

Te pūrongo ā-tau a te Puka Here Kākāriki 2021/2022

Green Bond Annual Report

2021/2022

AUCKLAND COUNCIL



Ngā ihirangi

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He kupu mai i te Tumu Whakarae From the CEO

2022 has been another successful year for Auckland Council's green bond programme with the issue of two green bonds totalling NZD\$1.1 billion.

We also expanded our eligible asset pool with the addition of Te Manawa, Westgate's multi-purpose community facility. The addition of this asset enables the growth of our green bond programme and supports our commitment to 'issuing most of our debt in our name using green bonds'.

To further solidify our broader commitment to sustainable finance, Auckland Council became a signatory to the C40 Divest/Invest declaration in August 2021 and has committed to:

- divest from fossil fuel companies and increase our financial investments in climate solutions to help promote decent jobs and a just and green economy
- advocate for investments in climate solutions and divestment from fossil fuel companies by other stakeholders.

This includes diversifying our use of sustainable finance products which saw the council issue its first sustainability linked loan and derivative.

Earlier this year, Auckland Council's Governing Body adopted the first climate action targeted rate (CATR), a major win for the region and climate change. The CATR will raise \$57 million a year to accelerate the purchase of electric buses and ferries, expand public transport and active modes, and increase our planting as part of our Urban Ngahere programme.

In addition, the council released its [first progress report](#) against [Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan](#) (the climate plan) which

states that Auckland's emissions are not tracking in line with the regions target to reduce emissions by 50 per cent by 2030.

The council takes its commitment seriously of 'redirecting capital towards sustainability outcomes, improving how we value social and environmental impacts and building awareness and capacity in the financial sector more broadly' and will continue to advocate to and partner with stakeholders across Auckland to support fossil-free and sustainable investments.

Transparency and disclosure are key to the success of sustainable finance, which is why we continue to report against the Taskforce on Climate-related Financial Disclosure Framework. Auckland Council's third climate disclosure provides investors with information on how the Auckland Council Group is managing its climate risks and how climate risk is embedded into our strategic and financial planning processes. Managing our climate risks is a key part of our organisational resilience and is a priority for the council group.

Thank you for your support and enabling the continued

Jim Stabback
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 group) is made up of Auckland Council (the council) and five substantive council-controlled organisations (CCOs) that include Auckland Transport Limited, Watercare Services Limited, Eke Panuku Development Auckland, Tātaki Auckland Unlimited, and Tātaki Auckland Unlimited Trust. Auckland Council is responsible for funding the CCOs.

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 the benefits of growth equally among all Aucklanders
- reducing environmental degradation.

The group 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 four years, with a total of \$1.96 billion raised in green bonds since 2018.

The 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 2021- 30 June 2022.



Tā mātou hīkoi ā-tahua pūtea tokonga roa

Our sustainable finance journey



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.

April 2018

The council establishes its Green Bond Framework (changed in 2020 to a Sustainable Finance Framework).

June 2018

The 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.

July 2020

The group adopts [Te Tāruke-ā-Tāwhiri, Auckland's Climate Plan](#).

September 2020

The council issues \$500 million of 30-year fixed rate green bonds.

September 2020

The group publishes its inaugural [climate-related risk disclosure](#).

February 2022

The council executes its first [Sustainability-linked loan and derivative](#).

June 2022

The council adopts its first [Climate Action Targeted Rate](#).



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 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.

June 2019

The council publishes its first [Annual Green Bond report](#).

June 2019

Auckland declares a [Climate Emergency](#) which includes the requirement to include climate impact statements in all Auckland Council committee reports.

July 2019

The council issues its second green bond and \$150 million is raised to fund electric trains and cycleways.

August 2021

The council becomes a signatory to the [C40 Divest/Invest Declaration](#).

September 2021

The group publishes its second [climate-related risk disclosure](#).

November 2021

[Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan: Progress report](#) is released.

November 2021

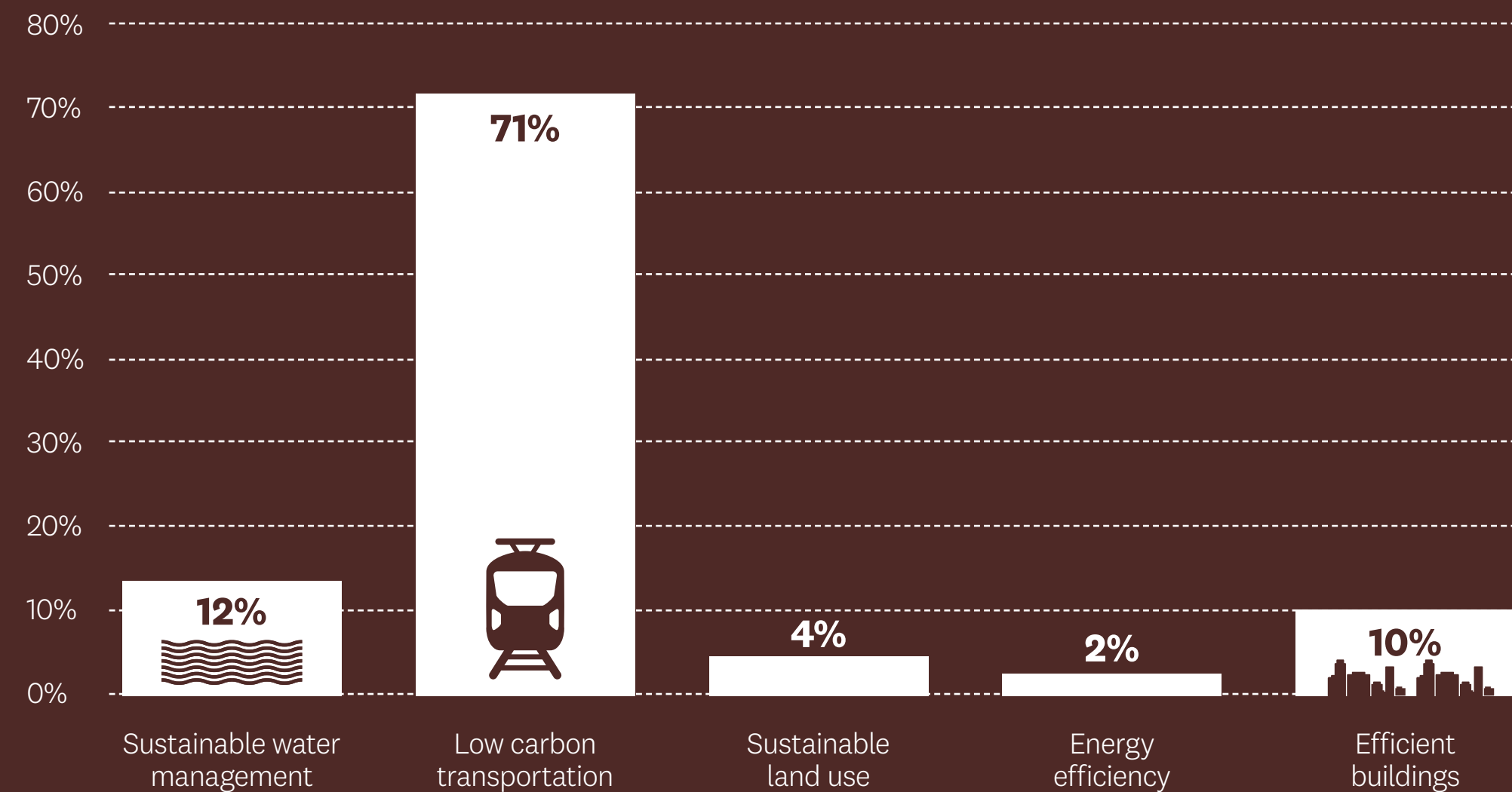
The council issues its first foreign currency denominated green bond of EUR 500 million 10-year fixed rate bonds.

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.

Allocation breakdown by sector



Eligible Asset Sector % based on asset value

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 against the International Capital Market Association (ICMA) Green Bond Principles (GBP) criteria and the eligible asset schedule.

For more information, see [Auckland Council's Sustainable Finance Framework](#).



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

Value of green bonds on issue

In the financial year 2022 register of green bond eligible assets, the total asset value of our eligible assets was NZ\$3,060 million. This means the NZ\$1,958 million raised through our green bond issuance makes up 64 per cent of the asset values.

| Date of issue | Maturity date | Term | Bond details | Use of proceeds | Bond face value (NZ\$m equivalent) |
|-------------------|-------------------|----------|--|-------------------------------------|------------------------------------|
| 27 June 2018 | 27 June 2023 | 5 years | 3.170% CBI Certified, fixed rate retail bonds in NZ\$ | Refinancing | 200 |
| 10 July 2019 | 10 July 2025 | 6 years | 2.013% CBI Certified, fixed rate retail bonds in NZ\$ | Refinancing | 150 |
| 28 September 2020 | 28 September 2050 | 30 years | 2.950% fixed rate retail bonds in NZ\$ | Refinancing/New projects and assets | 500 |
| 20 October 2021 | 20 October 2027 | 6 years | 2.411% fixed rate retail bonds in NZ\$ | Refinancing/New projects and assets | 300 |
| 17 November 2021 | 17 November 2031 | 10 years | 0.250% CBI Certified fixed rate bonds of EUR 500 million | Refinancing | 808 |
| Total | | | | | 1,958 |

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/eligible assets | Total (incl. CBI bonds and assets) |
|--|-------------------------------------|------------------------------------|
| Total green bonds outstanding (NZ\$m equivalent) | 1,158 | 1,958 |
| Total eligible asset value (NZ\$m) | 2,143 | 3,060 |
| Total green bonds outstanding to eligible assets | 54% | 64% |

The council confirms that the value of the eligible assets is greater than the face value of the green bonds outstanding and there are no unallocated proceeds.

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 CBS.

Te tirohanga whānui o te kaupapa puka here kākāriki

Overview of green bond issue

In October and November 2021, the council issued two further green bonds. A NZD300 million, secured 6-year bond and a EUR500 million, senior secured, 10-year green bond, the council's first foreign currency denominated green bond.

Prior to these issues, the council issued its first 30-year senior green bond. It was the largest, with the longest tenor of any green bond issued in New

Zealand to date. This bond issuance received several debt capital market awards for the year.

Key terms of the two new green bonds issued in financial year 2022 are shown in the table below.

| Bond name | NZD300 million, secured 6-year bond | EUR500 million, senior secured, 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 | Secured, unsubordinated, fixed rate bonds | Bearer Notes, Reg S Category 1, TEFRA D |
| Tenor | 6 years | 10 years |
| Issue date | 20 October 2021 | 17 November 2021 |
| Maturity date | 20 October 2027 | 17 November 2031 |
| Issue amount | NZD 300 million | EUR 500 million |
| Coupon | 2.411 per cent, per annum | 0.250 per cent, per annum |
| ISIN | NZAKCDT547C9 | XS2407197545 |
| Listing | NZX - AKC140 | Singapore Exchange (SGX-ST) |



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, City Rail Link, and water and wastewater infrastructure. The impact assessment below details the assets' contribution towards reducing

greenhouse gas emissions and achieving broader benefits. We have used appropriate metrics for each category where the measurement of greenhouse gas emissions is not applicable.

Te whakarāpopoto mō ngā rawa me ngā ine matua

Summary of assets and key measurements

Low carbon transportation:

Auckland's public cycleway network

Increasing accessibility and safety for people on bicycles.

Measure: 2.7 ktCO₂e avoided.

Asset value:
\$94m



Electric trains

Switching Auckland's train fleet from diesel to electric.

Measure: 19,261 tCO₂e reduced and avoided.

Asset value:
\$516m



Wiri Electric Train Depot

Maintenance and stabling facility for electric trains.

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

Asset value:
\$77m



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

Summary of assets and key measurements (continued)

Low carbon transportation:

City Rail Link

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: 6,636 tCO₂e (19.3 per cent)
- Annual operational energy for the stations, tunnels and streetscape: 296 tCO₂e (22.0 per cent).

Asset value:

\$1,457m



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:

\$11m



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

Summary of assets and key measurements (continued)

Energy efficiency:

LED streetlights

Reducing energy consumption and providing safer environments.

Measure: **3,622 tCO₂e reduced and avoided.**

Asset value:

\$64m



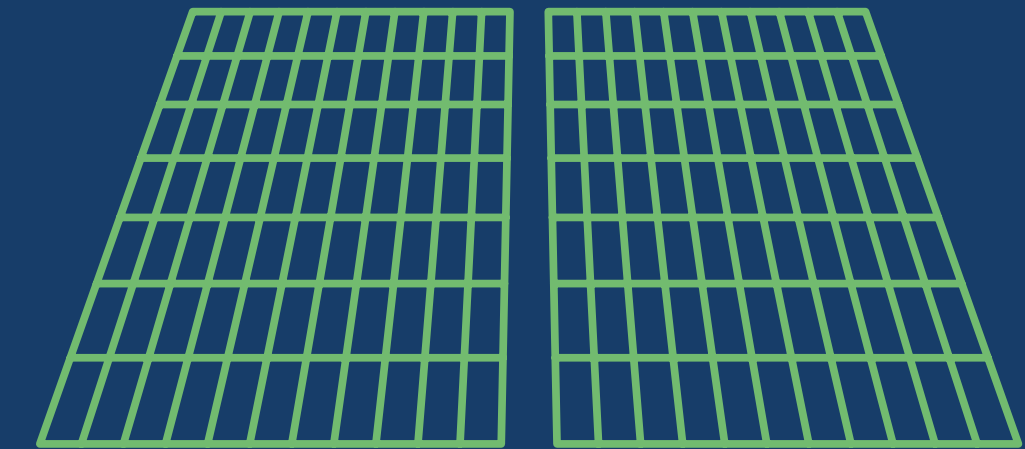
Rosedale floating solar array

Floating solar panels, generating clean energy.

Measure: **169 tCO₂e reduced.**

Asset value:

\$2m



Efficient buildings:

Auckland Council efficient buildings

NABERSNZ rated buildings.

Measure: **561 tCO₂e reduced.**

Asset value:

\$300m



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

Summary of assets and key measurements (continued)

Sustainable water management:

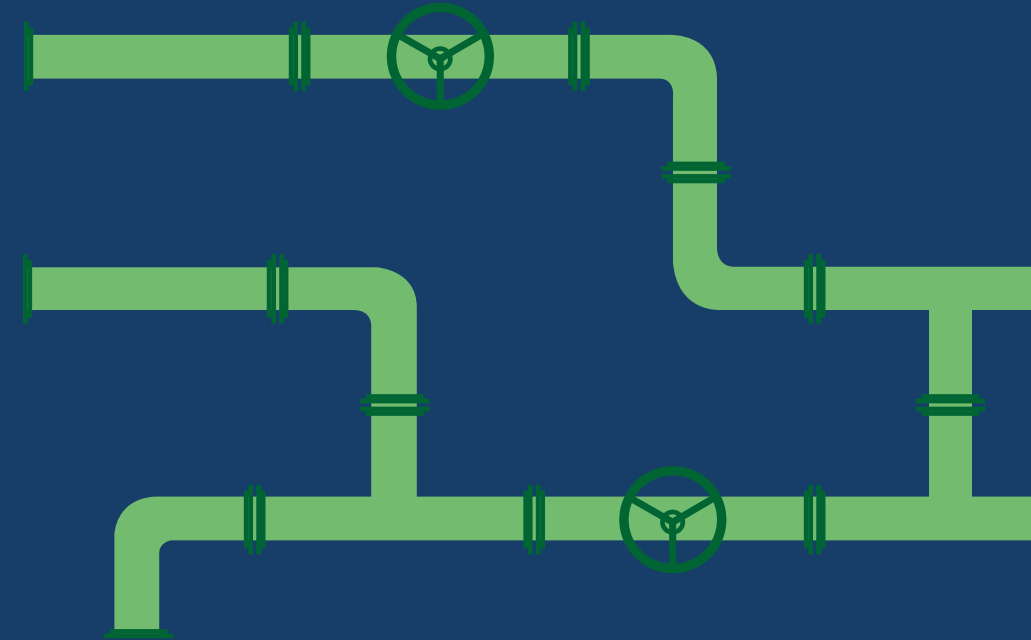
Fred Thomas Drive

Pump station delivering sustainable wastewater management services.

Measure: 2,268,855 m³ of water passed.

Asset value:

\$26m



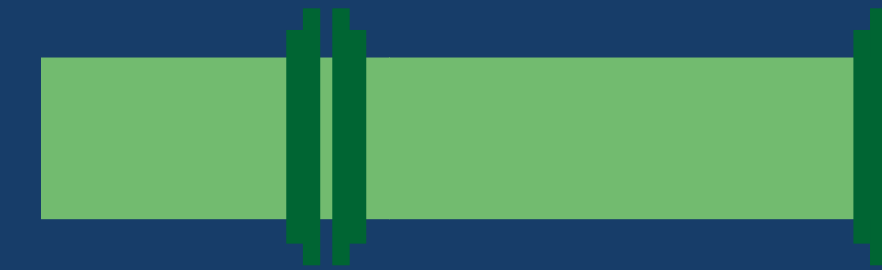
Hunua watermain

Waterpipe providing water supply to high growth areas of Auckland.

Benefit: Provides natural disaster resilience.

Asset value:

\$350m



Sustainable land use:

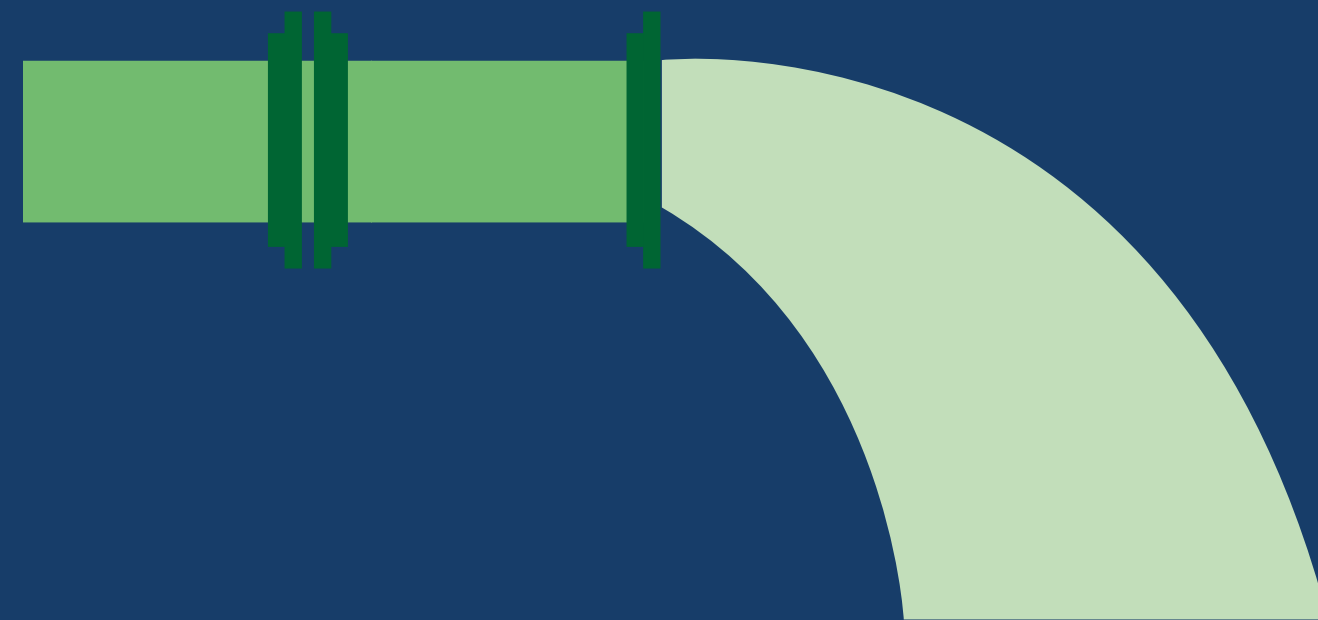
Puketutu Island

Quarry rehabilitation project for wastewater biosolids to avoid landfill.

Measure: 122,770 tonnes of waste diverted from landfill.

Asset value:

\$132m



Āpitihangā 1 – Te pāpātanga i ā tātou pānga rawa kākārīki

Appendix 1

Impact of our green bonds



Ngā tikanga kawekawenga waro-pāpaku

Low-carbon transportation

Ngā ara pahikara tūmatanui

Public cycleways

Introduction

New cycleways have partly enabled the rapid growth of bicycle movements and distances travelled by bicycle in recent years (see Figure 1 on page 15). With better network links to public transport hubs, cycling and walking is becoming an easier and more accessible choice, 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 their destinations such as work, school, friends, recreation and healthcare. AT has been monitoring the movement of cyclists across Auckland's cycleways by 26 counters since 2016. The cyclist movement increased to 3.8 million in the financial year 2018, before gradually dropping to 3 million in the financial year 2022. Similar to the trajectory of the movement, the distance travelled by people on bikes reached a 91 million kilometres (km) peak in the financial

year 2018 and started dropping gradually to 83 million km in the financial year 2022 according to the [Auckland household travel survey](#). Restriction of travel due to COVID has reduced the movements and travel in the recent years. Nevertheless, 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
- enables more people to be more active, improving well-being
- reduced air and noise pollution when people on bicycles substitute motorised trips
- reduced household cost; research shows households that use one less car could save around \$10,000 a year in household costs
- 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 greenhouse gas emissions

Figure 1 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 2022, the cycling trips in Auckland added up to 738 million km, avoiding about 24.4 ktCO₂e (kiloton of Carbon dioxide equivalent) of GHG emissions, had this distance been taken using a mix of private vehicles, public bus, train and walking modes of travel.

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 83 million kms were travelled by bicycle in financial year 2022, the emissions avoided would be 2.7 ktCO₂e (assuming the alternative is a mix of light vehicle, public bus, train and walking modes). Due to the level of uncertainty, Toitū Envirocare has carried out a review of our methodology and issued an assurance statement (see Appendix 4).

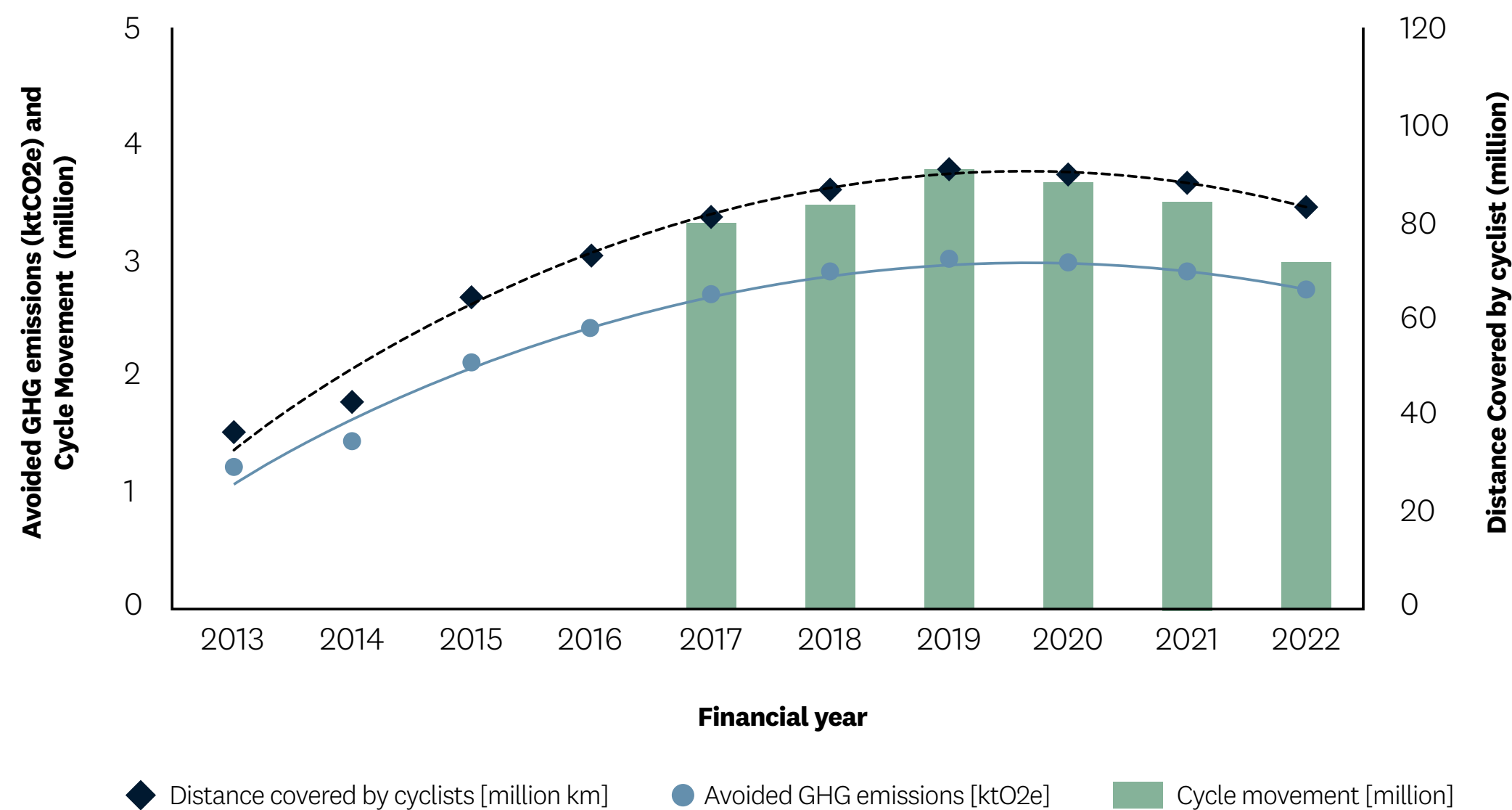


Figure 1: An indicative contribution of avoided GHG emissions due to public cycleways in Auckland.



Ngā tereina hiko

Electric trains

Introduction

In 2011, Auckland Transport (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 due to obsolescence with a new European Train Control System (ETCS). This upgrade will help reduce travel time and energy consumption and improve reliability and network capacity. It also leads to increased fleet use and speed recovery after incidents. In 2017, AT bought another 15 EMUs increasing the electric train fleet to 72 to increase frequency and passenger capacity. In January 2022, AT ordered a further 23 trains, bringing AT's EMU fleet size to 95.

Broad benefits

Since financial year 2013, patronage across Auckland's commuter rail network has increased from 10 million a year to 21.4 million in financial year 2019. In financial year 2022, train services accounted for 17 per cent of public transport trips and 4 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. This includes journeys on the diesel trains that still operate between Papakura and Pukekohe, where electrification of the track has not yet been completed.



Ngā tereina hiko (e haere tonu ana)

Electric trains (continued)

Broader benefits 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

This year, AT assessed the GHG emissions reductions that have resulted from the shift to mostly electric trains. Figure 2 on page 17 shows the reduction in GHG emissions from the train network since electric trains started operating in 2014. Note that some services will continue to be serviced by diesel trains until September 2022 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) with actual emissions. The net emissions reduction was estimated to be 19,261 tCO₂e in financial year 2022.

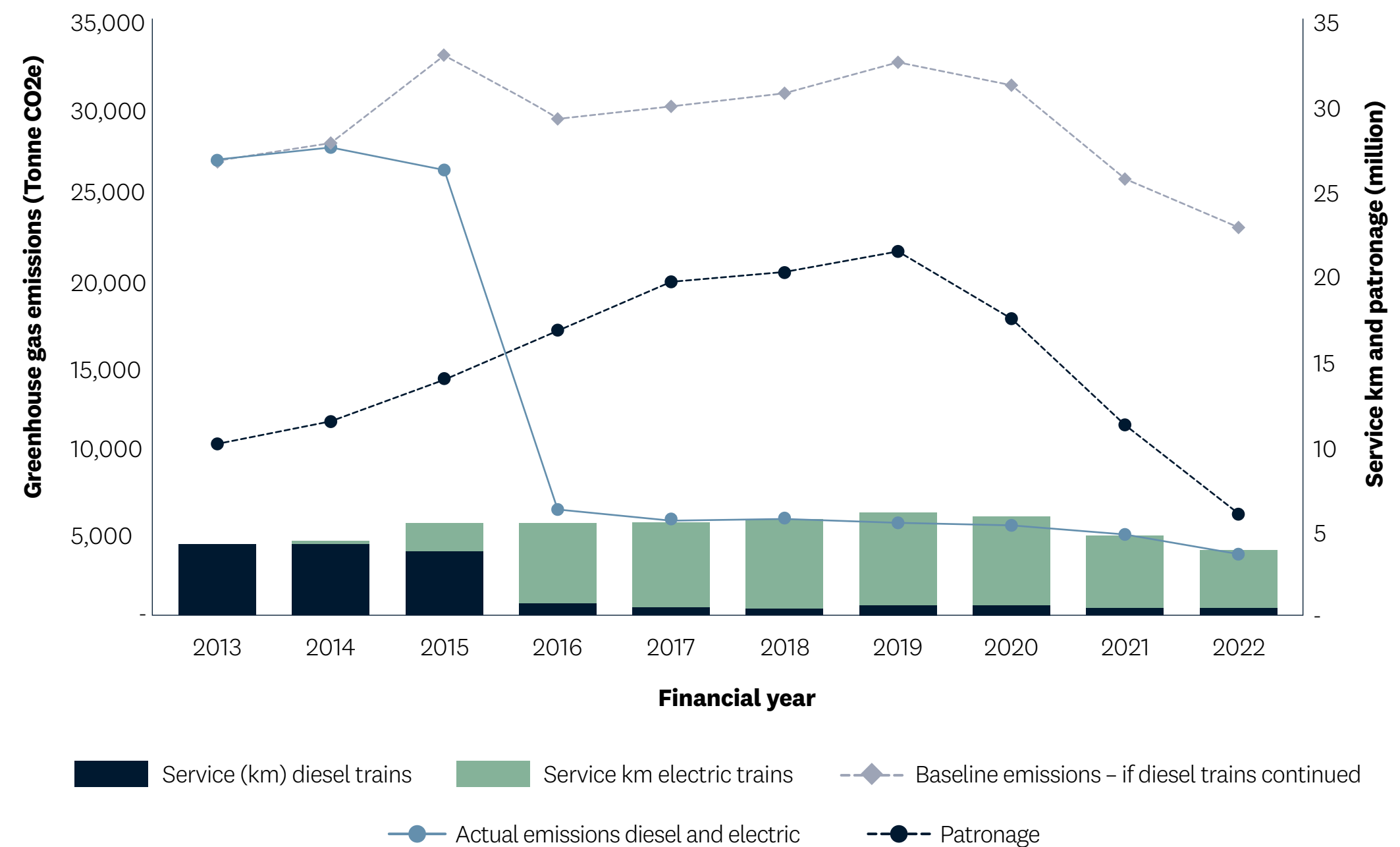


Figure 2: GHG emissions reduction electrification of train fleet



Ngā tereina hiko (e haere tonu ana)

Electric trains (continued)

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 kgCO₂e. 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 train services) – actual GHG emissions.



Te Hongonga Rere Raro Whenua

City Rail Link

Introduction

City Rail Link (CRL) is a 3.45 km underground twin-tunnel rail link up to 42 metres below the Auckland city centre. It will enable the rail network to at least double rail capacity. CRL has maintained construction momentum through the challenges of COVID-19, with significant steps made during the year at all construction sites – above and below ground. The highlights of the construction year have been the project’s Tunnel Boring Machine (TBM), Dame Whina Cooper, breaking through at Karanga a Hape Station (Karangahape) last October, and at Te Wai Horotiu Station (Aotea) just before last Christmas. Before being dismantled and transported back to Maungawhau Station (Mt Eden) where it was reassembled, the second tunnel drive commenced in April 2022. Bringing the completion of the project much closer to reality, with the structures for stations now emerging into the cityscape.

Broad benefits

External Sustainability Verification

- The project’s contract 2 in lower Albert Street was awarded a prestigious ‘Excellent’ As-Built Infrastructure Sustainability rating and contract 1, at Waitemata Station, awarded the highest possible ‘Leading’ As-Built Infrastructure Sustainability rating by the Australian based Infrastructure Sustainability Council (ISC).

- Under contract 3 (C3), which makes up 85 per cent of the entire project, the opportunity to achieve sustainability outcomes is equally immense. With C3 well underway an application has been made to ISC to verify the ‘design’, and the contract is tracking well to deliver on its targeted ‘Excellent’ ISC As-Built rating once the contract reaches practical completion.

Placemaking

- CRL Limited Mana Whenua Forum gifted te reo Māori names and striking designs from mana whenua artists and designers for the stations. The te reo Māori names and designs acknowledge Auckland’s past and its future. Reflecting the Stations’ geographic locations and acknowledging mana whenua cultural traditions and storytelling, they will bring unique architectural and cultural style and vibrancy to Auckland.
- CRL will be the catalyst for significant development of new commercial properties, with thousands of homes to be built around its stations, providing people with better access to housing, public transport and employment opportunities.



Te Hongonga Rere Raro Whenua (e haere tonu ana)

City Rail Link (continued)

Social outcomes

- The project is committed to providing supply chain opportunities for small and medium-sized Māori and Pasifika businesses. To date, 23 contracts ranging from catering to labour hire, and traffic management have been awarded to Māori and Pasifika businesses representing 5 per cent of the total C3 contract spend.

26 rangatahi (young people) have now graduated from the [CRL Progressive Employment Programme \(PEP\)](#). A 16-week-long programme helping Māori, Pasifika and youth transition into rewarding fulltime 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. Future benefits

- When 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
- Providing a world-class rail network 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 greenhouse gas emissions

Reducing resource consumption is one of five key focus areas for the CRL. The two most common materials used on 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. The use of materials and energy is being optimised across the entire lifecycle of the project from design through to operation. To track the project's success, an estimate, or base case, was first created for each construction contract. This measures the total amount of energy – materials and water, and the carbon emissions resulting from these – 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.



Te Hongonga Rere Raro Whenua (e haere tonu ana)

City Rail Link (continued)

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 tCO₂e (15.8 per cent)
- Construction energy: 6,636 tCO₂e (19.3 per cent)
- Annual operational energy for the stations, tunnels and streetscape: 296 tCO₂e (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 Infrastructure Sustainability Council (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 have carried out a review of 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 4.4 hectares and comprises a maintenance building of 7,650 square meters, six km of rail track sidings, seven 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 servicing of the trains takes place
- 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 Wiri Electric Train Depot also provides the following benefits:

- 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
- wheel lathe and underfloor pits to enable easy access to the electric trains
- 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 to provide flexibility between urban and inter-regional services. The station also includes five retail facilities, a customer service centre, real-time information signage and a ticket vending (AT HOP) and reload device.

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

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 public transport 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 public transport.

Broader benefits include:

- integrated operation of the Manukau bus station with the 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 from early in the morning to 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 whāomotanga pūngao me ngā whare whāomo

Energy efficiency & efficient 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 access-ways for traffic and pedestrian safety purposes. 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, at this time there were 106,580 lights on the network. These streetlights illuminate both Pedestrian predominant (P-category) and Vehicle predominant (V-category) roads across Auckland. The network has grown by approximately 2,600 LED lights per year, mainly due to new subdivisions. Phase-1 of the retrofit programme converted all 44,000 high-pressure sodium (HPS) lights on the P-category roads to LED over three years.

Phase-2 of the retrofit programme began in financial year 2019 and aimed to replace a further 49,000 HPS on V-category roads. As of June 2022, there

are 124,764 lights on the network (91 per cent LED lights). The operational cost of streetlights has reduced from \$14.1 million in financial year 2015 to \$10.6 million in financial year 2022 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 3 shows the reduction in GHG emissions from the streetlight network since the retrofit programme started in financial year 2016. Note that there is a growth of an average of 2,600 new lights in the streetlight network each year. Due to the intervention of the retrofit programme, the proportion of LED increased to 34 per cent in financial year 2018 and 91 per cent in financial year 2022.

The intervention reduced GHG emissions associated with streetlights from 6,922 tCO₂e in financial year 2018 to 3,671 tCO₂e financial year 2022. 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 3,622 tCO₂e in financial year 2022. Since financial year 2018, the retrofit programme has contributed towards the avoidance of 9,400 tCO₂e 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.

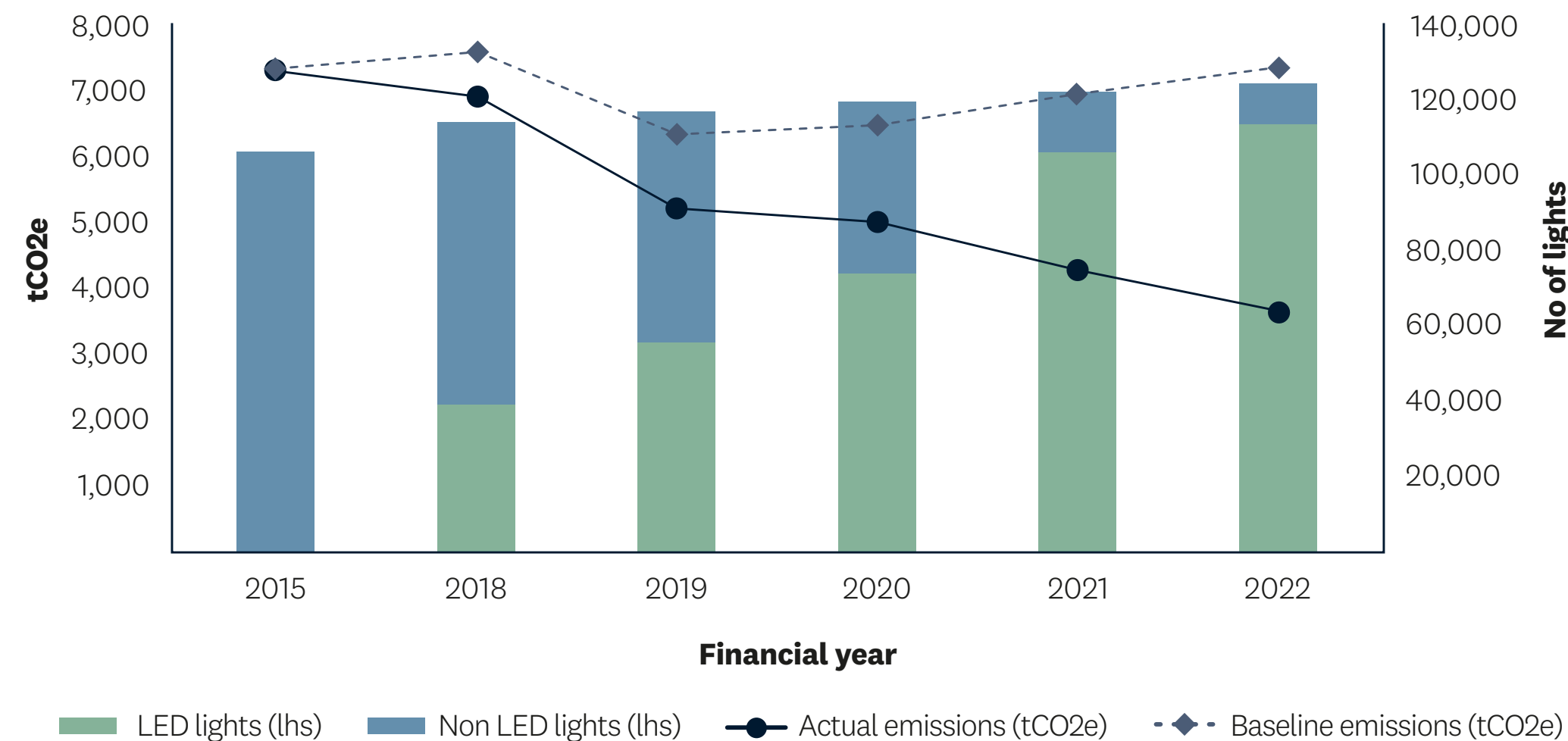


Figure 3: GHG emissions reduction due to LED retrofit.



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 one hectare and consists of more than 2,700 solar panels and 4,000 floating pontoons situated at Watercare's Rosedale Wastewater Treatment Plant. It floats on a treated wastewater pond next to Auckland's Northern motorway and generates around 1,400 MWh 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.

Broader benefits

Broader benefits include:

- Contributes to Watercare's target of 50 per cent reduction in GHG emissions by 2030
- Reduce carbon emissions by 145 tonnes each year
- Generates enough power to run the equivalent of 200 average New Zealand homes for a year
- Delivers operational cost savings
- Improves energy self-sufficiency.

Reduction of greenhouse gas emissions

169 tCO₂e of greenhouse gas emissions avoided in financial year 2022.

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.



He whare tōtika

Efficient 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, afterhours 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.

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 are right-sizing our properties to support a more modern, agile and digitally enabled workforce. Via 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 50 per cent (or 977 tonnes of CO₂e) 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 built and major refurbishment we have adopted the NZ Green Building Council Greenstar Standard, which reflects and certifies building to best practise design for environmental responses and healthy buildings. Our recent refurbishment of the Te Ipu Kura a Maki (formally known as Henderson Civic Building) has been designed to a 5 Star Greenstar standard and our upcoming refurbishment of the Manukau Civic building will be to the same standard. Our new northern office hub (Munroe Place), currently under construction, 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 future proofing asset to support councils transition to 100 per cent EV.



He whare tōtika (e haere tonu ana)

Efficient buildings (continued)

Munroe Place, once finished, will be the council’s most operationally energy efficient building.

Reduction of greenhouse gas emissions

The following graph 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 2022, GHG emissions associated with electricity usage have decreased by 561.07 tCO₂e.

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 tCO₂e using the Ministry for Environment emission factors and reported in Figure 4.

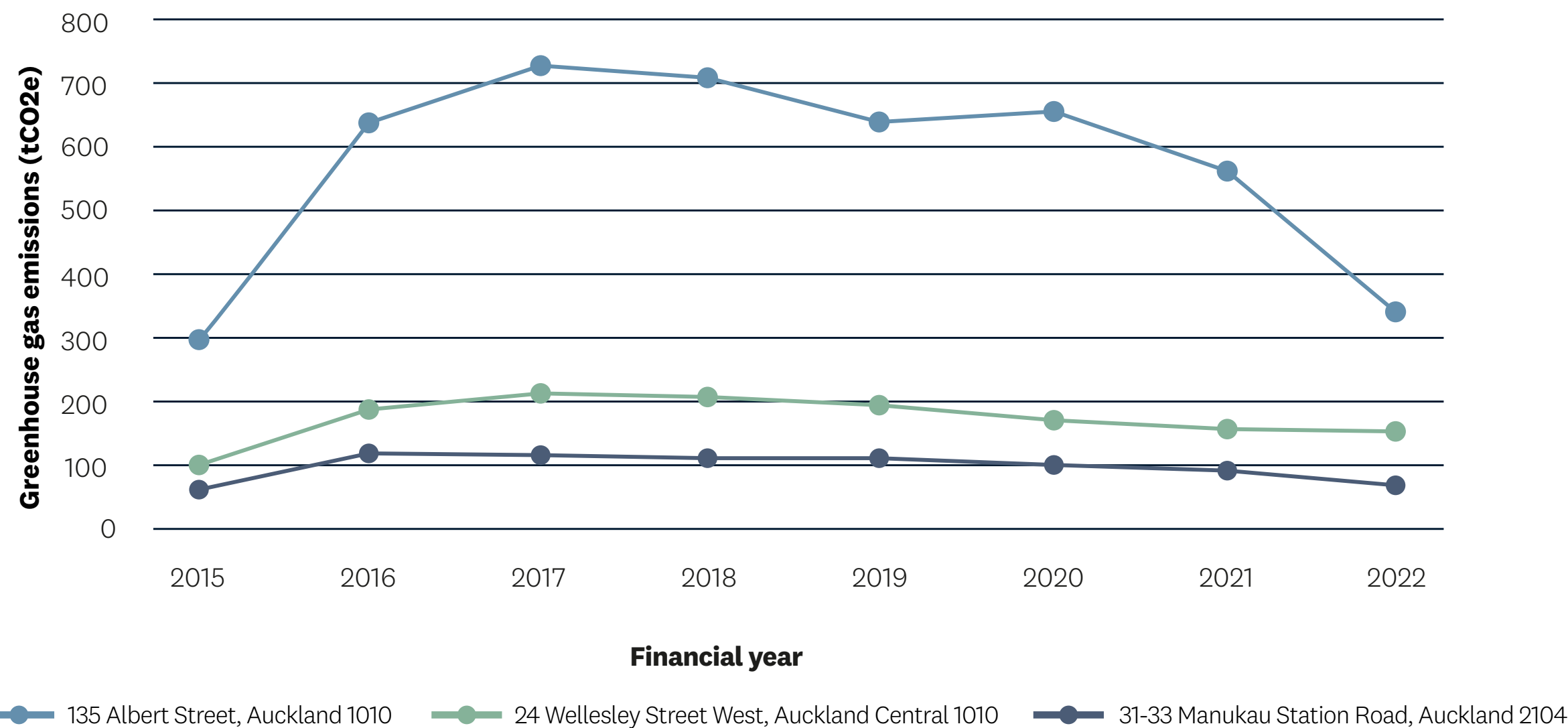


Figure 4: tCO₂e Derived from Electricity Usage in Auckland Council Buildings.



Te toitū o te whakahaere wai me te whakamahi whenua

Sustainable water management & land use

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 the local Devonport peninsula and east Takapuna areas. The population that the asset services 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 whilst 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 annum 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 due to climate change.



Te huarahi o Fred Thomas (e haere tonu ana)

Fred Thomas Drive (continued)

Metrics

2,268,855 m³ of water passed through the Fred Thomas Drive pump station in financial year 2022.

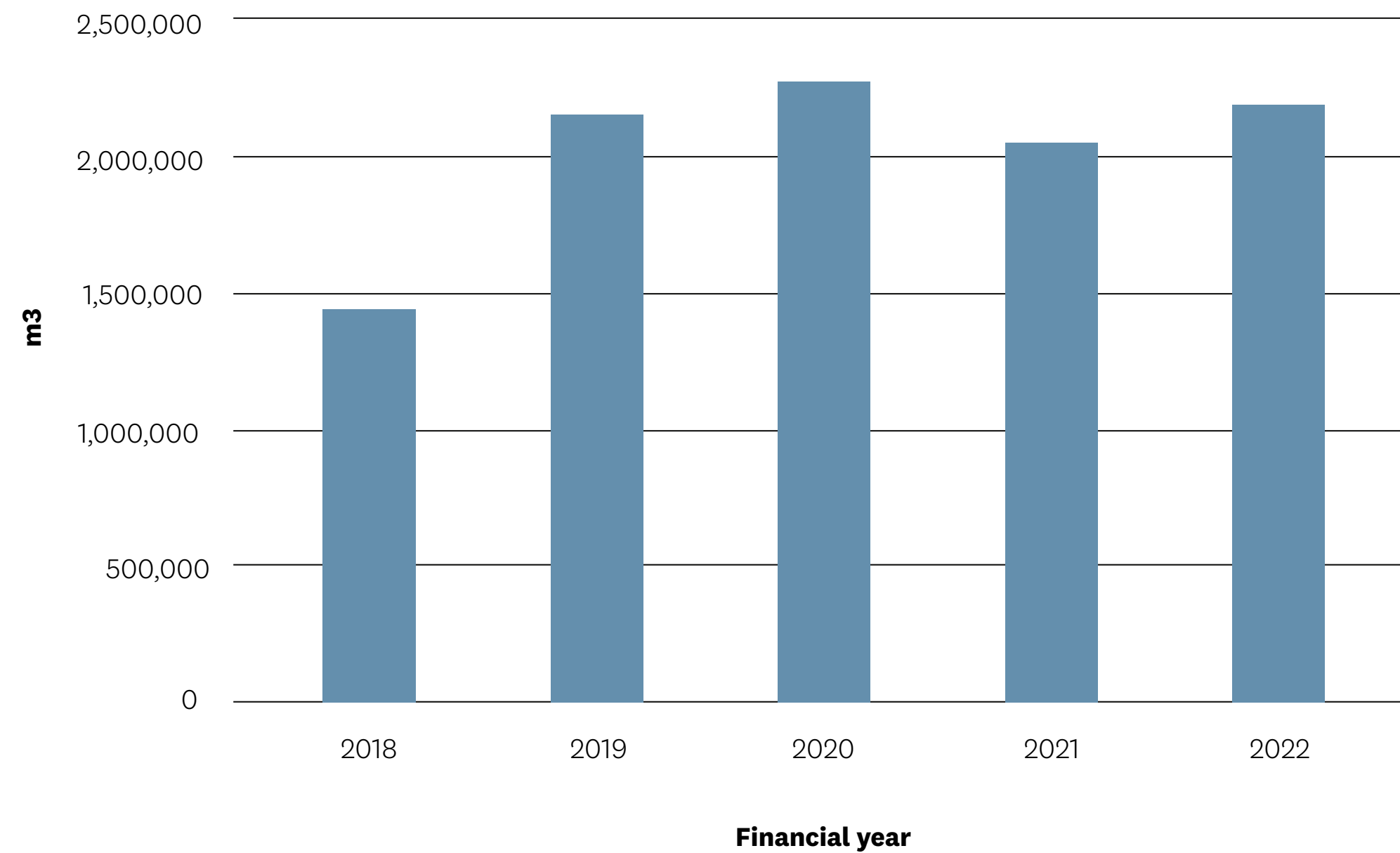


Figure 5: Annual volume of wastewater pumped (Fred Thomas Drive).

Methodology

Wastewater from this site is pumped through a flow meter. Watercare Services Limited's (Watercare) SCADA (supervisory control and data acquisition) software captures and stores this data. The data shared was extracted on 2 September 2022 and exported to a spreadsheet which presents this data.



Te kūtere wai o Hunua

Hunua watermain

Introduction

Hunua 4 is 31 km of a 1.9 meter by 1.6 meter waterpipe that runs from Watercare's Reservoirs at Redoubt Road North in Manukau to the edge of the CBD to reservoirs at Khyber Pass Road. 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.

Through the construction of the project there were additional benefits that were also delivered:

- the final section of the pipeline, from Epsom to Khyber Pass, follows major arterial routes. The design team reviewed their standard approach to come up with this solution so that disruption was reduced for road users and businesses by using tunnelled instead of trenched construction methods
- this project also sourced a large percentage of materials from around the local Auckland region. In particular the aggregate was local, and the steel pipe was made close by in the suburb of Onehunga with steel from Glenbrook.



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 Waiohua and Waikato-Tainui in the Tāmaki Makaurau region. 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 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. At the end of the project – not until 2049 – the natural landscape will be restored, and four small hills will be created to replicate the scoria cones that were quarried in the 1950s. The area is to become a public amenity for the people of Auckland and will be cherished by the local community.

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. The current alternative would be for these to 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.

The project creates the foundations of what in 30 years will become four hills to 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. The site has immense cultural, spiritual, historical and ancestral significance to the people of Te Kawerau ā Maki, Te Waiohua and Tainui, who are recognised as the kaitiaki (guardians) of the island.

Upon its completion, Puketutu Island will be touted as Auckland’s only inner-city regional park with coastal views. The island will be a premium park gifted back to the people of Tāmaki Makaurau – Auckland.

Metrics

122,770 tonnes of waste have been diverted from landfill during financial year 2022 and used to restore the quarry.

Methodology



Weighbridge data for the site is collected daily. This data includes a lime additive which has been removed from this data to ascertain volume diverted from landfill.



Āpitianga 2 – Te uaratanga o ngā rawa māraurau






Appendix 2

Value of eligible assets at 30 June 2022

| No. | Eligible asset | Eligible asset details | Eligible sector (see Auckland Council's Sustainable Finance Framework) | Climate Bond standard (CBS) 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 eligible asset |
|-----|-------------------------|--|--|---|---|--|--------------------------------|----------------------------------|-----------------------------------|--------------------|
| 1 | Electric multiple units | Original rolling stock of electric trains (commenced operations in 2014) | Low carbon transport | 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 |  | Ikiiki, Transport | \$436.9 | N/A | None | Yes |
| 2 | Electric multiple units | Second lot of 15 rolling stock of electric trains (commenced in 2017) | Low carbon transport | 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 |  | Ikiiki, Transport | \$72.0 | N/A | None | Yes |







Appendix 2: Value of eligible assets at 30 June 2022 (continued)

| No. | Eligible asset | Eligible asset details | Eligible sector (see Auckland Council's Sustainable Finance Framework) | Climate Bond standard (CBS) 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 eligible asset |
|-----|-------------------------|--|--|---|--|--|--------------------------------|----------------------------------|-----------------------------------|--------------------|
| 3 | Electric multiple units | New lot of 23 rolling stock of electric trains (commenced in 2022) | Low carbon transport | 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> | \$6.8 | N/A | \$273.9 (unaudited) | Yes |
| 4 | Public cycleway assets | Public cycle and walking infrastructure (commenced construction in 2012) | Low carbon transport | GBP: Clean transportation CBI: Transport, public passenger transport, infrastructure - public walking and cycling infrastructure and cycling schemes |   | <u>Ikiiki, Transport</u> | N/A | \$93.7 | None | Yes |
| 5 | City Rail Link | New rail tunnel and station to enhance network and enable higher electric train use (commenced construction in 2016) | Low carbon transport | GBP: Clean transportation CBI: Transport, public passenger transport, infrastructure - dedicated infrastructure for electrified public transport |   | <u>Ikiiki, Transport</u> | N/A | \$1,457.1 | \$752.5 (unaudited) | Yes |



Appendix 2: Value of eligible assets at 30 June 2022 (continued)

| No. | Eligible asset | Eligible asset details | Eligible sector (see Auckland Council's Sustainable Finance Framework) | Climate Bond standard (CBS) 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 eligible asset |
|-----|---------------------------|---|--|---|--|--|--------------------------------|----------------------------------|-----------------------------------|--------------------|
| 6 | Wiri Electric Train Depot | Maintenance depot for electric trains to improve reliability of network and enable higher electric train use (commenced construction in 2012) | Low carbon transport | GBP: Clean transportation CBI: Transport, public passenger transport, infrastructure - dedicated infrastructure for electrified public transport |   | <u>Ikiiki, Transport</u> | \$77.3 | N/A | None | Yes |
| 7 | Manukau Bus Interchange | Transfer station connecting bus users to the rail network and other buses (commenced construction in 2016) | Low carbon transport | GBP: Clean transportation CBI: Transport, public passenger transport, infrastructure - dedicated infrastructure for electrified public transport |   | <u>Ikiiki, Transport</u> | \$11.2 | N/A | None | No |



Appendix 2: Value of eligible assets at 30 June 2022 (continued)

| No. | Eligible asset | Eligible asset details | Eligible sector (see Auckland Council's Sustainable Finance Framework) | Climate Bond standard (CBS) 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 eligible asset |
|-----|---|--|--|--|--|--|--------------------------------|----------------------------------|-----------------------------------|--------------------|
| 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> | \$63.9 | N/A | \$41.6 (unaudited) | No |
| 9 | Bledisloe House Customer Service Centre | 24 Wellesley Street West, Auckland (4-star NABERSNZ rated refurbishment completed in 2014) | Efficient buildings | GBP: Green buildings |  | <u>Taiao hanga, Built environment</u> | \$43.5 | N/A | None | No |
| 10 | Auckland Council Head Office | 135 Albert Street, Auckland (4-star NABERSNZ rated upgrade completed in 2015) | Efficient buildings | GBP: Green buildings |  | <u>Taiao hanga, Built environment</u> | \$221.0 | N/A | None | No |



Appendix 2: Value of eligible assets at 30 June 2022 (continued)

| No. | Eligible asset | Eligible asset details | Eligible sector (see Auckland Council's Sustainable Finance Framework) | Climate Bond standard (CBS) 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 eligible asset |
|-----|--------------------------|---|--|--|---|--|--------------------------------|----------------------------------|-----------------------------------|--------------------|
| 11 | Manukau Civic Building | 31 Manukau Station Road, Auckland (4-star NABERNZ rated refurbishment completed in 2009) | Efficient buildings | GBP: Green buildings |  | <u>Taiao hanga, Built environment</u> | \$35.9 | N/A | None | No |
| 12 | Fred Thomas Drive | Wastewater storage and pumping station (commenced construction in 2016) | Sustainable water management | GBP: Sustainable water and wastewater management |  | <u>Taiao hanga, Built environment</u> | \$25.7 | N/A | None | No |
| 13 | Hunua watermain pipeline | New watermain infrastructure providing uninterrupted, high-quality water supply to the growing Auckland region (commenced construction in 2012) | Sustainable water management | GBP: Sustainable water and wastewater management |  | <u>Taiao hanga, Built environment</u> | \$350.2 | N/A | None | No |




Appendix 2: Value of eligible assets at 30 June 2022 (continued)

| No. | Eligible asset | Eligible asset details | Eligible sector (see Auckland Council's Sustainable Finance Framework) | Climate Bond standard (CBS) 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 eligible asset |
|-----|-----------------------------------|---|--|--|--|--|--------------------------------|----------------------------------|-----------------------------------|--------------------|
| 14 | Rehabilitation of Puketutu Island | Rehabilitation of Puketutu Island using treated biosolids from Mangere wastewater treatment plant (commenced in 2013) | Sustainable land use | GBP: Environmentally sustainable management of living natural resources and land use |    | <u>Taiao māori, Natural environment</u> | \$132.0 | N/A | None | No |
| 15 | Rosedale floating solar array | 2,700 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 |  | <u>Te ngao me te ahumahi, Energy and industry</u> | \$1.9 | N/A | None | No |



Appendix 2: Value of eligible assets at 30 June 2022 (end)

| No. | Eligible asset | Eligible asset details | Eligible sector (see Auckland Council's Sustainable Finance Framework) | Climate Bond standard (CBS) 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 eligible asset |
|--|---|---|--|--|---|--|--------------------------------|----------------------------------|-----------------------------------|--------------------|
| 16 | Te Manawa (Westgate Multi-purpose Facility) | 5 green star rated building, opened in 2019 | Efficient buildings | GBP: Green buildings |  | Taiao hanga, Built environment | \$30.9 | N/A | None | No |
| Total CBI eligible green bond assets | | | | | | | \$593.0 | \$1,550.8 | \$1,026.4 (unaudited) | |
| Total non-CBI eligible green bond assets | | | | | | | \$916.2 | \$0.00 | \$41.6 (unaudited) | |
| Total current green bond eligible assets | | | | | | | | \$3,060.0 | | |
| Future planned eligible green asset spend | | | | | | | | | \$1,068.0 | |

Notes:

1. Asset values are shown net of third party (eg. Waka Kotahi) funding received.
2. Future spend values have not been audited.
3. Asset 16 Te Manawa was added to the register at 30 June 2022.



Āpitianga 3 – Te Pūrongo Motuhake a EY mō te Whakaū

Appendix 3

EY Independent Assurance Report



Independent Limited Assurance Report to the Management of Auckland Council

Assurance conclusion

Based on our limited assurance procedures, as described in this statement as of 9 September 2022, nothing has come to our attention which causes us to believe that Auckland Council's Sustainable Finance Framework (September 2022) and Green Bond Report have not been presented, in all material respects, fairly and in accordance with the Green Bond Principles (2021), Green Loan Principles (2021), Sustainability-Linked Bond Principles (2020), Sustainability-Linked Loan Principles (2022) and Auckland Council's Sustainable Finance Framework (September 2022) and the Climate Bonds Standard v3.0, respectively.

Scope

Ernst & Young ('EY', 'we') was engaged by Auckland Council to undertake a limited assurance engagement, as of 9 September 2022, 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 |
|--|---|
| Auckland Council's Sustainable Finance Framework (September 2022). | <ul style="list-style-type: none"> ▶ The Green Bond Principles (June 2021) and Green Loan Principles (February 2021) requirements on: <ul style="list-style-type: none"> ▶ Use of Proceeds ▶ Process for Project Evaluation and Selection ▶ Management of Proceeds ▶ Reporting ▶ Review (Green Loan Principles) ▶ The Sustainability-Linked Loan Principles (March 2022) and the Sustainability-Linked Bond Principles (June 2020) requirements on: <ul style="list-style-type: none"> ▶ Selection of Key Performance Indicators ▶ Calibration of Sustainability Performance Targets ▶ Loan/Bond characteristics ▶ Reporting ▶ Verification |
| Auckland Council's Annual Green Bond Report as at 30 June 2022, in particular; | <ul style="list-style-type: none"> ▶ Auckland Council's Sustainable Finance Framework (September 2022) ▶ Climate Bonds Standard (v 3.0) ('CBS') |



EY Independent Assurance Report



Building a better working world

| | |
|---|---|
| <ul style="list-style-type: none"> ▶ Valuation of Eligible Assets ▶ Green and/or sustainability credentials listed for Eligible Assets. | <ul style="list-style-type: none"> ▶ Asset-specific Criteria issued by the Climate Bonds Initiative and relevant to some of the Eligible Assets. |
|---|---|

Management Responsibility

The management of Auckland Council is responsible for the collection, preparation, and presentation of the Subject Matter. This responsibility includes establishing and maintaining internal controls relevant to the preparation and presentation of the Subject Matter that is free from material misstatement, whether due to fraud or error, selecting and applying appropriate accounting policies; and making estimates that are reasonable in the circumstances.

Assurance Practitioner’s Responsibility

Our responsibility is to express a conclusion on whether anything has come to our attention that causes us to believe that the subject matter has not been presented, in all material respects, fairly and in accordance with the criteria detailed above. Our assurance engagement has been planned and performed in accordance with the International Standard on Assurance Engagements (New Zealand) 3000: *Assurance Engagements Other than Audits or Reviews of Historical Financial Information* ('ISAE (NZ) 3000').

Level of Assurance

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. While 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.

Our Approach

Our assurance procedures performed included, but were not limited to:

- ▶ Assessing Auckland Council’s Sustainable Finance Framework (September 2022) against the Green Bond Principles (June 2021), the Green Loan Principles (February 2021), the Sustainability- Linked Loan Principles (March 2022) and the Sustainability- Linked Bond Principles (June 2020).
- ▶ Assessing the eligibility of assets included in Auckland Council’s Green Bond Report against Auckland Council’s Sustainable Finance Framework (September 2022).
- ▶ 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 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.

A summary of our assurance procedures and our key observations from each procedure can be found in Annex A of this statement.



EY Independent Assurance Report



Limitations

There are inherent limitations in performing assurance - for example, assurance engagements are based on selective testing of the information being examined - and it is possible that fraud, error, or non-compliance may occur and not be detected. There are additional inherent risks associated with assurance over non-financial information including reporting against standards which require information to be assured against source data compiled using definitions and estimation methods that are developed by the reporting entity. Finally, adherence to ISAE (NZ) 3000 and Green/Sustainability Loan/Bond Principles is subjective and will be interpreted differently by different stakeholder groups.

Our assurance was limited to the Auckland Council's Sustainable Finance Framework (September 2022) and Green Bond Report and did not include statutory financial statements. Our assurance is limited to policies and procedures in place as of 9th of September 2022. The firm performs other Advisory engagements for Auckland Council. Other than these Advisory engagements the firm has no other relationships with, or interests in, Auckland Council.

Use of Report

Our responsibility in performing our assurance activities is to the Management of Auckland Council only and in accordance with the terms of reference for this engagement as agreed with them. We do not therefore accept or assume any responsibility for any other purpose or to any other person or organisation, with the exception of the Climate Bonds Initiative. Any reliance any such third party may place on the Auckland Council's Green Bond Programme is entirely at its own risk. No statement is made as to whether the criteria are appropriate for any third-party purpose.

Independence

In accordance with APES 110 *Code of Ethics for Assurance Practitioners*, the firm and all professional personnel involved in this engagement have met the independence requirements of New Zealand or International professional ethical requirements. Our team has the required competencies and experience for this assurance engagement.

A handwritten signature in black ink, appearing to read 'Pip Best'.

Pip Best
EY Climate Change and Sustainability Services Partner
09 September 2022



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Annex A

We provide selected observations aligning to the Green Bond Principles (June 2021), the Green Loan Principles (February 2021), the Sustainability- Linked Loan Principles (March 2022) and the Sustainability- Linked Bond Principles (June 2020) core components, to provide the reader with further understanding on how Auckland Council's Sustainable Finance Framework (September 2022) meets the Criteria. These observations are not intended to detract from our conclusion provided above.

Green Bond Principles (June 2021) and Green Loan Principles (February 2021)

| GLP / GBP section | Significant process | Findings |
|-------------------|---|--|
| 1 | Use of Proceeds | <ul style="list-style-type: none"> ▶ The Subject Matter states that proceeds raised from sustainable financing will be used for financing and refinancing of eligible green projects and assets that have positive social, governance or environmental outcomes and contribute to a low carbon and climate resilient future. ▶ As the Subject Matter consists of the Sustainable Finance Framework alone, we did not review specific legal documentation for sustainable lending facilities or bonds to consider whether use of proceeds were appropriately described. ▶ The relevant green and social eligible project categories described in the Subject Matter consist of: <ul style="list-style-type: none"> ▶ Renewable Energy ▶ Energy Efficiency ▶ Climate Change Adaptation ▶ Sustainable Water Management ▶ Efficient Buildings ▶ Waste Management ▶ Sustainable land-use ▶ Low Carbon Transport. |
| 2 | Process for Evaluation and Selection of Projects & Assets | <ul style="list-style-type: none"> ▶ The Subject Matter provides a description of the alignment between Auckland Council's Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan and the finance raised through their sustainable finance mechanisms (e.g., bonds) that the Subject Matter facilitates. ▶ The Subject Matter explains how responsibility and accountability for evaluation and selection of Projects falls to the Treasury Management Steering Group ('TMSG') including ensuring the continued compliance of the framework and associated green bonds and loans to the relevant standards. ▶ Alongside ensuring alignment of assets to the eligible project categories above, the TMSG is responsible for considering, for the eligible projects and assets: <ul style="list-style-type: none"> ▶ The current source of finance (budgeted and/or allocated) to determine ease and cost implications of possible re-financing ▶ The alignment with the Auckland Plan 2050 and Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan objectives ▶ The environmental and/or social risks associated with the assets ▶ Where the council chooses, conformance with any other principles, standards or tools (such as the Climate Bonds Standard (CBS) and the EU Taxonomy) that are or become commonplace and highly regarded in the market. |
| 3 | Management of Proceeds | <ul style="list-style-type: none"> ▶ The Subject Matter details how Auckland Council will track the receipt and use of proceeds using internal reporting systems. This includes ensuring that proceeds derived from each tranche of CBI-certified , and each green bond and loan are allocated, tracked and reported separately to proceeds generated from other loans and bonds. |



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| GLP / GBP section | Significant process | Findings |
|-------------------|---------------------|---|
| | | <ul style="list-style-type: none"> ▶ The Subject Matter communicates to investors how proceeds from green bonds can be temporarily invested to the extent these have not yet been used in green assets (i.e., unallocated proceeds). |
| 4 | Reporting | <ul style="list-style-type: none"> ▶ The Subject Matter states that the following will be included in reporting: <ul style="list-style-type: none"> ▶ a brief description of the eligible assets and a current list of eligible assets, along with their values ▶ a summary of the environmental outcomes that have been delivered by the eligible assets ▶ qualitative and, where feasible, quantitative performance measures as part of reporting on the impact of the eligible asset ▶ key underlying methodology and/or assumptions used in the quantitative determination for any performance indicators or measures. ▶ The Subject Matter states that this reporting will be carried out on an annual basis and includes specific timings for disclosure items and the location that this reporting can be found online. |
| 5 | Review | <ul style="list-style-type: none"> ▶ The Subject Matter states that post-issuance allocation reporting assurance against the Green Bond and Green Loan Principles will occur at least once during the tenor of each green bond and loan. ▶ The Subject Matter also states that Auckland Council may seek other forms of independent review, such as second party opinions and evaluations from organisations such as rating and carbon reporting agencies and, or any other form of independent review that become accepted by the market. |



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Sustainability- Linked Loan Principles (March 2022) and Sustainability- Linked Bond Principles (June 2020)

| SLLP / SLBP section | Significant process | Findings |
|---------------------|---|--|
| 1 | Selection of Key Performance Indicators | <ul style="list-style-type: none"> ▶ The Subject Matter states that the following will be considered in determining KPIs for SLLs: <ul style="list-style-type: none"> ▶ Materiality (to Auckland Council's operations) ▶ Measurability ▶ Ability to be verified by an external reviewer ▶ Availability of historic data ▶ The Subject Matter provides examples of KPIs that are designed to drive cohesiveness between Auckland Council's Green Bonds/Loans and Sustainability Linked Bonds/Loans. Some of these KPIs include but are not limited to: <ul style="list-style-type: none"> ▶ Greenhouse gas emissions reduction ▶ Energy efficiency ▶ Waste management and minimisation ▶ Biodiversity ▶ The Subject Matter requires any Sustainability-Linked Loan or Bond to include a clear definition of the KPI along with the scope, calculation methodology, baseline definition and relevant industry benchmark (where feasible). ▶ The Subject Matter requires any KPI selected to align to Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan and relevant strategy. |
| 2 | Calibration of Sustainability Performance Targets | <ul style="list-style-type: none"> ▶ The Subject Matter describes aims for calibrating Sustainability Performance Targets (SPTs) which includes the requirement for the targets to be ambitious as determined by historical or peer benchmarking or reference to external frameworks, be in line with the Council's sustainability strategy and leadership and be based on a predefined timeline. ▶ The Subject Matter states that disclosures for Sustainability-Linked Loans or Bonds must include: timelines for measuring and reporting, baselines for KPIs upon which the SPTs are based, how the SPT aligns with goals/objectives under Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan and how the Council aims to achieve the SPTs, |
| 3 | Loan/Bond Characteristics | <ul style="list-style-type: none"> ▶ The Subject Matter explains that each Sustainability Linked Bond/Loan will include financial and/or structural characteristics that will encourage the achievement of the SPTs. These characteristics include: <ul style="list-style-type: none"> ▶ The amount of any coupon or margin adjustment ▶ The SPT testing dates and effective date(s) for any adjustment ▶ Any fall-back mechanisms in case the SPTs cannot be calculated. |
| 4 | Reporting | <ul style="list-style-type: none"> ▶ The Subject Matter outlines that the Council will provide annual reporting to lenders/investors on sustainability performance against SPTs. ▶ The Subject Matter states that for Sustainability-Linked Bonds the annual report will be available on the Council's website along with the verification report. |
| 5 | Verification | <ul style="list-style-type: none"> ▶ The Subject Matter states Auckland Council's intention to conduct external reviews for each Sustainability Linked Bond/Loan at least annually. ▶ The Subject Matter explains that these reviews will be carried out by an external reviewer with expertise prior to issuance and on an ongoing basis which will be at least annually. This external review may, among other options, be assurance. |



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Annex B

We provide selected observations aligning to Auckland Council’s Sustainable Finance Framework and the Climate Bonds Standard V3.0 to provide the reader with further understanding on how Auckland Council’s Green Bond Report meets the criteria. These observations are not intended to detract from our conclusion provided above.

| Criteria | Section | Findings |
|--|---|---|
| Auckland Council Sustainable Finance Framework | Eligible Asset Categories | <ul style="list-style-type: none"> ▶ The use of proceeds of the bonds toward electrified public transport trains equipment and infrastructure, the CityRail Link, cycleway projects, and the Manukau Bus interchange align with the Sustainable Finance Framework eligibility category “Low carbon transport.” ▶ The use of proceeds of the bonds towards the LED upgrade of streetlighting aligns with the Sustainable Finance Framework eligibility category “Energy Efficiency.” ▶ The use of proceeds of the bonds towards the certified green buildings owned by Auckland Council aligns with the Sustainable Finance Framework eligibility category “Efficient Buildings”. This includes Te Manawa, a multi-purpose facility in Westgate that has been added as an eligible asset this year. ▶ The use of proceeds of the bonds towards the Fred Thomas Drive wastewater pump station and storage and the Hunua 4 watermain project align with the Sustainable Finance Framework eligibility category “Sustainable water management”. ▶ The use of proceeds of the bonds towards the Puketutu restoration project aligns with the Sustainable Finance Framework eligibility category “Sustainable land use”. ▶ The use of proceeds of the bonds towards the Rosedale floating solar array aligns with the Sustainable Finance Framework eligibility category “Renewable energy.” |
| Climate Bonds Standard V3.0 | Reporting | <ul style="list-style-type: none"> ▶ Auckland Council commit, in their Sustainable Finance Framework, to reporting at least annually on their bonds and to making this information publicly available. ▶ Auckland Council's 2022 Annual Green Bond Report includes a clear breakdown of funds allocation including the total value of green bonds on issue, the total value of CBI certified green bond assets, the proportion of the proceeds used for financing versus refinancing and how this funding is allocated to the individual assets. ▶ The allocation reporting also includes eligibility reporting where each project is assigned to an eligible category. Each of the eligible assets are explained in detail in the Annual Green Bond Report and the Report includes a specific section on their broad benefits and any relevant metrics to show the impact the asset is having/their environmental performance . The Report also provides a geographic reference for assets. ▶ The Report specifies that the objective of these bonds is to enable funding streams to align with Auckland Council's climate response and support the broader shift to a more sustainable financial system . ▶ Auckland Council confirms in the Annual Green Bond Report 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 CBS. The Report provides the expected benefits from the CBS certified assets including qualitative and quantitative performance measures/outcomes. This is followed by a methodology and assumptions section for each asset which details how these performance measures/outcomes have been measured. |
| | Part C: Eligibility of Project and Assets | <ul style="list-style-type: none"> ▶ The use of proceeds of the bonds toward electrified public transport trains, equipment and infrastructure aligns with the Climate Bonds Initiative Taxonomy’s “Public Passenger Transport” section through the “Trains” asset type under the asset |



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| Criteria | Section | Findings |
|----------|---------|--|
| | | <p>specifics category of “rolling stock and vehicles for electrified public transport, such as electrified rail, trams, trolleybuses and cable cars.”</p> <ul style="list-style-type: none"> ▶ The use of proceeds of the bonds toward the City Rail Link aligns with the Climate Bonds Initiative Taxonomy’s “Public Passenger Transport” section through the “Infrastructure” asset type under the asset specifics category of “dedicated infrastructure for electrified public transport”. ▶ The use of proceeds of the bonds toward public cycleway assets aligns with the Climate Bonds Initiative Taxonomy’s “Public Passenger Transport” section through the “Infrastructure” asset type under the asset specifics category of “public walking and cycling infrastructure and cycling schemes”. |



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Annex C

Auckland Council's list of CBS-eligible assets

| Eligible Projects | Class | Country |
|---------------------------------|----------------------------|-------------|
| Original EMU Rolling Stock | Public Passenger Transport | New Zealand |
| Second lot of EMU Rolling Stock | Public Passenger Transport | New Zealand |
| New EMU Rolling Stock | Public Passenger Transport | New Zealand |
| Public cycleway projects | Public Passenger Transport | New Zealand |
| City Rail Link | Public Passenger Transport | New Zealand |
| EMU Depot | Public Passenger Transport | New Zealand |

Annex D

Auckland Council's exposure to CBS-eligible assets as at 30 June 2022.

| Class | Asset Values (NZDm) -book value | Asset Values (NZDm) - project cost | Total |
|----------------------------|---------------------------------|------------------------------------|---------|
| Public Passenger Transport | 593 | 1,551 | \$2,144 |



Toitū Envirocare - Te Arotake i te Pāpātanga

Appendix 4

Toitū Envirocare – Review of Impact



REVIEW OF IMPACT ASSESSMENT EMISSIONS

For organisation:

AUCKLAND COUNCIL

Date: 21st September 2022

Auckland Council has drafted content within an Impact Assessment section of their Green Bond Annual Report FY2022, 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: 23-PRO-0205 Green Bond Annual Report 2022_V7_PROOF24HM.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.



