geotextile fabric, as usually the bunds are stabilised using geotextile matting. This geotextile fabric typically ends up in landfill when the bunds are no longer needed.

**CCS Candy and Carbon Factors** – Carbon factors have been included within CCS Candy, cost estimating software for the project. This allows the team to identify the carbon footprint associated with each material type (for a certain quantity). CCS candy is being used to track carbon for the project, including departures and scope creep.

**EV Side by Sides** – EV side by side vehicles are being used on site to replace the ‘run-around’ site utes. This reduces the carbon emissions on site as the diesel utes are more carbon intensive than the electricity purchased for the EV’s.

**Kerb and Channel Removal** – The design team has sought and been granted a departure to replace typical ‘kerb and channel’ with a reduced width kerb. This results in the kerb and channel reducing from 600mm wide and 350mm deep to 300mm wide and 250mm deep.

**Sustainable Catering** – The Sustainable Food Company, a zero waste, plant-based, low-carbon catering supplier, has been used at a couple of events for O Mahurangi. All food is delivered in an electric van with no single use waste of any kind provided. The supplier also collects the leftovers, reusable packaging and serviettes to be sorted, cleaned and/or disposed of sustainably.



# IS RATING CREDIT PROGRESS HIGHLIGHTS

## Climate Change Adaptation



As we adapt to a new climate, it's important to consider how our infrastructure will cope with climate change related events. Climate change risk screening has been undertaken with adaptation measures identified as needed and incorporated into designs.

## Management Systems



One of the O Mahurangi Key Result Areas (KRAs) is Sustainability. Associated KPIs are in place and there is a sustainability champion in the ALT team. Sustainability risks and opportunities are regularly monitored and discussed with design leads. Regular audits and reporting are underway. These ensure that we are on the right track with our IS commitments and aren't missing opportunities.

## Waste



In support of the Waka Kotahi resource efficiency policy, the project has a strong focus on waste reduction, and there are specific sustainability IS credits to support this process. Construction waste is a significant contributor to landfill, to set up the right culture we are starting with office waste separation for compost, recycling, soft plastics, cardboard and mixed waste. Waste on site will also be sorted into separate bins to support recycling, redistribution, or correct disposal of waste. This will support our targets to divert waste from landfill. Circular economy options also continue to be explored and work is underway with suppliers to contribute to these waste goals.

## Base Case



A base case for materials, water and energy use is being developed in accordance with the IS requirements. The materials base case will be back casted using information from the IFC package. Water sources have been identified and quantities are currently being estimated. Energy quantities are in the process of being estimated too, using the CCS Candy tender cost estimates.

## NEXT STEPS

The project will also continue to investigate carbon reduction opportunities from materials and resource efficiency more generally within the final stages of design and draft credit summary forms for a number of credits. The base case quantities will continue to be gathered and simultaneously tracked for materials, along with business-as-usual assumptions which are required as a part of the base case footprint.

As we head toward main works beginning in October 2023, we will be setting up for data collection and focusing on sustainable procurement outcomes. We will also be ensuring waste and water reduction opportunities are continuing to be explored and implemented on site. We'll also continue to explore innovation and legacy opportunities for the region as a result of the project and its intervention.

## PROJECT CONTACTS

Phone: 0800 PENLINK (0800 7365 465)

Email: [OMahurangi@nzta.govt.nz](mailto:OMahurangi@nzta.govt.nz)

Web: <https://www.nzta.govt.nz/projects/penlink/>

