

Te Pūrongo ā-Tau a te Puka Here Kākāriki
Green Bond Annual Report
2022/2023

AUCKLAND COUNCIL

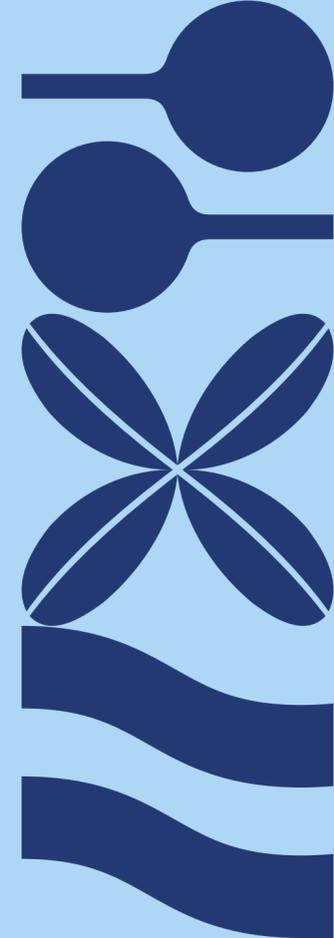




Ngā ihirangi

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He kupu mai i te Tumu Whakarae

From the CEO

In 2020, Auckland Council adopted Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan (the plan), which sets the region's pathway to net zero. The plan sets out how we will respond to Auckland's climate emergency by halving the region's greenhouse gas emissions by 2030, reaching net zero by 2050 and preparing for the inevitable impacts of climate change.

Change is never easy, and changing the fundamentals of how an entire region operates is no small task. We need to change where we build, how we build, how we move about the region and how we work together as a community. But we are on this challenging journey to succeed. We need to invest significant amounts in resilient infrastructure and low carbon transport options and our choice of financing tools has an important role to play. As of 30 June 2023, we have raised over NZ\$2.6 billion through green bonds to fund low carbon transport assets, representing 73 per cent of total green bond assets by value.

Our finance flows need to be consistent with our climate plan's low-emission, climate-resilient priorities by funnelling capital into sustainable outcomes. This means exploring new and innovative ways to ensure capital is directed towards meeting our climate, social and environmental goals and championing the use of sustainable finance products to ensure this happens.

One of the ways we are doing this is by widening our sustainable finance programme to include products such as sustainability-linked derivatives. These products reinforce our sustainability commitments and encourages our organisation to remain on track with our climate goals.

The council is committed to issuing the majority of our debt through sustainable finance mechanisms such as green bonds and in financial year 2022/2023, we issued two new green bonds totalling the equivalent of NZ\$358 million. We also expanded our eligible asset pool with the addition of two new assets, being recycling and food scrap bins and community recycling centres, which promote a circular economy. These assets reduce the amount of waste to landfill and support the delivery of our climate goals.

We are committed to do as much as we can, as soon as we can, and our choice of financing tools has an important role to play. As we continue expanding our sustainable financing program, we will continue to advocate for fossil-free and sustainable investments both in the region and in New Zealand.

Thank you for your support and enabling the continued success of our green bond programme.



Phil Wilson
Acting Chief Executive



Kupu whakataki

Introduction

Auckland Council is the territorial authority for the Auckland region, responsible for enabling democratic local decision-making and action, by and on behalf of communities. This includes promoting the social, economic, environmental and cultural well-being of Auckland communities.

The Auckland Council Group (the council) is made up of Auckland Council, Ports of Auckland Limited (POAL) and the five substantive council-controlled organisations (CCOs) of Auckland Transport (AT), Watercare Services Limited, Eke Panuku Development Auckland Limited, Tātaki Auckland Unlimited Limited and Tātaki Auckland Unlimited Trust.

Auckland Council is responsible for 'debt' funding the CCOs and POAL.

The group's vision for how Auckland will grow over the next 30 years is outlined in the Auckland Plan 2050 which responds to the three major challenges facing the region:

- population growth and its varied implications
- sharing prosperity with all Aucklanders
- reducing environmental degradation.

Auckland Council has plans and strategies to support the delivery of the Auckland Plan 2050, including **Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan**, Auckland's regional response to climate change. The plan has two core goals:

- reduce greenhouse gas (GHG) emissions by 50 per cent by 2030 and achieve net zero emissions by 2050
- adapt to the impacts of climate change by ensuring we plan for the changes we face under our current emissions pathway.

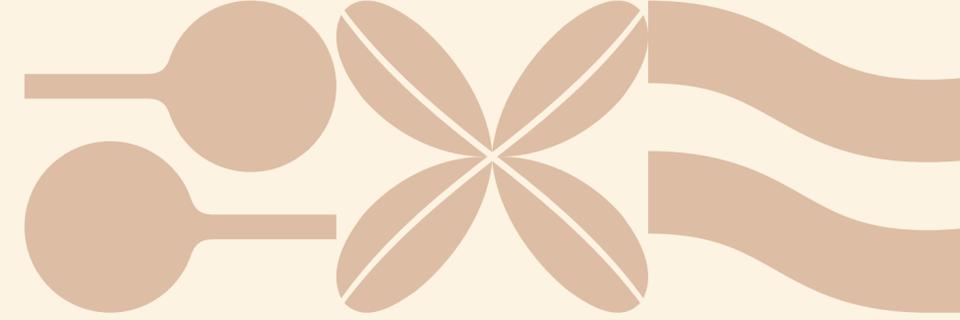
Green bonds are a continuation of our commitment to these goals and allow us to align our funding streams to our climate response and support the broader shift to a more sustainable financial system.

The council has been active in the green bond market for five years, with a total to the equivalent of NZ\$ 2.3 billion raised in green bonds since 2018.

Auckland Council recognises that climate change is one of the biggest challenges facing the Auckland region and is committed to deliver meaningful environmental and social outcomes through sustainable finance.

In this report, you will find a detailed update of our green bond activities, use of proceeds and impact reporting for our eligible assets, covering the 12-month period from 1 July 2022 to 30 June 2023.





Tā mātou hīkoi ā-tahua pūtea tokonga roa

Our sustainable finance journey

Auckland joins the **C40 Cities Climate Leadership Group**. C40 membership enhances and resources Auckland's ability to work with and learn from leading cities facing similar climate challenges around the globe.

Auckland Council establishes its **Green Bond Framework** (changed in 2020 to a Sustainable Finance Framework).

Auckland Council issues its first **green bond**, raising \$200 million to fund electric trains and associated infrastructure.

Auckland Council becomes a member of the **Climate Leaders Coalition** committing to alignment with the Paris Agreement, public transparency on emissions, setting targets for emissions reductions and influencing emissions reductions in supply chains.

Auckland Council adopts **Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan**

Auckland Council issues \$500 million of 30-year fixed-rate green bonds, the longest bond issued by a New Zealand entity at that time. This issue also won debt capital market awards from **INFNZ** and KangaNews.

The Auckland Council group publishes its inaugural **climate-related risk disclosure**

Auckland Council becomes a signatory to the **C40 Divest/Invest Declaration**

Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan: Progress report is released.

Auckland Council issues its first foreign currency denominated green bond of EUR 500 million 10-year fixed-rate bonds.

Auckland Council's first reporting year under its sustainability-linked loan and derivative.

2015

2018

2020

2021

2023

2016

2019

2022

Auckland signs the Paris Pledge for Action in support of the objectives in the **Paris Agreement** to limit global temperature rise to less than 2 degrees Celsius and raise ambition before the agreement takes effect in 2020.

Auckland Council becomes a founding member of the **Aotearoa Circle's Sustainable Finance Forum**

The Mayor signs the **Global Green New Deal** reaffirming Auckland's commitment to protecting our environment, strengthening our economy and building a more equitable future.

The council publishes its first **Annual Green Bond report**

Auckland declares a **climate emergency** which includes the requirement to include climate impact statements in all Auckland Council committee reports.

Auckland Council executes its first **Sustainability-linked facility and derivative**

Auckland Council adopts its first **Climate Action Targeted Rate**

Auckland Council issues two Swiss Franc denominated green bonds totalling CHF200 million.

Te whakamahi i ngā moni whiwhi

Use of proceeds

The council has allocated proceeds of the green bonds to financing planned projects and assets with positive environmental and social outcomes which conform to the eligibility criteria (see eligible assets table – Appendix 2), or to refinance corporate debt that supports eligible assets. The proceeds of green bonds have been allocated across several eligible sectors described in our Sustainable Finance Framework. The eligible assets have been mapped against the relevant United Nations Sustainable Development Goals (UN SDGs) and priority areas in **Te Tāruke-ā-Tāwhiri: Auckland’s Climate Plan**, (see Appendix 2).

Limited assurance was carried out to ensure bond proceeds were allocated as prescribed in Auckland Council’s Sustainable Finance Framework.

For more information, see

[Auckland Council’s Sustainable Finance Framework](#)

Allocation breakdown by sector

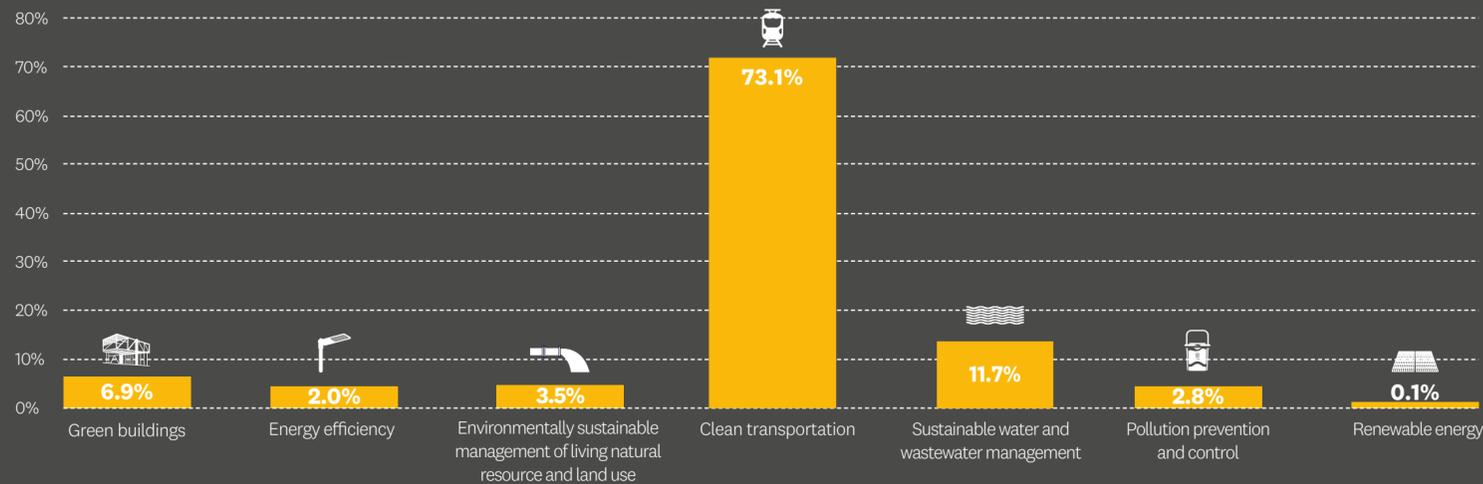


Figure 1. Eligible asset sector % based on asset value.



Te uaratanga o ngā puka here kākārīki i te wā ka puta

Value of green bonds on issue

The total value of Auckland Council's green bond eligible assets at 30 June 2023 was NZ\$3.6 billion. The outstanding green bonds of NZ\$2.1 billion represents 58 per cent of the council's eligible assets.

Date of issue	Maturity date	Term	Bond details	Use of proceeds	Bond face value (NZ\$m equivalent)
10 July 2019	10 July 2025	6 years	CBI certified, 2.013% unsubordinated, fixed-rate retail bonds in NZ\$	Refinancing	150
28 September 2020	28 September 2050	30 years	2.95% unsubordinated, fixed-rate retail bonds in NZ\$	Refinancing/New projects and assets	500
20 October 2021	20 October 2027	6 years	2.411% unsubordinated, fixed-rate retail bonds in NZ\$	Refinancing/New projects and assets	300
17 November 2021	17 November 2031	10 years	CBI certified, 0.25% unsubordinated, fixed-rate bonds of EUR 500 million	Refinancing/New projects and assets	808
18 October 2022	18 October 2027	5 years	CBI certified, 1.660% unsubordinated, fixed-rate bonds of CHF 100 million	Refinancing/New projects and assets	179
18 October 2022	18 October 2032	10 years	CBI certified, 2.005% unsubordinated, fixed-rate bonds of CHF 100 million	Refinancing/New projects and assets	179
Total					2,116

Te whakaū i tā mātou tohatoha o ngā moni whiwhi me te takoha taurite a ngā puka here kākārīki

Confirmation of our allocation of proceeds

	CBI certified bonds and eligible assets	Total (incl. CBI bonds and assets)
Total green bonds outstanding (NZ\$m equivalent)	1,316	2,116
Total eligible asset value (NZ\$m)	2,647	3,638
Total green bonds outstanding to eligible assets	50%	58%

The council confirms that the value of the eligible assets is greater than the face value of the green bonds outstanding, and there was \$23 million of unallocated proceeds at 30 June 2023. However, these funds were fully allocated in July 2023. The council confirms that the CBI certified bonds issued are aligned with the Climate Bonds Standard, and that the nominated projects and assets continue to meet the relevant eligibility requirements specified in Part C of the Climate Bonds Standard.

Te tirohanga whānui o te kaupapa puka here kākāriki

Overview of green bond issue

In October 2022, the council issued two further green bonds. They were for CHF 100 million each in a 5-year and 10-year maturity. The bonds are listed on the Swiss Exchange (SIX).

Key terms of the two new green bonds issued in financial year 2023 are shown in the table below:

Bond name	CHF 100 million, 5 year green bond	CHF 100 million, 10 year green bond
Issue rating	AA (S&P Global Ratings) / Aa2 (Moody's Investor Services)	AA (S&P Global Ratings) / Aa2 (Moody's Investor Services)
Instrument	Bearer Notes, Secured, pari passu	Bearer Notes, Secured, pari passu
Tenor	5 years	10 years
Issue date	18 October 2022	18 October 2022
Maturity date	18 October 2027	18 October 2032
Issue amount	CHF 100 million	CHF 100 million
Coupon	1.660 per cent, per annum	2.005 per cent, per annum
ISIN	CH1216400080	CH1221150464
Listing	SIX	SIX



Te pāpātanga i ā tātou pānga rawa kākāriki

Impact of our green bonds

Funds raised through green bonds to date have been used to finance and refinance debt that funded assets such as the rehabilitation of Puketutu Island, Central Rail Link, and water and wastewater infrastructure.

The impact assessment below details the assets' contribution towards reducing GHG emissions and achieving broader benefits. We have used appropriate metrics for each category where the measurement of GHG emissions is not applicable.

Te whakarāpopoto mō ngā rawa me ngā ine matua

Summary of assets and key measurements

Tūnuku parakore

Clean transportation

Auckland's public cycleway network

Increasing accessibility and safety for people on bicycles.

Measure: 2.9 ktCO₂-e avoided.

Asset value:

\$166.2m



Electric trains

Switching Auckland's train fleet from diesel to electric.

Measure: 21,858 tCO₂-e reduced and avoided in financial year 2023.

Asset value:

\$498.9m



Wiri Electric Train Depot

Maintenance and stabling facility for electric trains.

Benefit: Ensures smooth operation of the electric trains in the network.

Asset value:

\$70.1m



Te whakarāpopoto mō ngā rawa me ngā ine matua (e haere tonu ana)

Summary of assets and key measurements (continued)

Tūnuku parakore (e haere tonu ana)
Clean transportation (continued)

City Rail Link (CRL)

Underground rail link enabling Auckland's rail network to double in capacity.

Measure: Projected carbon reductions:

- Embodied carbon: 24,279 tCO₂e (15.8 per cent)
- Construction energy: 6,684 tCO₂e (19.2 per cent)
- Annual operational energy for the stations, tunnels and streetscape: 296 tCO₂e (22 per cent).

Asset value:

\$1,911.6m



Manukau Bus Station

A south Auckland major public transport exchange.

Benefit: Increased public transport patronage by improving frequency, quality and reliability of buses.

Asset value:

\$12.6m



Te whakarāpopoto mō ngā rawa me ngā ine matua (e haere tonu ana)

Summary of assets and key measurements (continued)

Te whāomotanga pūngao Energy efficiency

LED streetlights

Reducing energy consumption and providing safer environments.

Measure: 2,728 tCO₂-e reduced and avoided in financial year 2023.

Asset value:

\$71.0m



Te pūngao whakahou Renewable energy

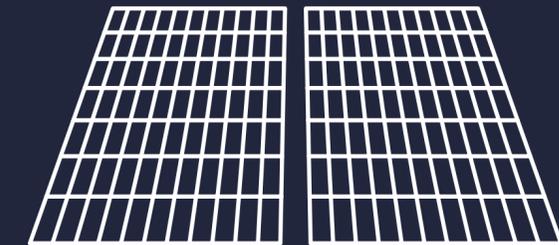
Rosedale floating solar array

Floating solar panels, generating clean energy.

Measure: 71 tCO₂e reduced.

Asset value:

\$2.2m



Whare kāriki Green buildings

Te Manawa – Westgate Community Building

Fully integrated community hub. Offers a range of community services including a library, council services, rooms for hire, commercial kitchen, studios, creative resources, programmes, events, work and study areas and a Citizens Advice Bureau.

Measure: 70.9 tCO₂e reduced per year (performance against NZGBC original design of building and associated reductions from building tuning).

Asset value:

\$33.8m



Auckland Council efficient buildings

NABERSNZ rated buildings.

Measure: 799 tCO₂e reduced.

(Inclusive of Auckland Council Head Office, Manukau Civic and Bledisloe House buildings)

Asset value:

(Inclusive of Auckland Council Head Office only)

\$217.4m



Te whakarāpopoto mō ngā rawa me ngā ine matua (e haere tonu ana)

Summary of assets and key measurements (continued)

Te wai toitū me te whakahaere parawai Sustainable water and wastewater management

Fred Thomas Drive

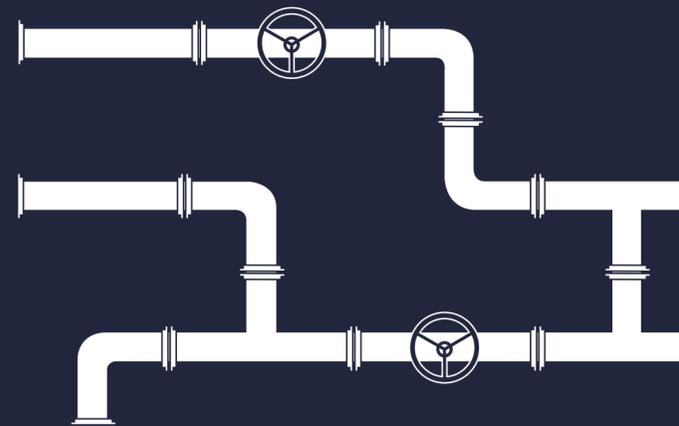
Pump station delivering sustainable wastewater management services.

Measure:

3,170,081 m³ of water passed.

Asset value:

\$22.7m



Hunua Watermain

Water pipeline providing water supply to high growth areas of Auckland.

Benefit:

Provides natural disaster resilience.

Asset value:

\$402.3m



Te toitū ā-tautaiāo o te whakahaere i ngā rawa o te aotūroa me te whakamahinga whenua Environmentally sustainable management of living natural resource and land use

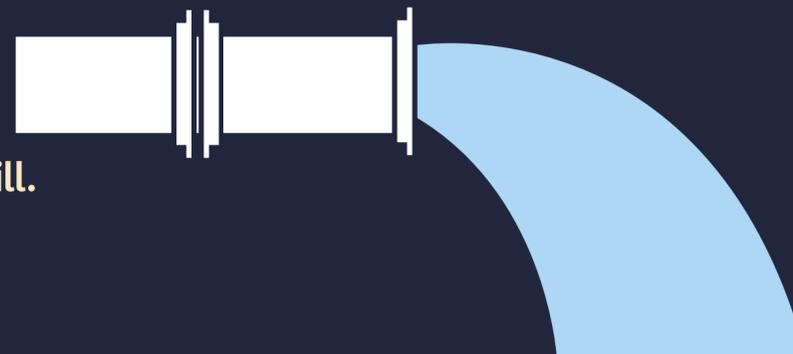
Puketutu Island

Quarry rehabilitation project for wastewater biosolids to avoid landfill.

Measure: 138,002 tonnes
of waste diverted from landfill.

Asset value:

\$126.0m



Te whakarāpopoto mō ngā rawa me ngā ine matua (e haere tonu ana)

Summary of assets and key measurements (continued)

Te aukati me te whakahaere parahanga Pollution prevention and control

Recycling and food scraps bins

Household recycling and food scrap bins.

Measure: Reduction of domestic kerbside refuse going to landfill

Asset value:

\$4.5m



Community recycling centres

Communities that collect unwanted items and materials for reuse and recycling.

Benefit: Diverting waste from landfill; promoting a circular economy.

Asset value:

\$98.2m



For more information, see **Appendix 1**.

Āpiti hanga 1 – Te pāpātanga i ā tātou pānga rawa kākāriki

Appendix 1 – Impact of our green bonds



Tūnuku parakore

Clean transportation

Ngā ara pahikara tūmatanui

Public cycleways

Introduction

New cycleways have played a significant role in the growth of bicycle movements and distances travelled by bicycle in recent years (see Figure 2 on page 16). With better network links to public transport hubs, cycling and walking are becoming easier and more accessible choices, enabling Aucklanders to switch their mode of travel from private vehicles to public transport. Auckland Transport (AT) has not only been maintaining and upgrading existing cycleways but also investing in many new projects to support travel by bicycle as a safe mode of transport (see [**Auckland Transport's Cycling and Walking Programme**](#)).

Broad benefits

Introducing cycleways has helped Aucklanders safely reach destinations such as work, school, friends, recreation and healthcare. Since 2016, AT has been monitoring cyclist movements across Auckland's cycleways using 26 counters. Those movements increased to 3.8 million in the financial year 2018 but dropped with COVID-19. They have not returned to previous peak levels, as new hybrid work norms have shifted travel patterns. 3 million cycle movements have been recorded in the 2023 financial year. This number was affected by poor weather during the peak cycle period of January to March 2023, as well as temporary and permanent changes to cycle networks.

However, investments in safe, connected cycle routes continue to result in growing cycle movements, such as Quay Street and along the new Tāmaki-Glen Innes shared path.

The expansion of Auckland's cycleway network delivers the following benefits:

- GHG emission reductions by substituting all or part of motorised travel with bicycle
- increased accessibility and safety for people on bicycles
- more people are more active, improving wellbeing
- reduced air and noise pollution when people on bicycles substitute motorised trips
- reduced household cost; research shows households using one less car could save around \$10,000 a year
- increased space on the road from fewer vehicles, reducing congestion
- greater range of travel options in the city
- improved connections by creating a network of cycleways across the city.



Ngā ara pahikara tūmatanui (e haere tonu ana)

Public cycleways (continued)

Reduction of GHG emissions

Figure 2 shows an estimate of the avoided GHG emissions from cycling in Auckland since 2012. Due to the unavailability of data for all years, we used trend lines to estimate the missing data. From June 2012 to June 2023, cycling trips in Auckland added up to 826 million km, avoiding about 26.2 ktCO₂-e (kiloton of Carbon dioxide equivalent) of GHG emissions, had this distance been taken using private vehicles.

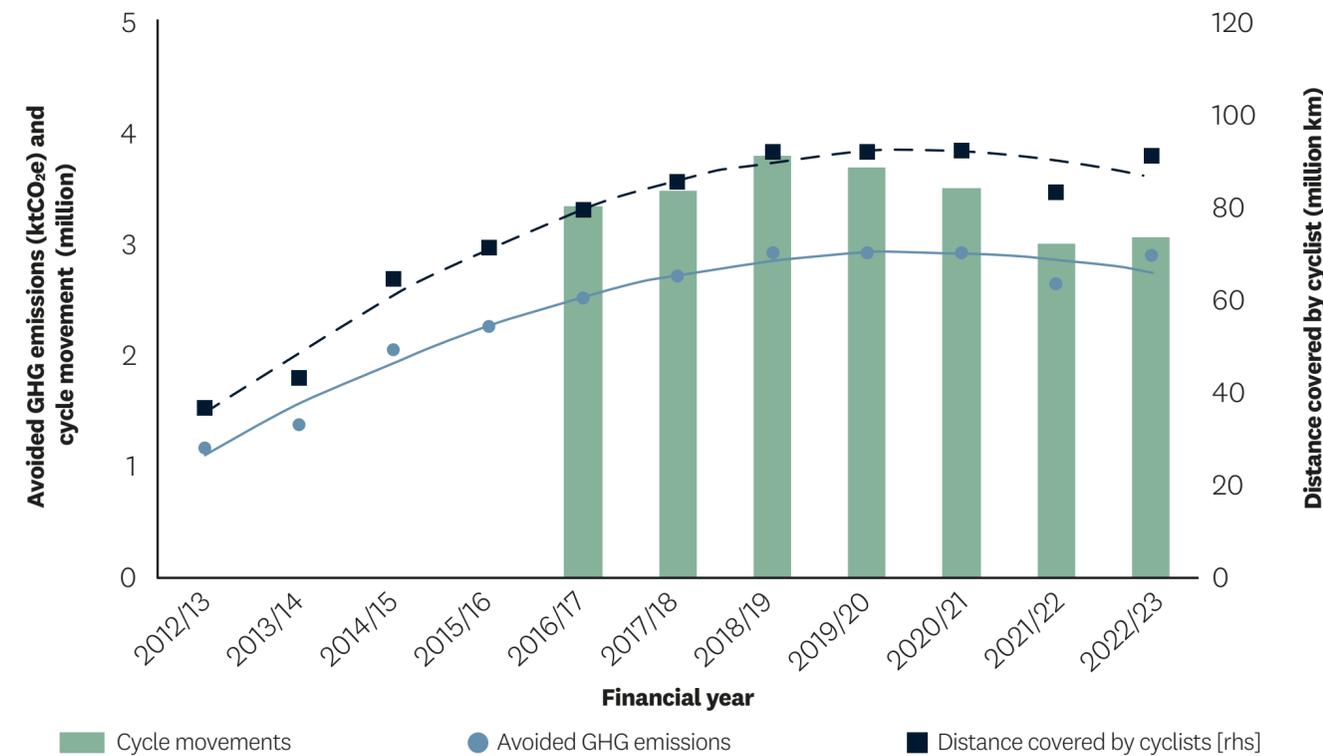


Figure 2. An indicative contribution of avoided GHG emissions due to public cycleways in Auckland.

Methodology

Data for kilometres travelled on Auckland’s cycleways is not available, so the impact on GHG emissions has been estimated for all cycling trips in Auckland. Data from the **Ministry of Transport (MoT) household travel survey** is used as a basis to estimate the kilometres travelled each year, with estimates made for years where data is unavailable. The GHG avoided due to the region’s cycleways have been calculated by assuming bicycles were used instead of light vehicles, public bus, train and walking modes of travel. Diversion factor values from research literature and emissions factors of different modes are used to assess the avoided emissions due to the cycling intervention in the Auckland region. Therefore, if 91 million kms were travelled by bicycle in the financial year 2022/2023, the emissions avoided would be 2.9 ktCO₂-e (assuming the alternative is a mix of light vehicle, public bus, train and walking modes). Due to the level of uncertainty, Toitū Envirocare has reviewed our methodology and issued an assurance statement (see Appendix 4).



Ngā tereina hiko

Electric trains

Introduction

In 2011, AT embarked on a project to design, manufacture and deliver 57 three-car Electric Multiple Units (EMUs), switching its train fleet from diesel to electric. The project was a key element in the region's Integrated Transport Programme to boost capacity and use of the rail network. The rollout of electrified rail lines from Papakura in the south to Swanson in the west included the purchase of 57 new EMUs for services along these lines. The first of the electric stock was in passenger service in April 2014 and all 57 by 2015. These trains have been retrofitted with a new European Train Control System (ETCS) to overcome obsolescence. These upgrades helped reduce travel time and energy consumption and improve reliability and network capacity. It also led to increased fleet use and speed recovery after incidents. In 2017, AT bought another 15 EMUs increasing the electric train fleet to 72, to boost frequency and passenger capacity. In January 2023, AT ordered a further 23 EMUs, which will bring ATs' EMU fleet size to 95. An expansion of the Wiri EMU Depot to accommodate this fleet expansion is also under way, and expected to be complete in July 2024.

Broad benefits

Since 2013, patronage across Auckland's commuter rail network has increased from 10 million a year to 21.4 million in 2019. COVID-19 and track maintenance works impacted the patronage in financial year 2020, 2021 and 2022, but recovered to 11.9 million in financial year 2023. In financial year 2023, train services accounted for 17 per cent of public transport trips and 2 per cent of public transport related GHG emissions. The shift of Auckland's commuter rail fleet to mostly electric has resulted in significant GHG emission reductions. In addition, this shift will deliver the following benefits:

- a faster, more frequent service, including the ability to carry more people per train and to double the length of trains from three to six-car trains
- reduced air quality impacts due to the absence of exhaust fumes from the trains' operation
- reduced noise impacts, both inside and outside the train, which benefits passengers as well as Aucklanders living and working near the rail network
- greater levels of customer comfort, information and safety, with international best-practice passenger information systems that ensure audio and visual information is easy to understand.



Ngā tereina hiko (e haere tonu ana)

Electric trains (continued)

Broader benefits also include:

- improved accessibility, including wider doors, automatic ramps for the mobility impaired and lower floors for pushchairs or people with luggage
- sliding plug-type doors providing a weather and soundproof seal, while open gangways between cars allow movement from one end of the train to the other
- reduced travel time and increased reliability, reduced energy consumption, and increased network capacity without track upgrade
- improved fleet use and improved recovery after incidents due to integration of driver assistance system
- a range of safety improvements, such as cameras that allow the driver to see all of the train, on-board CCTV that operates continuously in all cars, and emergency call points throughout the train that allow passengers to communicate directly with the crew in an incident.

Reduction of greenhouse gas emissions

AT assessed the GHG emissions reductions that have resulted from the shift to mostly electric trains. Figure 3 (opposite), shows the reduction in GHG emissions from the train network since electric trains started operating in 2014. Some services will be serviced by diesel trains until September 2023 as not all tracks are electrified (full electrification is planned for 2024). The net reduction of emissions was estimated by comparing a baseline scenario (continued full service by a diesel-only fleet)

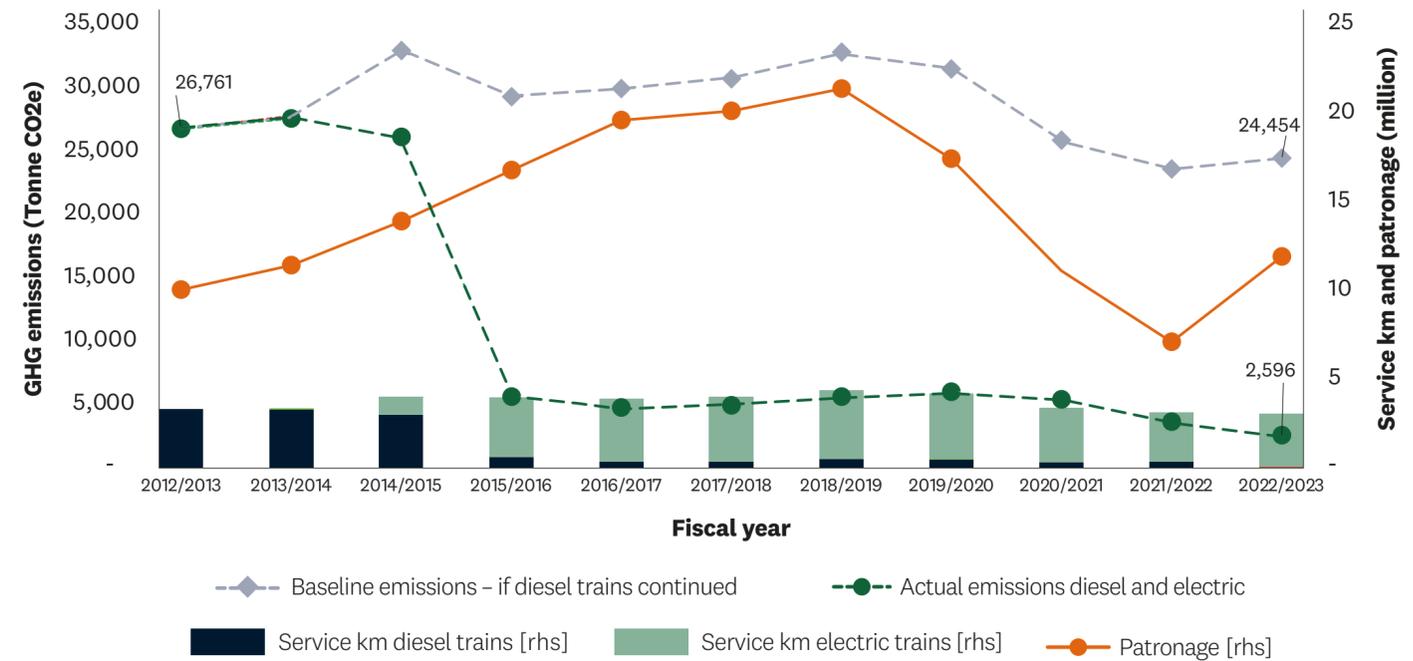


Figure 3. GHG emissions reduction electrification of train fleet.

with actual emissions. The net emissions reduction was estimated to be 21,858 tCO₂-e in financial year 2023.

Methodology

In financial year 2013, AT’s diesel-only fleet consumed an average of 2.96 litres of diesel per kilometre travelled, with each litre of diesel emitting 2.72 kgCO₂-e. Electric trains were introduced to the fleet in 2014, gradually replacing existing diesel trains. To estimate the actual GHG emissions associated with AT’s train fleet, both diesel and electricity based GHG emission factors have been applied, based on the diesel and electricity consumed by respective trains. The GHG emissions saving for each year can be calculated as: GHG emissions saving = baseline GHG emissions (if diesel trains continued to provide all train services) – actual GHG emissions.



Te Hongonga Rere Raro Whenua City Rail Link (CRL)

Introduction

The CRL is a 3.45km underground twin-tunnel rail link up to 42m below the Auckland city centre, connecting Britomart to Mt Eden to unlock the entire Auckland rail network and double rail capacity. Most (95 per cent) of the CRL's civil works are complete. The focus is now shifting to architectural finishings, structural fit-out of the three stations, and installation of rail systems. The CRL is on track for practical completion in November 2025, with the operational date to be determined by AT and KiwiRail.

Broad benefits

External sustainability verification

- The project's contract 2 in lower Albert Street holds a prestigious 'Excellent' As-Built Infrastructure Sustainability rating and contract 1, at Waitematā Station, a 'Leading' As-Built Infrastructure Sustainability rating, from the **Infrastructure Sustainability Council (ISC)**.
- Contract 3, which makes up 85 per cent of the entire project, was also awarded a 'Leading' Infrastructure Sustainability Design rating in May 2023 by the Infrastructure Sustainability Council, the highest rating possible. It is tracking well to deliver on its targeted 'Excellent' ISC As-Built rating once the project reaches practical completion.

Placemaking

- The New Zealand Geographic Board Ngā Pou Taunaha o Aotearoa formally adopted the te reo Māori station names gifted by the CRL Mana Whenua Forum. The names - Maungawhau Station,

Karanga-a-Hape Station, Te Waihorotiu Station and Waitematā Station - reflect the rich culture and history of their geographic locations.

These names and the striking designs from mana whenua artists and designers for Maungawhau Station, Karanga-a-Hape Station, and Te Waihorotiu Station acknowledge Auckland's past and its future. Reflecting their locations and acknowledging mana whenua cultural traditions and storytelling, they will bring unique architectural and cultural style and vibrancy to Auckland.

- The CRL will be the catalyst for significant development of new commercial properties, with thousands of homes to be built around its stations and along the rail network, providing people with better access to housing, public transport and employment opportunities.

Social outcomes

- The project is committed to providing supply chain opportunities for small and medium-sized Māori and Pacific businesses. To date, 46 contracts ranging from catering and labour hire to traffic management have been awarded to Māori and Pacific businesses representing 8 per cent of the total C3 contract spend.
- 33 rangatahi (young people) have now graduated from the **CRL Progressive Employment Programme (PEP)**. A 16-week-long programme helping Māori, Pacific and youth transition into rewarding full-time work while recognising them in context of their whānau and communities. Interns receive training, mentoring, pastoral care and exposure to a variety of jobs while being paid, with offers of fulltime roles after graduation.



Te Hongonga Rere Raro Whenua (e haere tonu ana)

City Rail Link (CRL) (continued)

Future benefits

- When the CRL is built, the capacity of Auckland's rail network will double. Train services will be more frequent and there will be considerable savings in travel times.
- The number of people within 30 minutes by train from central Auckland – New Zealand's biggest employment hub – will double.
- It will provide a world-class rail network that will reduce reliance on cars.
- At peak times, up to 54,000 people will come and go from the new CRL stations – that is the equivalent to another 16 lanes of motorway or three more Auckland Harbour bridges.

Reduction of GHG emissions

Reducing resource consumption is one of five key focus areas for the CRL. The two most common materials used on the CRL – concrete and steel – contain high levels of embodied carbon. Because of the large volumes of both required to build the CRL, they also provide the greatest opportunity to reduce the project's embodied carbon footprint. We are optimising the use of materials and energy from design through to operation. We created an estimate, or base case, for each construction contract enabling us to track the project's success. This measures the total amount of energy – materials and water, and the resulting carbon emissions – that would be used to build and operate the CRL if business-as-usual occurred without sustainability interventions. Throughout the project, the team has continued to measure progress to minimise materials, energy usage and the resulting carbon emissions against the original base case calculations. Innovations to reduce

materials use and emissions have included measures such as using fly-ash as a less carbon intensive cement replacement in concrete mixes, energy efficient station designs that minimise lighting and ventilation energy use, reducing and reusing materials and replacing diesel generators with electricity from the grid during construction.

With design largely completed and construction well underway, the total reductions in the carbon footprint for C3 are projected to be:

- embodied carbon: 24,279 tCO₂-e (15.8 per cent)
- construction energy: 6,684 tCO₂-e (19.2 per cent)
- annual operational energy for the stations, tunnels and streetscape: 296 tCO₂-e (22.0 per cent).

Methodology

GHG emissions savings achieved in comparison to the base case have been based on estimated energy and materials use, in accordance with the requirements of the ISO 14064-1 standard, and where relevant, guided by the GHG Protocol Corporate Accounting and Reporting Standard, to satisfy the requirements of the ISC credit requirements. With the percentage GHG emissions saved based on the difference between the Projected GHG emissions based on the detailed design and construction methodology and the base case GHG emissions. Toitū Envirocare has reviewed the methodology CRL used to calculate the energy GHG emission savings associated with the project (see Appendix 4).



Te Tauranga Tereina Hiko o Wiri

Wiri Electric Train Depot

Introduction

Wiri's Electric Train Depot is a maintenance and stabling facility for electric trains. The site is located next to the South-Western Expressway in Wiri and is bordered by Roscommon and Wiri Station Roads. Its proximity to the Main Trunk Northern Line makes it well suited for access purposes.

The purpose-built facility has been developed over 4.4ha and comprises a maintenance building of 7650 sqm, 6km of rail track sidings, 7 maintenance berths (some of them are electrified) and stabling for 28 trains. There is also a locally operated points system so that all train movements can be controlled on-site. The depot building comprises three distinct areas:

- the main maintenance hall where trains are serviced
- the ground floor, housing offices for the train supplier
- the first floor, housing the depot control office, the train operator, Transdev, and staff amenities.

The building includes under-floor lifts, overhead gantries and jacking systems to lift the body of the train.

Broad benefits

As well as providing a dedicated service and maintenance facility for electric trains, the depot also provides the following benefits. It:

- ensures smooth operation of the electric trains in the network
- provides overhead gantries to lift heavy equipment on and off the trains
- houses permanent train jack systems to lift the body of the train up to remove the bogies (Wheel chassis) for maintenance
- has wheel lathe and underfloor pits to enable easy access to the electric trains
- has an automatic train wash and covered platform to facilitate cleaning of the inside of the vehicles.



Te Teihana Pahi o Manukau

Manukau Bus Station

Introduction

The Manukau Bus Station is strategically positioned within the Manukau central business district with Manukau Train Station at the west and Manukau Civic Building at the east. The station is part of the Manukau transport interchange and is critical infrastructure in realising the full potential of the upgraded public transport services on the southern network.

The station comprises 23 bus bays with future-proofed facilities to enable slot management as service numbers increase, providing flexibility between urban and inter-regional services. The station also includes five retail facilities, a customer service centre, real-time information signage and an AT HOP ticket vending and reload machine.

The station assists in economic development, providing additional capacity for future growth and contributes towards improved service frequency on the public transport (PT) network. The station is a crucial hub in the overall southern transport network, serving key residential, commercial and industrial catchments. The station has been beneficial to all road users, improving communities' connectivity to business, employment, education, and recreational institutions and facilities via PT.

Manukau bus interchange, as well as the electric train depot, contributes towards Auckland's goal of 'a low-carbon, safe transport system that delivers social, economic and health benefits for all' as detailed in

Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan by making travel by PT faster, more frequent and reliable over a wider network.

Broad benefits

Manukau Bus Station provides several benefits, from supporting a high-quality regional public transport network to increased comfort and customer experience on PT.

Broader benefits include:

- integrated operation of Manukau Bus Station with Manukau Rail Station
- increased public transport patronage by improving frequency, quality and reliability of buses
- reduced congestion in the CBD by relocating the inter-regional services to Manukau and in turn providing more space for sustainable transport infrastructure to support urban public transport, pedestrians and cyclists in the city centre
- enhanced level of service, security and shelter required by passengers throughout the year, especially early in the morning and late at night
- increased PT mode share options
- increased comfort and customer experience of PT
- increased spatial coverage of public transport to Auckland's population, consequently increasing availability and access of PT services
- decreased travel time to many bus routes that connect to the Manukau Bus Station
- improved passenger transfer between bus-to-bus and bus-to-rail services.



Te whāmotanga pūngao me ngā whare whāomo

Energy efficiency and green buildings

Te whakapainga ake o ngā rama LED i ngā huarahi

Street lighting LED upgrade

Introduction

Streetlights are an essential piece of city infrastructure and are required for lighting public roads and accessways for traffic and pedestrian safety. Most of the region's streetlights have been changed from golden yellow light to white light. International experience has shown that white light is a factor in crime prevention; it delivers greater comfort and security, and improves visibility and reaction times for drivers and pedestrians, resulting in fewer vehicle crashes and injuries.

The streetlight phase-1 retrofit programme began in May 2015. There were 106,580 lights on the network at this time. These streetlights illuminate both Pedestrian predominant (P-category) and Vehicle predominant (V-category) roads across Auckland. The network has grown by approximately 2323 LED lights per year, mainly due to new subdivisions. Phase-1 of the retrofit programme converted all 44,000 high-pressure sodium lights on the P-category roads to LED over three years.

Phase-2 of the retrofit programme began in 2019 and aimed to replace a further 49,000 HPS on V-category roads. As of June 2023, there are

125,167 lights in the network with 98 per cent (122,367) being LED lights. The operational cost of streetlights has reduced from \$14.10 million in financial year 2015 to \$10 million in financial year 2023 despite the growth and increased electricity tariff.

Broad benefits

In addition to reducing overall energy consumption and associated GHG emissions, the street lighting LED upgrade has delivered the following benefits:

- renewal of an ageing street lighting network
- introduction of LED white lights which is internationally recognised as providing a safer environment for pedestrians and vehicles at lower electricity use
- reduced light spill onto neighbouring properties
- reduced the amount of existing maintenance spend
- reduced upward waste light.



Te whakapainga ake o ngā rama LED i ngā huarahi (e haere tonu ana)

Street lighting LED upgrade (continued)

Reduction of greenhouse gas emissions

Figure 4 shows the reduction in GHG emissions from the streetlight network since the retrofit programme started in 2016. We add an average of 2323 new lights to the streetlight network each year. Due to the intervention of the retrofit programme, the proportion of LED increased to 35 per cent in 2018 and 98 per cent in 2023. The intervention reduced GHG emissions associated with streetlights from 6,922 tCO₂-e in 2018 to 2,507 tCO₂-e in financial year 2023. The net reduction of emissions was estimated by comparing a baseline emissions scenario (operating streetlight network without LED retrofitting) with actual emissions with retrofitting.

The net emissions reduction was 2,728 tCO₂-e in financial year 2023. Since financial year 2018, the retrofit programme has contributed towards the avoidance of 12,419 tCO₂-e GHG emissions.

Methodology

By deducting the actual GHG emissions from baseline GHG emissions for the respective year, we can calculate the GHG emissions avoided for that particular year.

GHG emissions saving = Baseline GHG emissions – Actual GHG emissions.

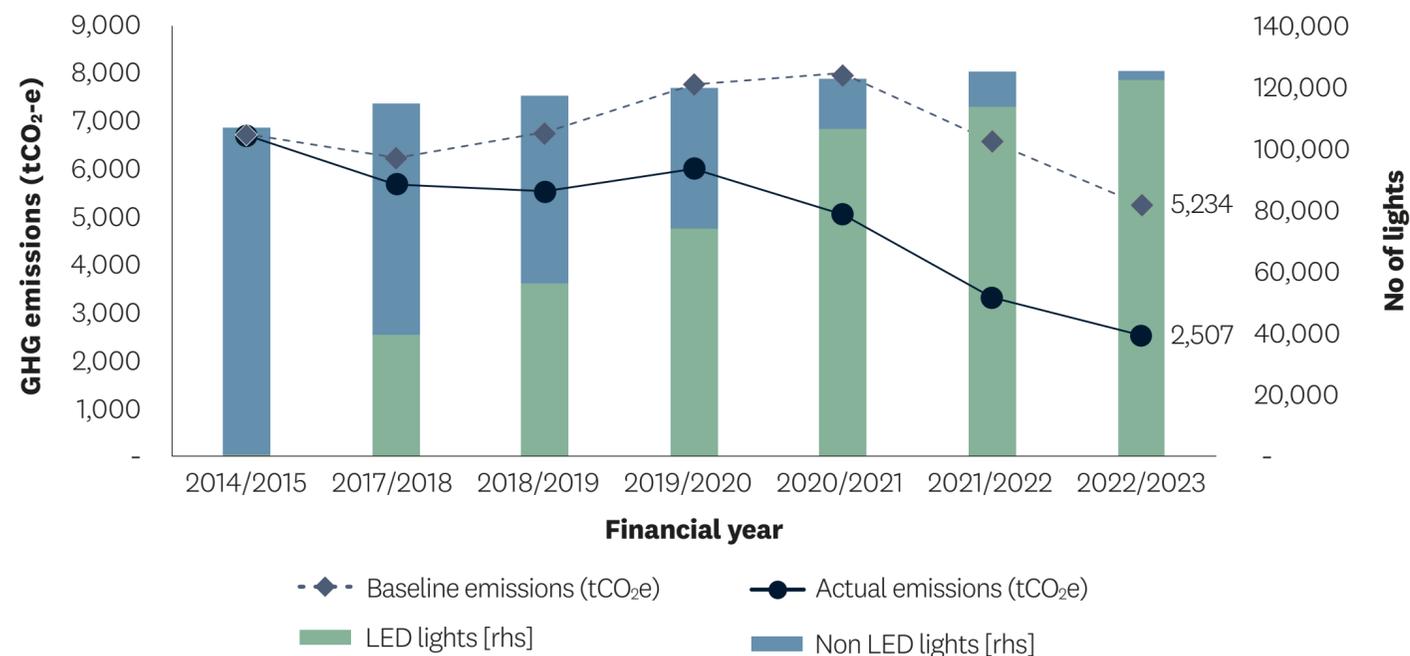


Figure 4. GHG emissions reduction due to LED retrofit.



Te Manawa - Te Whare Hapori o Westgate

Te Manawa – Westgate Community Building

Introduction

The Westgate Library and Multi-Purpose Facility in Westgate town centre stands as a sustainable beacon, prioritising environmental stewardship in its design and operations. This civic building serves as a core community destination while setting a benchmark for sustainability. Te Manawa offers a library, customer service centre, rooms for hire, commercial kitchen, creative spaces, work and study areas, and a Citizens Advice Bureau along with community-focused programmes and activities.

Designed to minimise energy consumption, the building utilises passive strategies such as external shading devices and overhangs, which naturally cool the interior spaces by providing shade. The highly insulated green roof not only enhances insulation but also contributes to stormwater management and biodiversity. A photovoltaic (a non-mechanical device that converts sunlight directly into electricity) array, cleverly integrated as a shaded reading terrace, harnesses renewable solar energy to power the facility.

Inside, the building features low-energy displacement ventilation, ensuring optimal air quality while reducing energy demands. Water-efficient fixtures

are implemented throughout, promoting responsible water use. The design also emphasises natural light, with the double-height atrium allowing for ample daylight penetration into the public areas, reducing the need for artificial lighting.

In addition to its sustainable features, the building embraces the concept of education through its design. It serves as a platform for showcasing sustainable building techniques, providing visitors with an opportunity to learn and engage with sustainable practices. This aligns with the building's library function, further reinforcing its role as an educational and community-oriented space.

By incorporating all of the features detailed above the buildings sustainable design principles have lead to the Te Manawa Building achieving a **5 Green Star - Green Star Custom Design Certified Rating**. The Westgate Library and Multi-Purpose Facility serves as a shining example of how civic buildings can lead the way in sustainability, fostering a greener and more resilient community. The building design has also won an architectural award.



Te Manawa - Te Whare Hapori o Westgate (e haere tonu ana)

Te Manawa – Westgate Community Building (continued)

Broad benefits

In addition to reducing overall energy consumption and associated GHG emissions, construction of Te Manawa has the following benefits:

- 83 per cent of construction waste was diverted from landfill (333 tonnes diverted)
- building design that minimises ongoing maintenance throughout the building life cycle
- timber sourced from Forest Stewardship Council-certified forests with full chain of custody
- reduced potable water consumption with water-efficient sanitary fittings and fixtures
- reduced water usage for water-based cooling system
- zero potential Ozone depleting refrigerants used
- enhanced commissioning for improved building services performance
- predicted greenhouse gas emissions significantly lower than a standard building.

Reduction of greenhouse gas emissions

The graph (opposite), shows the reduction in GHG emission. Annual GHG emissions have reduced by 71 tonnes when comparing annual emissions benchmark from Te Manawa Building outputs, the proposed design and New Zealand Green Building Council (NZGBC) reference building.

Once constructed, the building underwent ‘tuning’ to ensure optimal performance. This tuning resulted in a further 10 per cent reduction in energy consumption and 3 tonnes of CO₂ avoided between January 2020 and August 2020. The net reduction of emissions was calculated by the building output calculations and reported in building tuning reports.

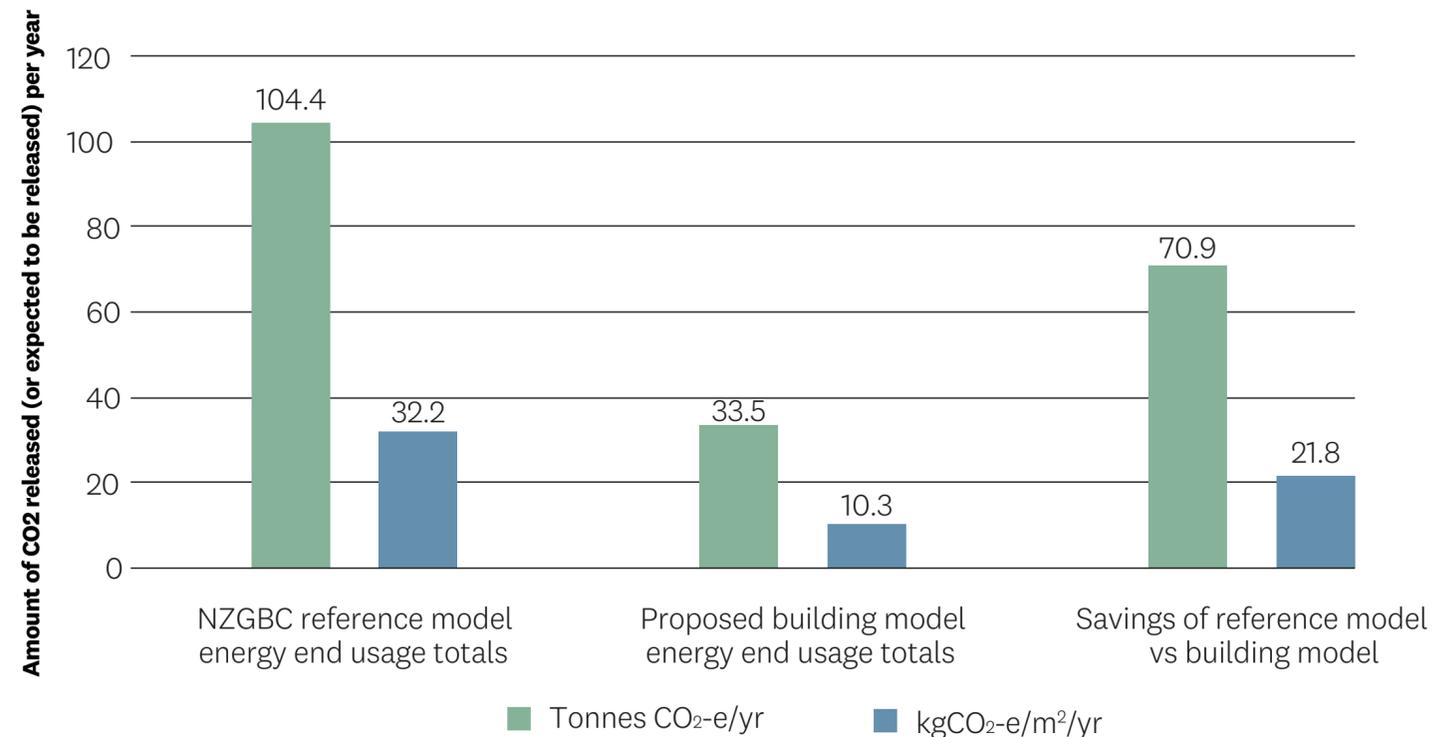


Figure 5. Comparison of annual emissions benchmark between proposed design and NZGBC reference building.



Te Manawa - Te Whare Hapori o Westgate (e haere tonu ana)

Te Manawa – Westgate Community Building (continued)

Methodology

Each of the models has been simulated for a typical weather year and annual energy use of each end use has been calculated using the design performance parameters as documented in the building design documentation. The annual emissions associated with gas and electricity have been calculated using the reference emission factors used by New Zealand's Energy Efficiency & Conservation Authority.

- Electricity = 0.1288 kgCO₂-e/kWh (where kWh means kilowatt hours)
- Natural Gas = 0.2168 kgCO₂-e/kWh

The subsequent annual reduction in GHG emissions has been benchmarked as 71 Tonnes CO₂-e per year (or 21.9kgCO₂-e/m² per yr).



Whare kāriki

Green buildings

Introduction

For many organisations their buildings represent a very tangible symbol of their values, and this is why Auckland Council's green building strategy, particularly for Te Wharau o Tāmaki (Auckland House) as the council's head office, is a priority. The council's green building strategy contributes towards the organisational target of reducing GHG emissions by 50 per cent by 2030. Our corporate buildings are currently on track to achieve a 50 per cent reduction well before 2030. The key to ensuring we meet this target is having our buildings **NABERSNZ** rated and, where applicable, green star rated. NABERSNZ ratings are based on the energy performance of a building and is obtained once buildings are occupied and have been operating for a year or more. NABERSNZ ensures buildings are performing at a high standard and provides a benchmark to track progress as energy efficiency measures are implemented.

Broad benefits

Although each building has differing levels of energy efficiency, Auckland Council's buildings are almost all double glazed, have LED lighting, after-hours shut-off and building management system (BMS) controls on HVAC. We have also continued to improve our environmental performance with the refurbishment of Auckland House lifts, which has resulted in a 50 per cent increase in energy efficiency.

Manukau Civic offices are currently being refurbished to incorporate many new features such as new LED lights, sensor controls, modernised lifts with new drive technology and regenerative braking and a new air-conditioning system throughout the building, which will improve environmental performance. This uplift in performance will be captured in a post-project NABERSNZ reassessment in early 2024.

As well as improving energy efficiency, Auckland Council is also looking at how the use of our buildings can be optimised to achieve environmental benefits. Through our corporate property strategy, we're right-sizing our properties to support a more modern, agile and digitally enabled workforce. Through this programme, we are planning to reduce our corporate property real estate footprint from around 105,000 m² to 68,000 m². As a result, our carbon emissions are estimated to reduce by 56 per cent (or 1447 tonnes of cO₂) by 2025. Reducing the size of our portfolio has also resulted in reductions to our vehicle fleet, corporate office operational costs, and office support services, such as online mail and printing.

A reduction in emissions is being driven by less space, active recycling of capital back into held properties to improve performance, and procuring office premises to high green building standards. For our new builds and major refurbishments we have adopted the NZ Green Building Council Greenstar Standard, which reflects and certifies buildings to best practise design for environmental responses and healthy buildings.



Whare kāriki (e haere tonu ana) Green buildings (continued)

Our new northern office hub (Munroe Lane), which has recently been completed, is expected to be a 5-star Greenstar rated and 5-star NABERSNZ rated. This is an example of how our procurement is aligned to key values of green stewardship. Like the other hubs in our new office portfolio, this hub is located near public transport, and features quality end-of trip facilities for walking, cycling and micro mobility, as well as EV-charging infrastructure to support the council’s transition to 100 per cent EV. Munroe Place, once finished, will be the council’s most operationally energy efficient building.

Reduction of greenhouse gas emissions

Figure 5 opposite shows a steady decrease in the GHG emissions associated with electricity consumption for Bledisloe House, Auckland Council Head Office, and Manukau Civic Buildings from 2017. From financial year 2017 to financial year 2023, GHG emissions associated with electricity usage have decreased by 799 tCO₂-e.

Removal of assets

Bledisloe House Customer Service Centre has been removed from the council’s eligible asset schedule as of 1 July 2023 as it has been sold and will no longer be under the ownership of Auckland Council as of December 2023.

Manukau Civic Building has also been removed as of 1 July 2023 while it is being refurbished. Once the upgrades are complete, Manukau Civic will be reassessed for a NABERSNZ rating.

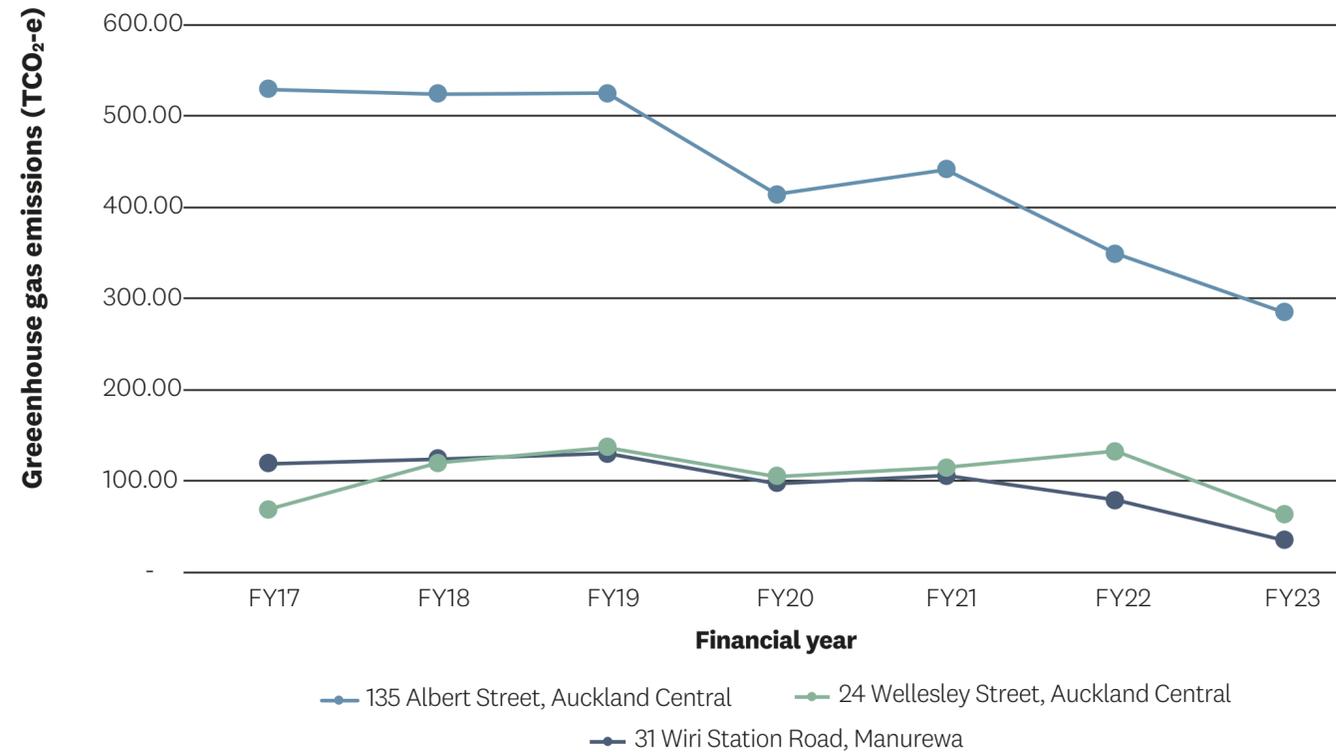


Figure 6. tCO₂e derived from electricity usage in Auckland Council buildings.

Methodology

Electricity data provided by suppliers is directly auto forwarded into the council’s utility management system - e-bench. The utility management system has a robust auditing process to ensure data is loaded efficiently and accurately against the correct account. The data which is provided in kWh has been converted to tCO₂-e using the Ministry for Environment emission factors and reported in Figure 6.



Te pūngao whakahou **Renewable energy**

Te mūmū ā-papa kōmaru ka mānu **Floating solar array**

Introduction

The Rosedale floating solar array was the largest in New Zealand when construction finished in 2020.

The one-megawatt array covers 1 ha and consists of more than 2700 solar panels and 4000 floating pontoons situated at Watercare's Rosedale Wastewater Treatment Plant. It floats on a treated wastewater pond next to Auckland's Northern motorway and can generate around 1400 Megawatt hours per year. The array will generate enough energy to power around a quarter of the sewage treatment plant, saving about \$150,000 a year in electricity costs.

Broad benefits

Broader benefits include:

- contributing to Watercare's target of 50 per cent reduction in GHG emissions by 2030
- reducing carbon emissions by 71 tonnes each year
- generating enough power to run the equivalent of 200 average New Zealand homes for a year

- delivering operational cost savings
- improving energy self-sufficiency.

Reduction of greenhouse gas emissions

71 tCO₂-e of greenhouse gas emissions avoided in financial year 2023.

Energy production this financial year was lower than anticipated due to reduced sunshine hours and damage sustained during a storm event meaning part of the array was isolated and offline while being repaired.

Methodology

A data export from the solar array management system identifies total energy generation in kWh. This is translated into carbon emission equivalents using Ministry for Environment emission factors to identify the volume of avoided emissions from displacing demand on the electricity grid.



Te wai toitū me te whakahaere parawai

Sustainable water and wastewater management

Te Huarahi o Fred Thomas

Fred Thomas Drive

Introduction

The Fred Thomas Drive pump station upgrade is delivering sustainable wastewater management for the local area. The project serves many purposes, with the dual benefit of catering for growth in the region as well as reducing overflows during storm events. The project upgraded the previous Barry's Point Road pump station, which was built in the 1960s.

The old pumping station had a pumping capacity of 325 litres per second and wastewater storage of 520,000 litres. By comparison, the new station has a pumping management capacity of 500 litres per second and a storage capacity of 3.5 million litres. Increased capacity is required to service the changing population in Devonport and east Takapuna where the population is expected to increase from 25,400 in 2015, when the project was initiated, to more than 40,000 by 2050.

Integral to the project is a new storage tank. It has the capacity of 1.5 Olympic swimming pools but will only fill to the brim in storm conditions, which means a reduction in wet-weather overflows during heavy rain into

Shoal Bay, Northcote. Infrastructure that can reduce overflows is vital to keeping Auckland's beaches clean, a legacy that, so far, has been well upheld in the North Shore.

Broad benefits

The project caters for the growth of Auckland while also replacing ageing infrastructure that was at the end of its design life. An additional benefit of the project is reduced overflows of sewage to the natural environment during extreme weather events. On average this was occurring six times per year before the construction of the storage tank. Without intervention, overflows were also expected to become more frequent due to population growth – and therefore increased sewage volumes – and more extreme weather events as a result of climate change.



Te Huarahi o Fred Thomas (e haere tonu ana)

Fred Thomas Drive (continued)

Metrics

3,170,081m³ of water passed through the Fred Thomas Drive pump station in financial year 2023.

Methodology

Wastewater from this site is pumped through a flow meter. Watercare Services Limited's SCADA (supervisory control and data acquisition) software captures and stores this data. The data shared was extracted on 12 July 2023.

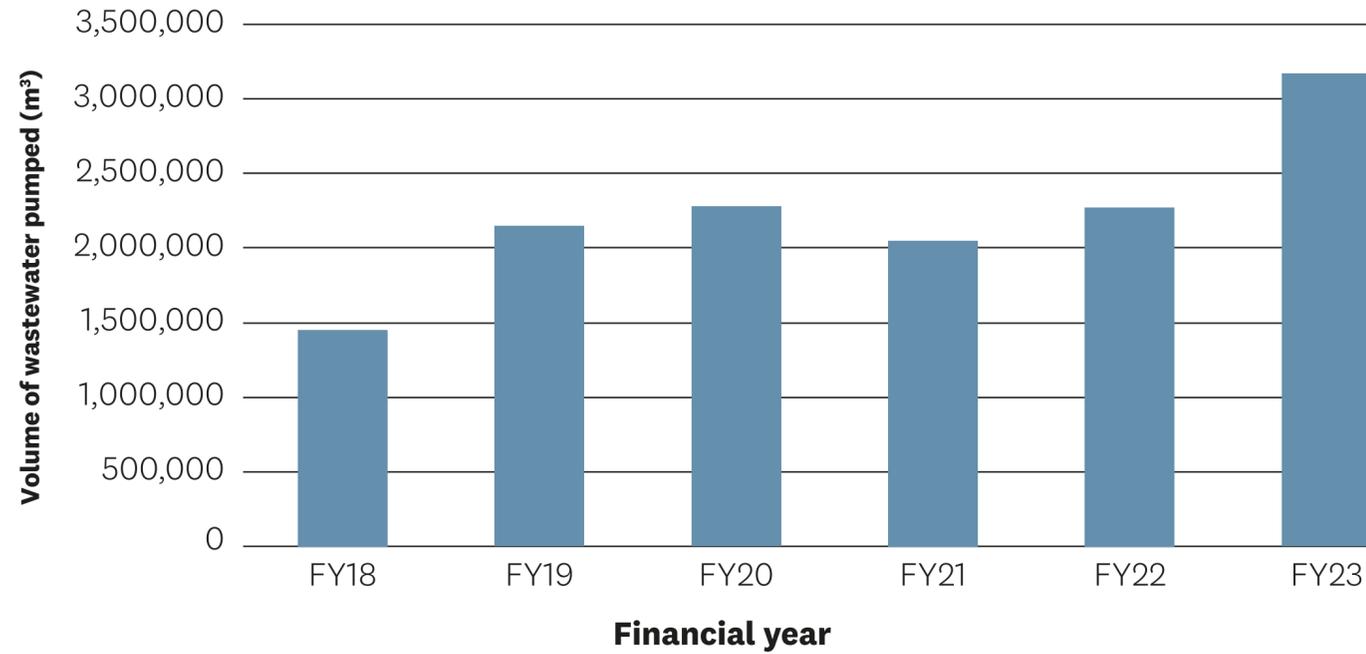


Figure 7. Annual volume of wastewater pumped (Fred Thomas Drive).



Te kūtere wai o Hunua

Hunua watermain

Introduction

Hunua 4 is 31km of a 1.9m by 1.6m waterpipe that runs from Watercare's reservoirs at Redoubt Road North in Manukau to reservoirs at Khyber Pass Road on the edge of the CBD. Its purpose is to provide water to high growth areas of the city such as Manukau City Centre, Flat Bush/East Tāmaki and Auckland Airport. It will support growth in all regions of the city over the next 50 years. In addition, it provides resilience to the other large transmission mains in the event of outages or natural disaster. This water main can distribute up to 240 million litres of water per day, which is almost half the daily demand for Auckland.

Broad benefits

The benefits of the project include:

- ensuring that, as demand for water grows, a high-quality water supply can be provided uninterrupted
- providing resilience in the event of a natural disaster
- allowing Watercare to maintain the assets without major disruption to the water supply.

The project also delivered other benefits during construction:

- The final section of the pipeline, from Epsom to Khyber Pass, follows major arterial routes. The design team reviewed their standard approach and used tunnelling instead of trenches to reduce disruption for road users and businesses.
- This project also sourced a large percentage of materials from around the Auckland region. This included local aggregate, and the steel pipe was made close by in the suburb of Onehunga with steel from Glenbrook.



Te toitū ā-tautaiāo o te whakahaere i ngā rawa o te ao tūroa me to whakamahinga whenua

Environmentally sustainable management of living natural resources and land use

Te Motu o Puketutu

Puketutu Island

Introduction

Puketutu Island – known as Te Motu a Hiaroa to Mana Whenua – is sacred to the people of Te Kawerau ā Maki, Te Waiohūa and Waikato-Tainui in Tāmaki Makaurau. It was the first permanent home of the crew of the Tainui waka in Aotearoa. In the 1950s, the island was quarried for projects including the expansion of the nearby Auckland Airport. Thousands of tonnes of scoria and basalt rock were removed, and the island’s volcanic cones disappeared. Many years ago, Watercare bought a long-term lease on the island and then transferred its ownership to a trust with 12 iwi trustees.

We are now rehabilitating the island by filling the former quarry with biosolids from the Mangere Wastewater Treatment Plant. Once complete in 2049, the natural landscape will be restored and the area will become a public entity for Aucklanders. Four hills will replicate the scoria cones quarried in the 1950s. The contours of the hills are based on photos from the early 1900s and the community’s recollections of the island. The shape of these hills went through 52 iterations with the community and iwi to ensure they accurately reflect their previous glory.

Broad benefits

- The project will significantly reduce waste to landfill. Over the lifetime of the project approximately 4.4 million tonnes of bio solids will have been used to restore the quarry, rather than go to landfill.
- The long-term goal is for the island to serve as a recreational reserve for everyone in Auckland to enjoy.
- It will restore a culturally significant site to replicate its former state.



Te Motu o Puketutu

Puketutu Island

The site has immense cultural, spiritual, historical and ancestral significance to the people of Te Kawerau ā Maki, Te Waiohūa and Tainui, who are recognised as the kaitiaki (guardians) of the island.

Metrics

138,002 tonnes of waste have been diverted from landfill during financial year 2023 and used to restore the quarry.

Methodology

Weighbridge data for the site is collected daily. This data includes a lime additive. To calculate the volume diverted from landfill, the volume of lime additive is deducted from the total volume calculation.

Water services reforms

As part of its Water Services Reform Programme (formerly known as Three Waters Reform), the government has passed legislation to create new water entities that will operate drinking water, wastewater and stormwater networks. Services in these areas currently delivered by Auckland Council and Watercare are expected to be delivered by a new water services entity from 1 July 2024.

In line with our requirements under the legislation, the council group is supporting the reform programme where necessary and working to assess the impacts. As these impacts become clearer, particularly through further legislation, any impacts on plans will be incorporated. For more information on the reform programme see dia.govt.nz/Three-Waters-Reform-Programme

Removal of assets

Any assets listed in the eligible asset register transferred to the new water services entity will be removed from the eligible assets register at 30 June 2024. Auckland Council will work through this process over the next 12 months.



Āpitianga 2 – Te uaratanga o ngā rawa māraurau

Appendix 2 – Value of eligible assets at 30 June 2023

No.	Eligible asset	Eligible asset details (including year)	Eligible sector (see <u>Auckland Council's Sustainable Finance Framework</u>)	Climate Bond Initiative (CBI) criteria/ GBP alignment	UN SDG alignment	Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan alignment	Asset value (book value) NZ\$m	Asset value (project cost) NZ\$m	Future spend (project cost) NZ\$m	CBI certified asset	Added under the eligibility criteria as of 30 September 2023
1	Electric multiple units	Original rolling stock of electric trains (started operations in 2014)	Clean transportation	GBP: Clean transportation Climate Bond Initiative (CBI): Transport, public passenger transport, trains - rolling stock and vehicles for electrified public transport, such as electrified rail, trams, trolleybuses and cable cars	 	<u>Ikiki Transport</u>	\$420.5	N/A	None	Yes	No
2	Electric multiple units	Second lot of 15 rolling stock of electric trains (started in 2017)	Clean transportation	GBP: Clean transportation CBI: Transport, public passenger transport, trains - rolling stock and vehicles for electrified public transport, such as electrified rail, trams, trolleybuses and cable cars		<u>Ikiki Transport</u>	\$70.1	N/A	None	Yes	No



Appendix 2: Value of eligible assets at 30 June 2023 (continued)

No.	Eligible asset	Eligible asset details (including year)	Eligible sector (see <u>Auckland Council's Sustainable Finance Framework</u>)	Climate Bond Initiative (CBI) criteria/ GBP alignment	UN SDG alignment	Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan alignment	Asset value (book value) NZ\$m	Asset value (project cost) NZ\$m	Future spend (project cost) NZ\$m	CBI certified asset	Added under the eligibility criteria as of 30 September 2023
3	Electric multiple units	New lot of 23 rolling stock of electric trains (started in 2022)	Clean transportation	GBP: Clean transportation CBI: Transport, public passenger transport, trains - rolling stock and vehicles for electrified public transport, such as electrified rail, trams, trolleybuses and cable cars		<u>Ikiiki Transport</u>	\$8.3	N/A	\$273.9 (unaudited)	Yes	No
4	Public cycleway assets	Public cycle and walking infrastructure (started construction in 2012)	Clean transportation	GBP: Clean transportation CBI: Transport, public passenger transport, infrastructure - public walking and cycling infrastructure and cycling schemes	 	<u>Ikiiki Transport</u>	N/A	\$166.2	None	Yes	No



Appendix 2: Value of eligible assets at 30 June 2023 (continued)

No.	Eligible asset	Eligible asset details (including year)	Eligible sector (see <u>Auckland Council's Sustainable Finance Framework</u>)	Climate Bond Initiative (CBI) criteria/ GBP alignment	UN SDG alignment	Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan alignment	Asset value (book value) NZ\$m	Asset value (project cost) NZ\$m	Future spend (project cost) NZ\$m	CBI certified asset	Added under the eligibility criteria as of 30 September 2023
5	City Rail Link	New rail tunnel and stations to enhance network and enable higher electric train use (started construction in 2016)	Clean transportation	GBP: Clean transportation CBI: Transport, public passenger transport, infrastructure – dedicated infrastructure for electrified public transport	 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	<u>Ikiiki Transport</u>	N/A	\$1,911.6	\$834.9 (unaudited)	Yes	No
6	Wiri Electric Train Depot	Maintenance depot for electric trains to improve reliability of network and enable higher electric train use (started construction in 2012)	Clean transportation	GBP: Clean transportation CBI: Transport, public passenger transport, infrastructure - dedicated infrastructure for electrified public transport	 11 SUSTAINABLE CITIES AND COMMUNITIES	<u>Ikiiki Transport</u>	\$70.1	N/A	None	Yes	No



Appendix 2: Value of eligible assets at 30 June 2023 (continued)

No.	Eligible asset	Eligible asset details (including year)	Eligible sector (see <u>Auckland Council's Sustainable Finance Framework</u>)	Climate Bond Initiative (CBI) criteria/ GBP alignment	UN SDG alignment	Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan alignment	Asset value (book value) NZ\$m	Asset value (project cost) NZ\$m	Future spend (project cost) NZ\$m	CBI certified asset	Added under the eligibility criteria as of 30 September 2023
7	Manukau Bus Interchange	Transfer station connecting bus users to the rail network and other buses (started construction in 2016)	Clean transportation	GBP: Clean transportation	 	<u>Ikiiki Transport</u>	\$12.6	N/A	None	No	No
8	Street lighting LED upgrade	LED upgrade to reduce energy consumption (stage 1 completed 2018, stage 2 delivery began 2019)	Energy efficiency	GBP: Energy efficiency	 	<u>Ikiiki Transport</u>	\$71.0	N/A	\$41.6 (unaudited)	No	No
9	Auckland Council head office	135 Albert Street, Auckland (4-star NABERSNZ rated upgrade completed in 2015)	Green buildings	GBP: Green buildings		<u>Taiao hanga, Built environment</u>	\$217.4	N/A	None	No	No



Appendix 2: Value of eligible assets at 30 June 2023 (continued)

No.	Eligible asset	Eligible asset details (including year)	Eligible sector (see Auckland Council's Sustainable Finance Framework)	Climate Bond Initiative (CBI) criteria/ GBP alignment	UN SDG alignment	Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan alignment	Asset value (book value) NZ\$m	Asset value (project cost) NZ\$m	Future spend (project cost) NZ\$m	CBI certified asset	Added under the eligibility criteria as of 30 September 2023
10	Fred Thomas Drive	Wastewater storage and pumping station (started construction in 2016)	Sustainable water and wastewater management	GBP: Sustainable water and wastewater management		Taiao hanga, Built environment	\$22.7	N/A	None	No	No
11	Hunua water main pipeline	Wastewater storage and pumping station (started construction in 2016)	New watermain infrastructure providing uninterrupted, high-quality water supply to the growing Auckland region (commenced construction in 2012)	GBP: Sustainable water and wastewater management		Taiao hanga, Built environment	\$402.3	N/A	N/A	No	No



Appendix 2: Value of eligible assets at 30 June 2023 (continued)

No.	Eligible asset	Eligible asset details (including year)	Eligible sector (see <u>Auckland Council's Sustainable Finance Framework</u>)	Climate Bond Initiative (CBI) criteria/ GBP alignment	UN SDG alignment	Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan alignment	Asset value (book value) NZ\$m	Asset value (project cost) NZ\$m	Future spend (project cost) NZ\$m	CBI certified asset	Added under the eligibility criteria as of 30 September 2023
12	Rehabilitation of Puketutu Island	Rehabilitation of Puketutu Island using treated biosolids from Mangere Wastewater Treatment Plant (started in 2013)	Environmentally sustainable management of living natural resources and land use	GBP: Environmentally sustainable management of living natural resources and land use	  	Taiao hanga, Built environment	\$126.0	N/A	None	No	No
13	Rosedale floating solar array	2700 solar panels floating on the Rosedale Wastewater Treatment Plan in Albany, generating a quarter of the energy needed by the plant (operating from 2020)	Renewable energy	GBP: Renewable energy		Taiao māori, Natural environment	\$2.2	N/A	None	No	No



Appendix 2: Value of eligible assets at 30 June 2023 (end)

No.	Eligible asset	Eligible asset details (including year)	Eligible sector (see <u>Auckland Council's Sustainable Finance Framework</u>)	Climate Bond Initiative (CBI) criteria/ GBP alignment	UN SDG alignment	Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan alignment	Asset value (book value) NZ\$m	Asset value (project cost) NZ\$m	Future spend (project cost) NZ\$m	CBI certified asset	Added under the eligibility criteria as of 30 September 2023
14	Te Manawa (Westgate Multi-purpose Facility)	5 green star-rated building, (opened in 2019)	Green buildings	GBP: Green buildings		<u>Taiao hanga, Built environment</u>	\$33.8	N/A	None	No	No
15	Community recycling centres	11 Community Recycling Centres (council-owned, community-operated).	Pollution prevention and control	GBP: Pollution prevention and control		<u>Ōhanga, Economy</u>	\$98.2	N/A	None	No	Yes
16	General recycling and food scrap bins	General waste, recycling, and food scrap bins	Pollution prevention and control	GBP: Pollution prevention and control		<u>Ōhanga, Economy</u>	\$4.5	N/A	None	No	Yes
Total CBI eligible green bond assets							\$569.0	\$2,077.8	\$1,108.8 (unaudited)		
Total non-CBI eligible green bond assets							\$990.7	\$0.0	\$41.6 (unaudited)		
Total current green bond eligible assets								\$3,637.5			
Future planned eligible green asset spend (project cost)									\$1,150.4		

Notes:

GBP – Green Bond Principles

UN SDG – United Nations Sustainable Development Goals

1. Asset values are shown net of third party (eg. Waka Kotahi) funding received.
2. Future spend values have not been audited.
3. Community recycling centres and general recycling and food scrap bin assets have been added at 30 June 2023. The impact of these assets will be reported in the 2023/2024 financial year Green Bond Annual Report.



ĀpitiHanga 3 – Te Pūrongo Motuhake a EY mō te Whakaū

Appendix 3 – EY Independent Assurance Report



Independent Limited Assurance Statement to the Management and Directors of Auckland Council

Assurance conclusion

Based on the procedures we have performed, and the evidence obtained, nothing has come to our attention that causes us to believe the Subject Matter has not been prepared, in all material respects, in accordance with the Criteria defined below.

Scope

We have been engaged by Auckland Council to perform a 'limited assurance engagement,' as defined by International Standards on Assurance Engagements (New Zealand) 3000 (Revised), here after referred to as the engagement, in relation to the Subject Matter and Criteria set out below.

Subject Matter and Criteria

The subject matter and associated criteria for this limited assurance engagement are set out in the table below:

Subject Matter	Criteria
<p>Auckland Council's Te Pūrongo Ā-Tau A Te Puka Here Kākāriki 2022/2023 / Green Bond Annual Report 2022/2023 (the 'Report') specifically;</p> <ul style="list-style-type: none"> Valuation of Eligible Assets Green and/or sustainability credentials listed for Eligible Assets <p>We did not perform assurance procedures on the remaining information included in the Report, and accordingly, we do not express a conclusion on this information.</p>	<ul style="list-style-type: none"> Auckland Council's internal policies and procedures, as documented in the Auckland Council's Sustainable Finance Framework. Green Bond Principles (June 2021) Climate Bonds Standard (v 3.0) ('CBS') <p>Eligible Assets assessed against the Climate Bonds Initiative's sector criteria include:</p> <ul style="list-style-type: none"> Electric Multiple Units Rolling Stock Electric Multiple Units Retrofit Public Cycleway Assets City Rail Link Wiri Electric Train Depot

Excluded from our scope includes the impact of assessment emissions. Auckland Council have engaged Toitū Envirocare to provide a review over Auckland Council's selected asset developments reduction or avoidance in greenhouse gas emissions. As a result, we have not performed assurance procedures over the GHG emissions.

Auckland Council's responsibilities

Auckland Council's management is responsible for selecting the Criteria, and for presenting the allocation of proceeds to nominated projects and assets as at 30 June 2023 in accordance with that Criteria, in all material respects. This responsibility includes establishing and maintaining internal controls, maintaining adequate records and making estimates that are relevant to the preparation of the subject matter, such that it is free from material misstatement, whether due to fraud or error.

EY's responsibilities

Our responsibility is to express a conclusion on the presentation of the Subject Matter based on the evidence we have obtained.

We conducted our engagement in accordance with the International Standard for Assurance Engagements (New Zealand) 3000 (Revised) Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ('ISAE (NZ) 3000 (Revised)'), and the terms of reference for this engagement as agreed with Auckland Council on 20 May 2022. Those standards require that we plan and perform our engagement to express a conclusion on whether we are aware of any material modifications that need to be made to the Subject Matter in order for it to be in accordance with the Criteria, and to issue a report. The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risk of material misstatement, whether due to fraud or error.



Appendix 3: Independent Assurance Report (continued)



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We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusions.

Our independence and quality management

We are independent of Auckland Council in accordance with Professional and Ethical Standard 1 International Code of Ethics for Assurance Practitioners (including International Independence Standards) (New Zealand) issued by the New Zealand Auditing and Assurance Standards Board, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

Ernst & Young applies Professional and Ethical Standard 3 which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

Description of procedures performed

Procedures performed in a limited assurance engagement vary in nature and timing from and are less in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance.

Although we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

A limited assurance engagement consists of making enquiries, primarily of persons responsible for preparing the allocation of proceeds to nominated projects and assets as at 30 June 2023 and related information and applying analytical and other appropriate procedures.

Our procedures included:

- Assessing the eligibility of assets included in Auckland Council's Green Bond Report against Auckland Council's Sustainable Finance Framework.
- Checking reported use of proceeds back to evidence on asset values and refinancing arrangements.
- Assessing the eligibility of CBS-eligible assets included in Auckland Council's Green Bond Report against the Climate Bond Taxonomy and sector eligibility criteria.
- Assessing the value of Eligible Assets against those reported in Auckland Council's Green Bond Report.
- Assessing the total value of all Eligible Assets to ensure a value equal to or greater than the value of proceeds of the bonds.
- Assessing Auckland Council's Green Bond Report against the CBS v3.0 reporting requirements.
- Interviewing selected personnel to understand relevant Auckland Council policies, systems and procedures.
- Obtaining and reviewing documents supporting assertions made in the Subject Matter.
- Seeking management representation on key assertions.

Restricted use

This report is intended solely for the information and use of management and directors of Auckland Council and is not intended to be and should not be used by anyone other than those specified parties.

Ernst & Young Limited

28 September 2023

Ernst & Young

Auckland



Āpitianga 4 – Toitū Envirocare - Te Arotake i te Pāpātanga

Appendix 4 – Toitū Envirocare – Review of Impact



REVIEW OF IMPACT ASSESSMENT EMISSIONS

For organisation:

AUCKLAND COUNCIL

Date: 7th September 2023

Auckland Council has drafted content within an Impact Assessment section of their Green Bond Annual Report FY2023, which provides details on the contribution that selected asset developments contribute towards a reduction or avoidance in greenhouse gas emissions.

Toitū Envirocare reviewed* the relevant sections of the report for accuracy of data transfer from the calculation files, and for general readability. The review checked the work flow and workbook designs, with a focus on the following components: Activity data, Assumptions, Formula calculations, Emissions factors.

Results of the review were articulated back to Auckland council in the form of a short review report, and which concludes the calculations are robust enough for the scope and intent of the measurements performed.

Toitū considers the methodology appropriate and the workings sufficient for the purpose of the impact communications being made.

Assets reviewed included: Electric trains, Public Cycleway Assets, Street Lighting LED Upgrade, Energy use at all building assets, Watercare floating solar array

*File version: 24-PRO-0023_Green_Bond_Annual_Report_2023_accessible_v2 HM.pdf

Disclaimer: the service provided was a review and limited to the files and procedures listed and outlined above. This document should not be considered as a verification assurance statement and no assurance was provided as part of this review.



