Te Rīpoata ā-Tau 2022/2023
Tirohanga whānui me ngā whakahaere ratonga

Auckland Council

Climate statement 2022/2023

Volume 4

Te Wahanga 4: Te tauākī mō te tūraru ā-Āhuarangi

Volume 4: Climate statement

Auckland Council
Te Kaunihera o Tāmaki Makaurau

Mihi

Noho mai rā Tāmaki Makaurau,
moana waipiata,
maunga kākāriki.
Mai i ngā wai kaukau o ngā tūpuna,
ki ngā puke kawe i ngā reo o te tini,
i puta ai te kī mōu.
Tū ana he maunga,
takoto ana he raorao,
heke ana he awaawa.
Ko ō wahapū te ataahua,
ō tāhuna te mahora,
te taiao e whītiki nei i a koe he taonga tuku iho.
Tiakina kia meinga tonu ai koe
ko 'te tāone taioreore nui o te ao,
manakohia e te iwi pūmanawa'.
Tāmaki Mākaurau tirohia te pae tawhiti
he whakairinga tūmanako
mō ngā uri whakaheke o āpōpō,
te toka herenga mō te hunga ka takahi ake
mā ō tomokanga,
te piriti e whakawhiti ai
tō iwi ki ngā huarahi o te ora.
Tāmaki Mākaurau e toro whakamua,
hīkina te mānuka.
Tērā te rangi me te whenua te tūtaki.
Maranga me te rā, he mahi māu me tīmata,
ka nunumi ana ki te pō,
whakatārewahia ō moemoeā ki ngā whetū.
Ko te oranga mutunga mōu
kei tua i te taumata moana.
Whakatuwherahia ō ringa, kūmea mai k i tō uma.
Tāmaki Makaurau
he tāone ūmanga kurupounamu koe;
tukua tō rongo kia rere i te ao.

Tāmaki Makaurau
who bestrides shimmering seas,
and verdant mountains.
From the bathing waters of our forebears,
and hills that echo with voices
that acclaim.
Your mountains stand lofty,
your valleys spread from them
and your streams run freely.
Your harbours are majestic,
your beaches widespread,
the environment that surrounds you is a legacy.
Take care of it so that you will always be known
as 'the world-class city
where talent wants to be'.
Tāmaki Makaurau looking to the future,
repository of our hopes
for generations to come,
anchor stone for those who venture
through your gateway,
and the bridge that connects
your citizens to life.
Tāmaki Makaurau moving on,
accepting all challenges.
Where even heaven and earth might meet.
Rise with the sun as there is work to be done
and when evening comes,
allow your dreams to glide among the stars.
Perpetual health and growth
is beyond the horizon of cresting waves.
Open your arms and pull them to your embrace.
Tāmaki Makaurau, you are a city
where valued business and enterprise thrives;
let your good name traverse the world.

◀ Waterview Primary School Students Kiyoshi Brown, Hazel Brown, Georgia-Sherie Toaval

▲ Sunrise over Rangitoto Island

Te Rārangi Kaupapa

Contents

Nau mai ki ngā kōrero mō mātou

Welcome to our story

From stunning landscapes to bustling cityscapes, Auckland offers a vibrant mix of cultures, hospitality, arts and world class experiences.

Auckland Council Group is a diverse organisation that enables these choices for Aucklanders. Our staff deliver services, programmes, facilities and infrastructure that look after Aucklanders and the future of the Auckland region.

This report tells the story of how the council and its significant subsidiaries are responding to climate-related risks for the Auckland Council Group. This report covers the Auckland Council Group, which is made up of Auckland Council, Port of Auckland Limited and five substantive council-controlled organisations (CCOs): Auckland Transport, Watercare Services Limited, Eke Panuku Development Auckland Limited, Tātaki Auckland Unlimited Limited (formerly Auckland Unlimited Limited) and Tātaki Auckland Unlimited Trust (formerly Regional Facilities Auckland). The latter two entities share sustainability teams and have provided joint responses.

Volume 1

Volume 1: Overview and service performance

An overview of the financial and non-financial performance of the group.

Volume 2

Volume 2: Local board reports

A collection of individual annual reports for each of the 21 local boards, reporting financial and non-financial performance.

21 volumes

Volume 3

Volume 3: Financial statements

The financial statements of the Auckland Council Group and Auckland Council for the year ended 30 June 2023.

Volume 4

Volume 4: Climate statement

A summary of the group's climate-related financial risks and opportunities.

He kupu nā te Āpiha Matua mō te Pūtea i te Rōpū

From The Group Chief Financial Officer

This financial year saw the start of our recovery from the restrictions and challenges brought by the COVID-19 pandemic in prior years. We were able to make good progress on many capital projects and initiatives that had been delayed due to physical restrictions and cash flow prioritisation. In early 2023, the Auckland region was hit by extreme weather events including the Auckland Anniversary weekend storm. Buildings, homes and infrastructure were damaged, many Aucklanders were displaced from their homes and many public services were impacted causing disruption to people's daily lives.

These weather events reinforce that we need to be prepared for future impacts from climate change on the Auckland Region and the Auckland Council group. It is critical that we understand the potential future impacts of climate risks on the group and proactively manage or mitigate those risks to ensure that we prepare for a climate-resilient future.

We remain committed to reducing our greenhouse emissions to net zero by 2050, which is no small feat. We are continually updating our plans and budgets to achieve this and will continue to provide transparent disclosure of our progress towards this target in our annual climate statements.

As a Climate Reporting Entity, the group will be preparing to report under the Aotearoa New Zealand Climate Standards from the year ending June 2024. In preparation, we are transitioning our climate statement from reporting against the Taskforce on Climate-related Financial Disclosures framework to the Aotearoa New Zealand Climate Standards. We are moving from reporting as a group instead of at an entity level as we previously reported, are focussing on ensuring the information we include in our statement provides a true representation of how the group is impacted by and responding to its climate-related risks.

In 2022/2023, the group identified its key climate-related risks and opportunities and started to get a better understanding of how resilient our business is to the impacts of these risks. With the development of the 2024-2034 Long-Term Plan underway, we will be looking at how we can ensure our climate-related risks and opportunities are a key consideration in this process. The plan will be key to ensuring that we transition smoothly to a low-carbon state, and adapt to the physical, social, cultural and economic changes that come with a changing natural environment.

Ngā manaakitanga | Best wishes

Peter Gudsell
Tumaki, Take Tahua Pūtea
Group Chief Financial Officer

He kōrero mō te āhuarangi

Climate Statement

Introduction

The health of our natural environment in Tāmaki Makaurau is imperative to all who live and work here. Without a sustainable connection to the land and sea we are at risk of losing everything that forms the basis of our individual and collective identities. One of the ways that Auckland Council Group (the group) embraces its role of kaitiakitanga in this beautiful city, is by responding to the effects of climate change, supporting a low carbon economy and working with local communities to safeguard and support the health of our natural environment.

Since 2015 when the group joined the C40 Cities Climate Leadership Group, we have worked to improve our understanding of climate change and to manage our exposure to its effects on the organisation and the region. Climate change means that we all could face the loss of physical structures and resources, which impacts the wellbeing of all Aucklanders. We recognise that Māori are among the first to be directly affected by climate change because of their close relationship with the environment, as well as the proximity of many Māori spiritual and cultural sites to the coastline. For this reason, climate change will directly impact the spiritual, intellectual and social wellbeing of Māori.

Statement Of Compliance

Auckland Council is a Climate Reporting Entity under the Financial Markets Conduct Act 2013 (FMCA 2013), located in Auckland, New Zealand. The group's climate statement will need to comply with the FMCA and consequently the Aotearoa New Zealand Climate Standards at 30 June 2024. This climate statement has been prepared in accordance with Aotearoa New Zealand Climate Standards however, not all the underlying activities and mechanisms are in place yet for management to assert unreserved compliance.

Materiality

Disclosures have been made where we consider them to be quantitatively or qualitatively material. In determining what is material, we have considered the nature of the group's business as a local government entity and its responsibilities to its key stakeholders including investors, Aucklanders, mana whenua iwi, mataawaka, insurers, the business community, suppliers, central government and its agencies. Our materiality considerations are as follows:

1. Financial materiality
   Financial materiality is $107 million, and tolerable error is $54 million.
2. Non-financial information
   The qualitative characteristics that would make non-financial information material are:
   - It is likely to influence economic decisions of key stakeholders such as investors
   - It is likely to have a significant impact on Auckland's community as a whole or a significant segment e.g., the potential for unavailability of lifeline services
   - It is likely to have a significant impact on Māori.
3. Greenhouse gas emissions
   The group is in the process of developing a greenhouse gas (GHG) emissions calculation policy which will set *de minimis* thresholds for the group and each significant entity. Noting that the quantification of the group's Scope 3 emissions is under development, management has applied a measured approach in considering materiality for GHG emissions and has not considered anything over 5 per cent of total emissions per entity to be immaterial.

▲ City view from Maungawhau/Mt Eden

Te urupare ki ngā paerewa mō te āhuarangi

Responding to climate standards

The group was an early adopter of the Taskforce on Climate-related Financial Disclosures (TCFD) framework in New Zealand and has voluntarily disclosed against the framework since June 2020. As a Climate Reporting Entity, the group is working towards preparing a climate statement that complies with the Aotearoa New Zealand Climate Standards by 30 June 2024.

Group and entity disclosures

This report includes disclosures at both the group and entity level. We are working towards a consistent and co-ordinated approach for managing climate risk across the group but acknowledge that each entity is unique, and, in some instances, entity specific approaches are required.

◀ Living roof, Central City Library/Tāmaki Pātaka Kōrero

◀ Tāwharanui Beach rock pools

Te Mana Hautū ā-Rōpū
i Te Kaunihera o Tāmaki
Makaurau

Auckland Council Group Governance

Auckland Council Group Governance

Our governors' oversight of climate-related risks and opportunities

The Auckland Council Group is governed by an elected governing body, elected local boards, governing body committees and the respective boards of each subsidiary and joint venture. The Governing Body meets at least monthly. Its responsibilities are outlined within the Governing Body Terms of Reference and include both legislated responsibilities as well as responsibilities which ensure good governance of the group.

The Governing Body has responsibility for:

- the approval of the annual plan and long-term plan
- monitoring the financial management and performance of the Auckland Council Group
- making financial decisions outside of the annual budgeting process
- oversight of the group climate change risk, ensuring that climate change, and the impacts of climate change on the group, (including the related financial, social, environmental, and cultural impacts) are integrated within governance structures and considered in decisions.

Planning, Environment and Parks Committee (meets monthly)

This is a committee of the whole. It sets the direction for the physical development and growth of Auckland through a focus on land use, policies relating to planning, growth, infrastructure, housing, as well as programmes and strategic projects associated with these activities. It also deals with community, social, cultural, environment and climate change policy.

Transport and Infrastructure Committee (meets monthly)

This committee has oversight of major transport and infrastructure projects and plans. It also handles the oversight, monitoring and direction of Auckland Transport, which includes a key focus on the Transport Emissions Reduction Pathway.

As committees of the whole, the Transport and Infrastructure and Planning, Environment and Parks committees are also responsible for ensuring that climate change, and the impacts of climate change on the Auckland Council Group and committee work programme (including the related financial, social, environmental and cultural impacts) are considered in all decisions made by the committee.

Audit and Risk Committee (meets five times annually)

This committee is the only committee with external members who are not part of the Governing Body or local boards. The purpose of the committee is to assist and advise the Governing Body in discharging its responsibility and ownership of governance, risk management and internal control. It has responsibility for ensuring appropriate responses to risk are in place across the group.

Auckland Council and CCO management provides the committee with a quarterly update on the organisation's response to significant risks, including climate change. Climate disclosure matters are reported to this committee twice a year. Work is ongoing to establish a climate risk reporting process to this committee.

Consideration of climate-related risks and opportunities

The method by which the Governing Body and local boards consider climate-related risks and opportunities when developing and overseeing implementation of strategy is through the use of mandatory climate impact statements in political reports. The purpose of the climate impact statement is to identify:

1. the impact of a proposed decision on the region's GHG emissions and the group's ability to adapt to the impacts of climate change, and
2. what effect climate change could have over the lifetime of the proposed decision.

Detailed guidance is available to support staff when preparing the statement, however we acknowledge that the preparation of this statement requires a level of understanding of the impacts of climate change by both preparers, reviewers and recipients of political reports. Knowledge of the risks and impacts of climate change is improving through initiatives by the Chief Sustainability Office, Climate Disclosure team and through the accumulation of general knowledge. As this knowledge improves, we anticipate better and more standardised approaches to the climate impact statement.

Setting, monitoring progress against, and overseeing achievement of climate-related metrics and targets

The group has a diverse range of metrics and targets related to climate risks and opportunities. Material measures are developed with the Governing Body as part of the preparation of the group's long-term plan. Progress against these measures is included in the group's annual report. Those measures that are measured quarterly are reported to the Governing Body in the group's quarterly performance report along with other climate-related metrics that are less material but relate to significant areas of focus.

Access to climate change expertise

There is no specific climate-related skills requirement for governing body, local board and governing body committee members to support oversight of climate related risks and opportunities.

All governing body committees and local boards can access climate change expertise through Auckland Council's Chief Sustainability Office, the Legal and Risk team and the Climate Disclosure teams. No climate change training was provided during the year besides an Audit and Risk Committee workshop in December 2022 on climate risk disclosures, to support the committee's oversight of climate risk. Management plans to introduce educational sessions for the Governing Body as part of the development of the 2024-2034 Long Term Plan.

Governance of significant subsidiaries

Boards of directors or trustees

Each CCO and Port of Auckland Limited (POAL) has a board of directors or trustees.

Entity	Frequency of board meetings	Frequency of Audit and Risk (or equivalent) Committee meetings
Auckland Transport	At least 8 times a year	At least 5 times a year
Watercare Services Limited	At least 10 times a year	At least 5 times a year
Eke Panuku Development Auckland Limited	At least 10 times a year	4 times a year
Tātaki Auckland Unlimited	Around 12 times per year	4 times a year
Port of Auckland Limited	10 times a year	4 times a year

Audit and Risk Committees or equivalent

Each entity has an Audit and Risk Committee (or equivalent) that are responsible for:

- Overseeing climate-related risk management processes, controls and reporting.
- Overseeing compliance with climate legislation, climate standards and climate-related litigation risk.

The frequency of their meetings is shown above.

Statements of Intent

Each subsidiary prepares a Statement of Intent (POAL prepares a Statement of Corporate Intent) annually that responds to the Auckland Council mayor's letter of expectations. It includes the entity's strategic objectives and the performance measures that will be monitored by the board for achieving the strategic objectives. The performance measures are reported in the entities' annual reports. The following climate measures are included in the entity statements of intent for 2022 to 2025:

Entity	Performance measure
Auckland Transport	50% Reduction in operational GHG emissions by 2030.
Watercare Services Limited	Scope 1 and 2 GHG emissions (tCO2e). Target is 50% reduction by 2030.
Eke Panuku Development Auckland Limited	None
Tātaki Auckland Unlimited	Percentage GHG emissions reduction against 2018/2019 baseline. Interim targets increase annually to -20% in 2025, with a target of 50% reduction by 2030 for Scope 1 and 2.
Port of Auckland Limited	Work towards POAL's long term environmental sustainability goals of being zero Scope 1 and Scope 2 GHG emissions by 2050 and zero waste to landfill by 2040.

Access to climate change expertise

None of the subsidiaries have skills matrices for their boards and sub-committees. Notwithstanding, several of the boards have members with significant climate change expertise, and many of their directors are members of Chapter Zero.

As things are evolving rapidly in the climate change landscape, training and workshops on climate-related risks and opportunities with their boards and executive leadership teams currently take place on an ad hoc basis when the need is identified.

Climate performance metrics and remuneration policies

Climate metrics are not currently incorporated into remuneration policies, except for Watercare (refer to Management's role in assessing and managing climate-related risks and opportunities – Watercare). Work is underway at some of the entities to identify whether climate change related metrics could be incorporated into key performance indicator setting for relevant staff, and how this could be achieved.

Management's role in assessing and managing climate-related risks and opportunities

Each group entity has different ways in which management is involved in assessing and managing climate-related risks and opportunities.

Auckland Council

Members of Auckland Council's Executive Leadership (ELT) team have ultimate responsibility for all reports that go to the Governing Body, its committees and local boards. Each Governing Body committee is assigned a lead officer who in the majority of cases is an ELT member, or if not, a general manager. Lead officers are required to review and approve each report that goes to a meeting, and therefore play a key role in ensuring that climate impacts are considered.

The ELT discusses enterprise risks on a fortnightly basis. The risks include climate-related risks, however there is no specific frequency for discussing climate-related risks.

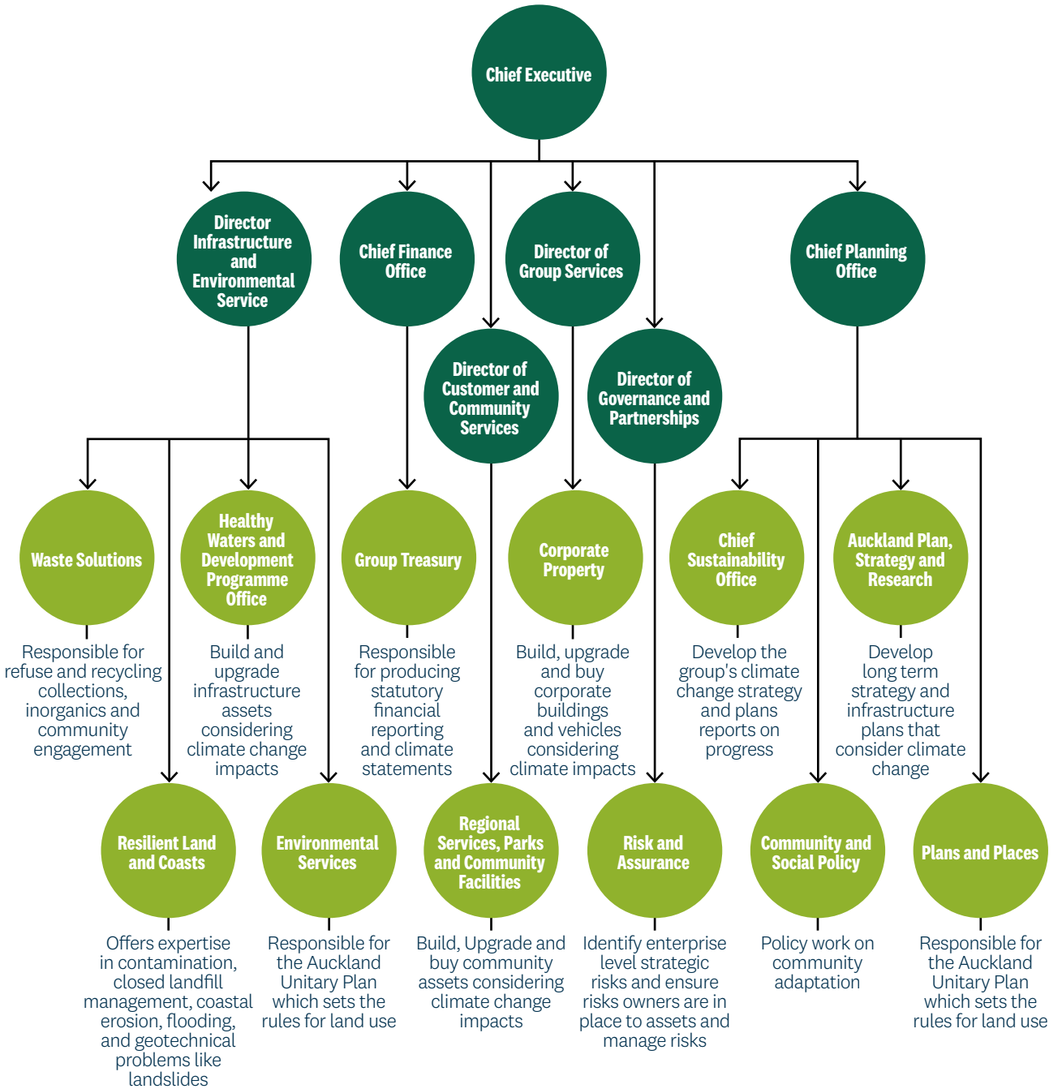
Auckland Council's Chief of Strategy oversees the Chief Sustainability Office (CSO). The CSO leads the council's strategic direction on sustainability and climate action for the council and Auckland region. The CSO is tasked with strategic planning, analysis and advice on climate change and is responsible for the development and delivery of Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan. Although the CSO is not responsible for assessing or managing climate-related risks and opportunities, it supports operational management in developing strategies to adapt to and mitigate climate-related risks, and to make use of climate-related opportunities.

The CSO meets with the chair of the Planning, Environment and Parks Committee on an ad hoc basis, but usually before committee meetings, to discuss regional and organisational climate-related matters regularly. The CSO co-ordinates with the respective sustainability teams of each CCO and POAL to ensure that delivery of climate activity is aligned to Te Tāruke-ā-Tāwhiri.

Auckland Council's Director, Governance and CCO Partnerships oversees the risk and assurance department. The risk and assurance department updates the group's Audit and Risk Committee every six months on enterprise level strategic risks, which include climate change risk. Risks are identified, assessed and managed by general managers and risk owners, and the CSO does this at a strategic level in relation to climate risk.

Operational-level climate risks have been identified collectively by staff from front and back-office functions across the group. The risks have not yet been assessed, and a co-ordinated risk management approach has not yet been developed. Refer the risk management section for further details.

Auckland Council organisational structure with climate-related responsibilities

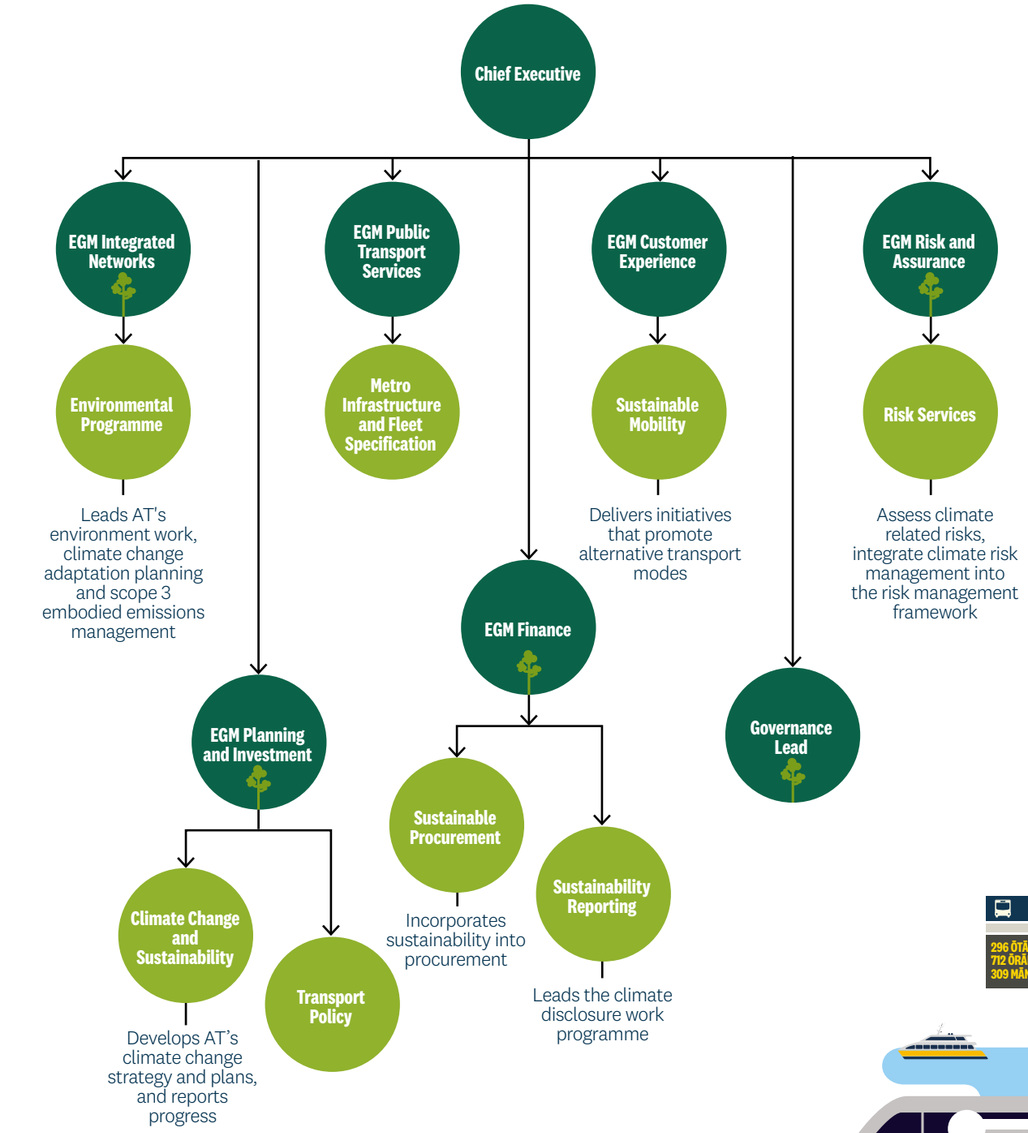


The CCOs and POAL have their own management structures that are responsible for reporting on climate change related matters to their boards of directors or trustees and delivering climate action in their respective organisations. The broader role of management in assessing and managing climate-related risks and opportunities is emerging and varies across the group.

Auckland Transport

A Climate Change and Sustainability Enterprise Portfolio Steering Group (EPSG) operates at the ELT level to provide governance on climate change and sustainability projects. The EPSG meets monthly and is informed about, makes decisions on, and monitors climate, environment, and social and economic projects. It is the key conduit to reporting to the board and committees and the EPSG Chair provides them, and the ELT with updates from this steering group.

AT's organisational structure with climate-related responsibilities

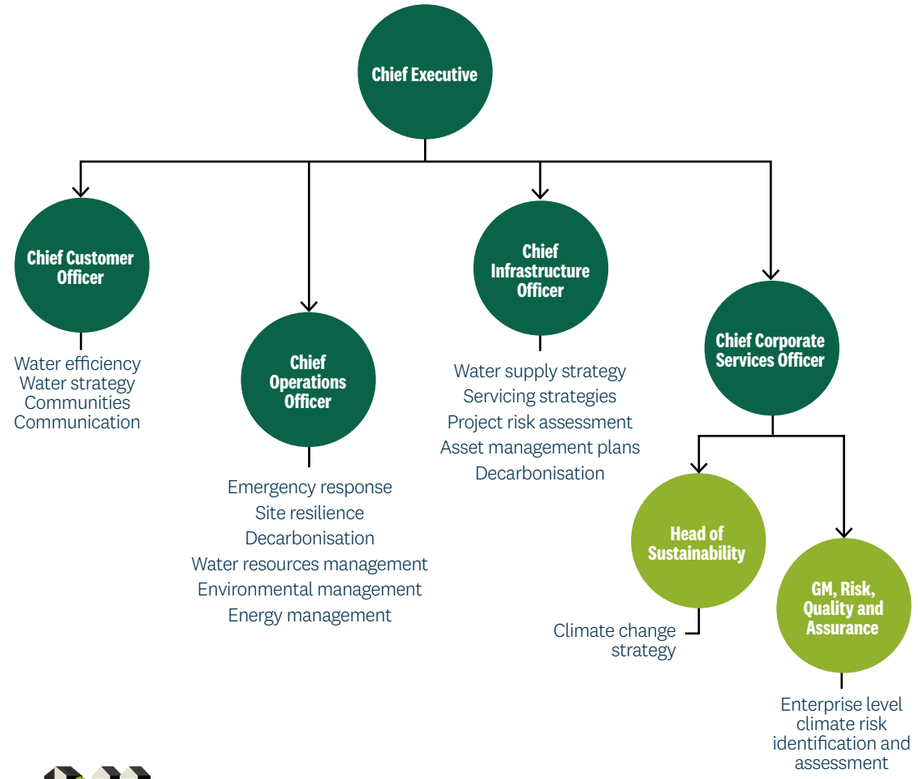


Watercare

The Executive Leadership Team appoints an Executive Sponsor for Climate Change which is currently Watercare's Chief Infrastructure Officer. Their role is to provide executive support to teams and relevant climate change projects, and to provide sponsorship at the Board level.

Watercare has a performance related remuneration framework. One of the five performance measures for the Chief Executive is to achieve Statement of Intent targets, of which 5 of 32 measures are related to climate change. In 2022/2023, the Chief Corporate Services Officer had one of eight performance measures related to sustainability, focussing on ensuring climate change action is embedded in the business.

Watercare's organisational structure with climate-related responsibilities



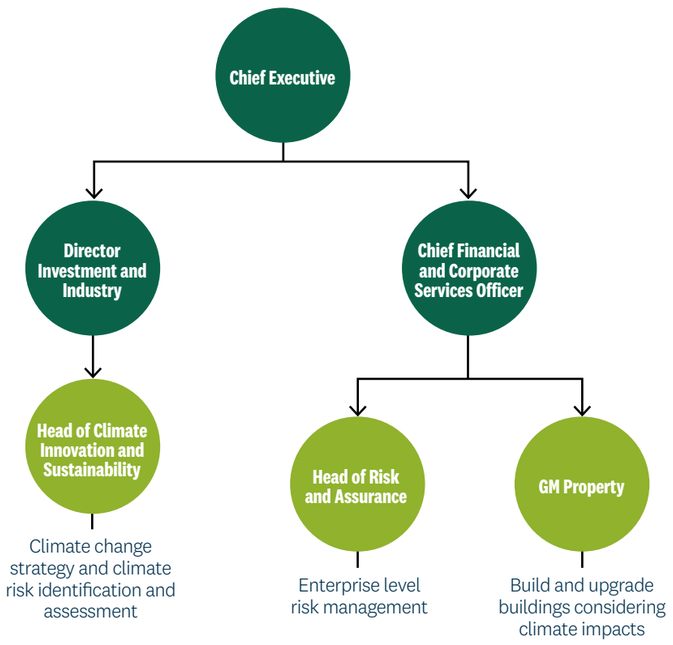
Tātaki Auckland Unlimited

TAU's Chief Executive has oversight of some of TAU's climate-related risks via a bi-monthly Climate Innovation and Sustainability team dashboard, received in the monthly chief executive report. This update provides a high-level overview of some of the physical climate-related risks identified for TAU's assets. Each reporting cycle highlights different assets, to build awareness at the board-level. Both transitional climate-related risks and climate-related opportunities are not currently reported on in this dashboard.

The Director of Investment and Industry is informed about TAU's climate change work programme, including but not limited to climate-related risks and opportunities, via

- a weekly meeting with the Head of Climate Innovation and Sustainability
- a weekly written report from the Climate Innovation and Sustainability team
- reviewing and approving papers for submission to the Risk Committee and Board.

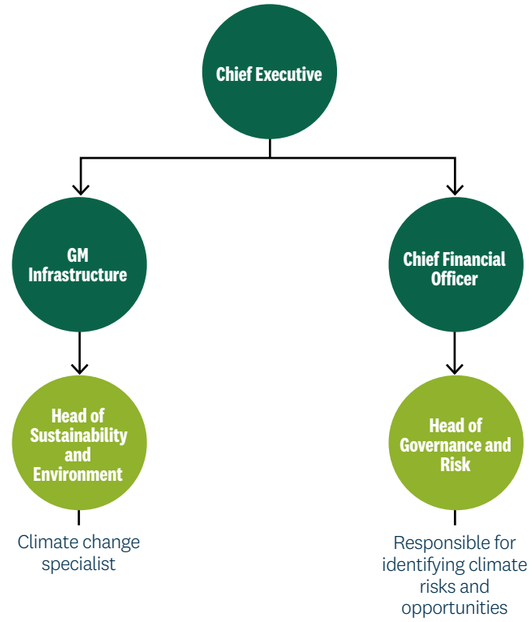
TAU's organisational structure with climate-related responsibilities



Port of Auckland

The CEO reports to the Board monthly, providing updates on corporate strategies, including climate-related risks and opportunities when relevant. The CEO Report includes input from all the Executive Leadership Team and they, along with specialist technical staff as appropriate, attend the Board meetings to present the report.

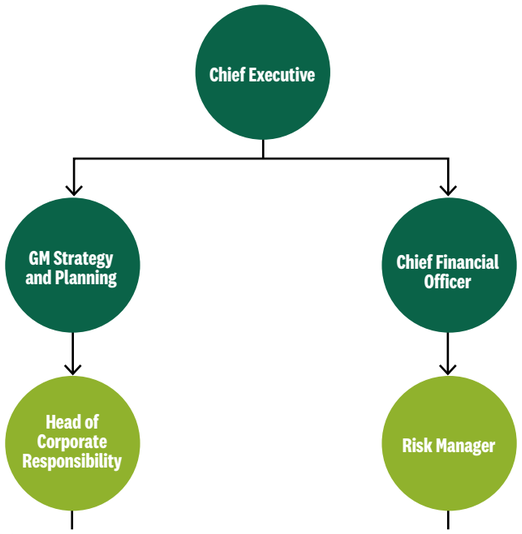
POAL's organisational structure with climate-related responsibilities



Eke Panuku

Eke Panuku's Executive Leadership Team (ELT) receives climate-related risk updates quarterly through a risk-focused workshop. The ELT review Eke Panuku's risk register before it is presented to the board. A subset of the ELT forms the programme steering group (PSG) which considers business cases for investment. Climate risks, impacts and opportunities are considered within business cases.

Eke Panuku's organisational structure with climate-related responsibilities



Pukekiwiriki Paa, Red Hill ▶

Te Rautaki ā-Rōpū i Te Kaunihera o Tāmaki Makaurau

Auckland Council Group Strategy

◀ Auckland Anniversary floods, Mahurangi River

Auckland Council Group Strategy

Auckland Council is the local authority that is responsible for all local government decisions and responsibilities in the Auckland region.

Auckland Council Group comprises the Governing Body, local boards, the Auckland Council organisation, council-controlled organisations, Port of Auckland Limited and joint ventures of group entities. You can find more about Auckland Council Group's structure and how it works in Volume 1, Our Structure and Our value creation model.

The group does not have an overall business strategy document, but there are plans and strategies that guide our strategic direction. They can be found on our website at Auckland Council plans[1]. Some of the key plans and strategies that influence the group's overall direction are detailed below.

The **Auckland Plan 2050**[2] is the group's overarching plan that guides how the group will grow over the next 30 years. The plan responds to the three major challenges facing the region:

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

Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan[3] is our long-term approach to regional climate action. The plan has two core goals:

- reduce Auckland regional GHG emissions by 50 per cent by 2030 (against a 2016 baseline) 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.

The **Transport Emissions Reduction Plan** (TERP)[4] gives effect to Te Tāruke-ā-Tāwhiri's target to halve Auckland's regional emissions by 2030. TERP sets out what needs to happen to reduce Auckland's transport emissions by 64 per cent by 2030 and provides formal direction that Auckland Council and Auckland Transport must follow in all of their activities that impact regional transport emissions.

The Local Government Act 2002 requires each council to publicly consult on and adopt a long-term plan every three years. Auckland Council's 10-year budget (Long-term Plan) sets out our group priorities for investment over a 10-year period. The last Long-Term Plan 2021-2031, also known as our recovery budget, focused on five key issues:

- finding the balance
- climate change action
- focus on supporting growth in a few key areas
- providing community services differently
- natural environment and water quality programmes.

Preparation for the Long-term Plan 2024-2034 is currently underway.

In the absence of a group organisational strategy, work has begun to develop a strategy that, in addition to clearly setting out the group's broader organisational priorities, will set the group's pathway to net zero by 2050. The strategy will incorporate the key aspects of existing plans and strategies that contribute to the group's transition to net zero. To support implementation of the strategy, the group will need to establish:

- appropriate governance mechanisms to ensure oversight and delivery
- processes to manage the risks associated with implementation
- metrics and targets to monitor delivery.

This strategy, once developed, should inform how capital is deployed through future Long-term Plans.

[1]https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/Pages/default.aspx
[2]https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/auckland-plan/about-the-auckland-plan/Pages/the-auckland-plan-explained.aspx
[3]https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/topic-based-plans-strategies/environmental-plans-strategies/aucklands-climate-plan/Pages/default.aspx
[4]https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/Pages/transport-emissions-reduction-pathway.aspx

As a starting point, the group has worked with a third-party to carry out climate change resilience testing to understand how resilient the group's current business is to climate change and identify areas where the group is vulnerable to future climate impacts.

The results of this work will be used in the development of the group's organisational climate strategy and help inform strategic decision making and capital allocation.

The group climate-related risks detailed on page 38 were assessed and analysed by entity representatives against five key areas of impact defined from the group's strategic context: Service Delivery, Community Outcomes, Funding, Reputation or Strategic Priorities.

Participants from across the group attended a workshop where they were asked to assess each climate change risk at a 2034 horizon and identify:

- the primary impact area affected
- the scale of impact
- whether the risk is factored into decision making.

Key observations for the group include:

- Service delivery is the greatest primary impact area of climate risks.
- The vast majority of climate risks have been assessed to result in a negative impact for the group (as opposed to a neutral impact).
- More than half of the climate risks are considered in decision making across the group. This excludes risks where no response was provided.

Transition risks	Direct physical risks	Indirect physical risks
• Average scale of impact is just below medium. • Transition risks will largely affect group funding and service delivery. • Just under two thirds of transition risks are considered by the entities in current decision making.	• Average scale of impact risks is just above medium across the group. • Two thirds of physical risks are considered in decision making across the group. • Physical risks will predominantly impact service delivery. • Acute weather events causing damage to assets, infrastructure and facilities will cause the greatest impact to the group.	• Average scale of impact is just above medium across the group. • On average, about half of the indirect physical risks are considered in decision making. • Indirect physical risks will predominantly impact service delivery, with smaller impacts on community outcomes and funding.

Entity strategies

The below sections detail the current business model and strategies for the council-controlled organisations and Port of Auckland Limited.

Statements of Intent are referenced throughout the following section. Auckland Council issues an annual letter of expectation to CCOs and POAL, providing them with the council's priorities and expectations which then informs the development of their respective Statements of Intent. The letter sets out general expectations across the group and expectations specific to each entity. The CCOs respond with their Statement of Intent and the POAL responds with its Statement of Corporate Intent. Both documents publicly state their activities, intentions and objectives over a three-year financial period. They also provide a basis for Auckland Council to hold their directors to account for their organisations' performance.

Auckland Transport

AT is a substantive council-controlled organisation. Connecting people and communities is AT's purpose. It designs, builds, operates and maintains the roads, cycleways and footpaths comprising Auckland's transport network. AT also works with third parties to provide public transport services on this network. This is funded through revenue generated from services, and funding from Auckland Council and Waka Kotahi NZ Transport Agency.

An AT Sustainability Strategy is being developed which will include objectives and targets related to sustainability. Five action plans will sit under the strategy to provide detail on how the objectives and targets will be met – these are Hīkina te Wero: Environment Action Plan 2020-2030; the AT Sustainable Procurement Action Plan 2021-2024; an Equity Framework; a Climate Adaptation Strategy and Programme and a Climate Change Transition Plan.

A Climate Change Adaptation Policy was adopted by AT's board in December 2022 and will drive change through planning, design, construction, maintenance and renewals. This policy requires that AT considers the environmental and biodiversity impacts of products, services or actions, as well as reduction in GHG emissions.

More information on AT, its governance structure and the services AT provide can be found on our website: **Our role and organisation**[5].

Watercare

Watercare is a substantive council-controlled organisation and is a lifeline utility providing water and wastewater services to 1.7 million people in Auckland. Watercare supplies reliable, high-quality drinking water to homes and businesses in the Auckland region and collects, treats and discharges their wastewater in environmentally responsible ways. Watercare manages water and wastewater assets worth over $14 billion and plans and builds infrastructure to ensure growth is supported today and into the future. The strategic direction for Watercare is informed by Auckland Council and the mayor's annual Letter of Expectation. The Watercare company plan is developed and reviewed annually to fulfil the commitments made in the Statement of Intent and the direction of Auckland Council's strategic planning.

More information on Watercare, its governance structure and the services Watercare provides can be found on our website: **About-us**[6].

The Watercare and Healthy Waters Climate Action Plan was established in 2022 to co-ordinate the key components of delivery for a resilient and low-carbon water system in Tāmaki Makaurau Auckland. This internal document has 14 portfolios which cover the implementation of actions from Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan and the Auckland Water Strategy as well as internally developed sub-actions to achieve our climate goals. The primary focus areas of these 14 portfolios are Māori partnerships, overarching, adaptation, mitigation and engagement.

Tātaki Auckland Unlimited

Tātaki Auckland Unlimited (TAU) consists of two substantive council-controlled organisations of Auckland Council being Tātaki Auckland Unlimited Limited – Auckland Council's economic development arm and Tātaki Auckland Unlimited Trust, which manages sporting and cultural venues.

Tātaki Auckland Unlimited's business model, strategic outcomes, and strategic alignment to Auckland Council are detailed in our Statement of Intent 2022-2025[7]. This alignment includes the Auckland Plan and Tāruke-ā-Tāwhiri: Auckland's Climate Plan.

Tātaki Auckland Unlimited's current strategic outcomes in SOI 2022 - 2025 include:

- Enhance Auckland as a culturally vibrant city for all
- Expand economic opportunities for all Aucklanders
- Achieve social, economic, cultural and environmental return on Tātaki Auckland Unlimited's investments
- Enhance Auckland's local, national and global reputation and appeal
- Increase capital invested into Auckland for economic and cultural outcomes.

Tātaki Auckland Unlimited delivers on these outcomes via four regional facilities (Auckland Art Gallery Toi o Tāmaki, Auckland Zoo, Auckland Stadiums, NZ Maritime Museum Hui Te Ananui a Tangaroa) plus three outward facing rōpū – Arts, Entertainment and Events (including Auckland Live), Investment and Industry (core economic development) and Māori Outcomes. In addition, these are supported by teams providing services across Finance and Corporate Services, Brand and Marketing, Digital and People.

The Tātaki Auckland Unlimited Board has approved the development of an organisation-wide Climate Change and Environment strategic plan which feeds into TAU's main strategy, as outlined in the Statement of Intent. TAU's decarbonisation pathway developed in 2021/2022 is a key input for the Climate Change and Environment strategic plan, to ensure TAU is actively working towards the group's emissions reduction targets.

[5]https://at.govt.nz/about-us/our-role-organisation
[6]https://www.watercare.co.nz/About-us/Who-we-are
[7]https://cdn.aucklandunlimited.com/corporate/assets/media/tataki-auckland-unlimited-published-statement-of-intent-2022-2025.pdf

Port of Auckland

POAL is a subsidiary of Auckland Council. POAL's Regaining our Mana strategy has reset its overall strategic direction and is focussed on meeting the overarching purpose of facilitating the sustainable growth of trade for Auckland and the upper North Island. This strategy will be executed over the next three years (2023-2025) aimed at achieving the Port's vision of being a port that is sustainably profitable, delivering a fair return to Auckland Council, whilst remaining the preferred port of our customers and our people.

This strategy has a very clear focus on core business and delivery. It is supported by five sustainability pillars that will help shape POAL's approach to protecting and preserving the environment in which it operates as well as implementing appropriate climate mitigation and adaptation. These five pillars include:

- Caring for Aucklanders
- Helping drive Auckland's circular economy
- Genuine harbour health
- Meaningful climate action
- Enabling our people to thrive.

A series of plans and strategies realise the outcomes of this three-year strategy and support sustainability pillars and objectives.

POAL's GHG emissions are dominated by diesel emissions from marine vessels, road transport and cargo handling equipment. These sources make up approximately 90 per cent of POAL's total gross emissions. POAL's Emission Reduction Roadmap outlines the approved pathway designed to reduce emissions to the long-term emission reduction target of zero GHG emissions by 2050. This emissions reduction pathway is based on the replacement of end-of-life plant and equipment with zero or low emission variants. The approved roadmap in turn drives capital expenditure and procurement plans to ensure the reduction targets are met.

POAL also develops and implements environmental and sustainability improvement plans to cover each three yearly corporate strategy period. These improvement plans detail the range of initiatives designed to improve site practices, procedures and infrastructure aimed at meeting interim reduction and intensity targets and to drive the continuous improvement of operations.

More information on POAL, its governance structure and the services POAL provide can be found on our website: **Our story**[8]**.**

Eke Panuku

Eke Panuku is a council-controlled organisation with a mandate to deliver urban regeneration across Tamaki Makaurau and undertake portfolio management of non-service properties owned by the Auckland Council group.

The primary organisational strategy for Eke Panuku is the Corporate Business Plan which outlines the work programme for the organisation and is developed annually. The Corporate Business Plan fulfils the commitments made in the Statement of Intent.

Eke Panuku has an adopted Climate Change Strategy which sets out overarching objectives for dealing with climate change:

- new communities in priority locations are designed and developed to be low-carbon and climate resilient
- leading by example through reducing climate impacts across operations and asset management.

More information on Eke Panuku, its governance structure and the services Eke Panuku provide can be found on our website: **Who we are**[9]**.**

Current impacts and financial impacts

In the past 12 months, the Auckland region has experienced several extreme weather events that have impacted the group:

- 27 January - 1 February 2023 Auckland Anniversary weekend floods
- 13-14 February 2023 Cyclone Gabrielle
- 24 February 2023 thunderstorm with heavy localised downpours caused flooding

[8]https://www.poal.co.nz/our-story
[9]https://www.ekepanuku.co.nz/about/who-we-are/

- 9 April 2023 tornado
- 9 May 2023 localised flash flooding

In addition, the region has experienced an increase in temperatures and a rise in sea levels.

Although the full impact of current year events is still being determined, the significant amount of damage and disruption was evident.

- Several residents lost their lives
- Others were displaced from homes
- Many buildings and homes became structurally unsound due to land instability or flooding
- There were limitations on road access and infrastructural service in some areas
- There was disruption to communities, whānau and people's daily lives
- Staff from across the group were redeployed to carry out building assessments, provide emergency food, accommodation and support to residents with homes to which entry was legally restricted or prohibited.

The financial impact of storm damage to group-owned assets has been extensive and widespread and will take considerable time to determine the full extent of the damage and the cost of recovery. Immediate recovery costs to the group in key areas associated with the 2023 weather events totalled $83 million, and group owned assets were written down by $39 million. For further information on the weather events and the associated financial impacts on the group, refer to Volume 3, Note A8.

The group will work with central government on building regional resilience, and subsequent to balance date, has agreed in principle to a cost-sharing arrangement, subject to consultation with ratepayers. Refer to Volume 3, Note F4.

The effects of the weather events have impacted many of council's various departments and group entities, all in different ways. Below is a brief summary of those impacts on the current year.

Auckland Council

Departments most significantly impacted were:

- Auckland Emergency Management
- Parks and Community Services
- Healthy Waters
- Waste Solutions

Auckland Emergency Management (AEM)

AEM is the lead response agency for hazards such as severe weather and storms and works in partnership with emergency services and other organisations to ensure effective coordination of civil defence and emergency management in Auckland. It monitors severe weather and activates our emergency coordination centre when needed. The coordination centre is largely made up of Council staff who are deployed to emergency situations. It provides welfare and accommodation for residents, essential items such as food, water, toilet facilities, hires contractors to assist with response efforts and provides traffic management plans.

AEM incurred the following costs from 2023 weather events:

- $500,000 of welfare-related costs, which have been approved for reimbursement by the National Emergency Management Agency Te Rākau Whakamarumaru (NEMA)
- A further $2 million of welfare costs, which are still subject to negotiation
- $2 million of other response costs that are not reimbursable by NEMA

Parks and Community Facilities

The Parks and Community Facilities department continue to feel the impacts of climate change across our network of land and built assets in Tāmaki Makaurau. Tangible impacts in the past 12 months can be grouped into four areas:

- Coastal erosion and land slips – erosion of coastal areas, streams and rivers continues to put park assets and land at risk. Over 600 land slips impacting open space from our most recent extreme weather events are currently being assessed and short-term remediation actions progressed where appropriate.
- Flooding - several significant flooding events have impacted park assets as well as community facilities this year. While much of the park's network is designed for flooding events, the scale of the events led to the flooding of various buildings across the network, and limited the use of many parks for weeks due to debris, waterlogging, contamination and damage to assets.
- Storm events – Cyclone Gabrielle, in addition to several other severe storm events, has had particularly strong impacts across the arboriculture space. A record number of trees were lost during the Gabrielle event, with 4262 jobs logged across the region in 30 days, an increase in 480 per cent compared to a usual month.
- Higher average temperatures – this has led to increased maintenance requirements across our green assets in many cases and has begun to impact survivability rates of some species of trees, particularly in restoration or replacement planting projects.

The department expects that these issues will continue to increase in both frequency and severity as climate change intensifies. The direct impact of recent storm events incurred asset impairments of $26 million with a further $45.5 million estimated for the planned recovery programme.

Healthy Waters

Heathy Waters plays a leading role in managing the open, interconnected system of built stormwater network, natural waterways and coastal receiving environments across the Auckland region. Overall, the stormwater network of pipes performed well in the storm events, due to the fact that these assets are located underground and therefore are not exposed to risks that, for example, a bridge, would be exposed to in a storm event.

The stream network suffered the most damage, as high-water flows and excessive levels of moisture in the soil resulted in stream bank failure and subsequent flooding of the surrounding land. Note the stream network is 13,437km long with only 25 per cent of this network being on public land (3,381km) and under the care of Healthy Waters. The remaining 10,056km of stream remains in private ownership with the general rule being that property owners are responsible for maintaining watercourses running through their property. In order to maintain the stream's resilience to floods, it will be necessary in some locations to restore and reinforce the eroded stream banks through works such as vegetation management, slope stabilisation and bank battering. The estimated financial impact of storm damage impairing assets was $1.76 million as at June 2023.

Stormwater outlets located near coastal land (and some length of pipes upstream of the outlet) are vulnerable to sea level rise (and the associated erosion). As the stormwater outfalls increasingly get submerged due to sea level rise, the ability of the network to discharge water will be affected and subject to damage due to erosion. Coastal stormwater outlets will need to be re-designed where subject to sea level rise. During larger storm events, we rely heavily on overland flow paths (in both public and private land) to convey the significant volumes of stormwater they produce. With over 5000 overland flow paths in the Auckland region, 1 in 10 houses will continue to flood unless better management of overland flow paths is undertaken.

Waste Solutions

The duration of Waste Solutions critical response to the flooding events that impacted the Auckland region in January and February ran from 27 January – 14 March 2023.

Auckland Council was inundated with requests from flood-affected residents who required help with removing flood-damaged waste from properties. This included furniture, whiteware and damaged carpet. Due to the nature of the flood and overflowing sewerage, all waste was deemed to be a potential health threat and therefore required immediate attention. Waste also needed to be removed quickly to mitigate health risks associated with mould. An additional consideration was the degassing of refrigerators and freezers prior to disposal.

Auckland Council Waste Solutions department established 15 drop off facilities for customers to take their storm-damaged waste. For more than six weeks, from 28th January to 14th March. 15,126 customers visited a drop-off facility to make use of this service. More than one-third of these customers (5,362) utilised the council-owned Waitākere Refuse Transfer Station.

In addition, residents could call a council 0800 number to lodge a request for service to have flood waste collected from outside their dwelling. We received 4,340 requests for service, including 780 requiring additional help from Auckland Emergency Services and New Zealand Defence Force to remove flood waste from dwellings, where residents were unable to remove the waste themselves.

Ten contractors and more than 300 staff and volunteers cleared hundreds of streets, often multiple times per week. Cyclone Gabrielle presented an additional obstacle to waste removal, as flood-damaged waste placed for collection on the kerbside presented an environmental and safety risk in high-winds.

Total recorded flood waste is 6,218 tonnes including transfer station drop-offs, skips and flexi-bins, and street collections, which has cost ~$3 million. We received 2,020 tonnes of this through the Waitākere Refuse Transfer Station alone.

Our Resource and Recovery Network provided vital resilience and support for isolated communities (Helensville, Waiuku and Aotea Community Recycling Centres). Many of the community recycling centres played critical, multi-faceted roles during the disaster response. Centres received and transferred flood damaged material, collected flood-damaged material from households using their own trucks and staff, received and/or collected donated materials, and distributed food and reusable materials to those in need. They also acted as local community hubs, providing vital support for communities in need. The ongoing expansion of the Resource Recovery Network provides further opportunity to integrate the Community Recycling Centres within Auckland's disaster response infrastructure and strengthen community resilience in the face of climate change.

Auckland Transport

The extreme weather events that unfolded in early 2023, significantly impacted AT's assets, work programmes and services, leading to road closures, infrastructure damage, disruptions in public transport operations, and flooding in critical facilities. The physical damages included slips, bridge washouts, and debris accumulation. The business-as-usual maintenance schedule was put on hold as contractors directed all their efforts and resources into dealing with the devastating impact of the storms.

The financial costs associated with the January/February floods and cyclone were substantial. The initial clean up and response cost approximately $38 million, with a further $11 million of rebuild costs in 2022/2023. The cost of permanent repairs is estimated to be up to $400 million over the next three years. In June 2023 Auckland Council allowed for an additional storm recovery capital expenditure of $125 million to $150 million over 2023/2024. AT established a dedicated Response Team, which will coordinate and support the rebuild.

Areas heavily impacted throughout the extreme weather events in January and February 2023 include:

Roads (AT manages 7,661km of road)

- Over 1,300 slips occurred across the transport network. The majority were cleared within one week, with some major slips which will take time to repair.
- 150 roads were closed. After one week, 75 per cent of these roads were reopened. Eight road sites remained blocked in June 2023, although all residents could access their properties from either side of the road closure.
- 29 cycleways were impacted by flood debris.

Bridges (AT manages 1,248 bridges)

- Mill Flat Road Bridge was destroyed - a temporary Bailey bridge was installed within a week.
- Sherwood Drive Bridge abutments were washed out - these were repaired, and the bridge reopened within a week.

Public transport

Rail

- There were five major slips (New Lynn, Glen Eden, Meadowbank, Sylvia Park and Parnell), with over 20 in total on rail lines
- Britomart and Newmarket stations were flooded
- Underpasses flooded at three locations.

Bus

- Road flooding and slips required bus route detours
- Flooding at four bus depots with 20 buses stranded
- Cancellations of services due to staff unable to access work. Restored within a few days.

Ferry

- Cancellations increased due to bad weather, staffing and slower speeds to avoid debris in harbour
- Several vessels collided with floating debris (logs) and suffered damage (propellers).

Parking and Harbour-master

- Over 3000 flood-damaged abandoned vehicles were towed and removed from the road network
- The Civic carpark flooded on levels 2 and 3
- Coastline slips forced debris into waters and several barge-loads of debris were removed from Upper Waitematā. Several moored boats were damaged by floating debris and several recreational boats sunk, requiring salvage.

Watercare

Watercare has experienced significant impacts from climate-related weather events, specifically the Auckland Anniversary floods in January 2023 and Cyclone Gabrielle in February 2023. These events resulted in extensive damage and disruptions to Watercare's infrastructure, particularly in the north and west regions. Localised flooding, land slippages, and increased rainfall have had adverse effects on Watercare assets and services. Emerging challenges include accessibility issues for assets, particularly local pipe networks, and dependencies on private landowner land remediation. Emergency measures, such as water tankers, emergency pumping, and temporary repairs, have been undertaken to reinstate asset functionality and maintain services to customers.

As part of Watercare's response to these events a Flood Recovery Programme has been established. This has identified 193 issues resulting from the January floods, Cyclone Gabrielle, and subsequent rainfall. Of these, 143 issues require repairs or are still being assessed as of June 30, 2023. Critical impacts include:

- Flooding of wastewater pump stations, leading to short-term failures and the need for extensive remediation, potentially involving the replacement of flood-affected components
- Flooding of the Pukekohe Water Treatment Plant, rendering it out of service for 6-12 months
- Slip damage to the Muriwai Water Treatment Plant, causing it to be out of service for 6-12 months
- Damage to headworks and local gravity-fed wastewater networks due to slips on private property and council land
- Erosion and debris-related damage to pipe bridges and network pipes near stream beds and watercourses
- Land subsidence compromising or damaging critical infrastructure, necessitating the use of bypass pumping until repairs can be executed.

The recent events have revealed the vulnerability of certain assets to climate change and weather events. Pump stations, due to their location in flood-prone areas, are susceptible to flooding. Local pipe networks are prone to land slips, particularly when located under roadways, along banks, or across pipe bridges affected by high stormwater flows or flood debris. These asset classes account for more than 70 per cent of the identified issues from recent weather events.

A Flood Recovery Adaptation Framework has been established. It will support our teams making decisions to build in resilience through the recovery process and in situations that require long-term planning to assess whether the asset should be moved from its current location to protect it from future extreme weather events. While no decisions have been made regarding significant changes to network layout or pump station locations, ongoing landslips and erosion may require the re-evaluation of current drainage schemes.

The work to finalise the estimated cost of the recovery programme is currently being assessed and is expected to cost around $100 million, although this figure may change.

Tātaki Auckland Unlimited

The record rainfall in greater Auckland during January and February caused the biggest floods and most severe damage in recorded history, overwhelming many TAU venues and causing considerable damage to some TAU venues, including Auckland Zoo, Western Springs and Mt Smart Stadiums and the Aotea Centre. Others showed minimal to no damage. Within the council group, Tātaki Auckland Unlimited venues appear to have suffered the most individual and combined damage for above ground assets. No staff or members of the public were injured at Tātaki Auckland Unlimited facilities during or following the storm.

TAU has identified a range of impacts as a result of the widespread flooding across the Auckland region and severe weather events in January and February 2023. While the impact information is expected to evolve as further detailed assessments are completed, the current known impacts include:

Site	Impacts
Auckland Zoo	• Significant flooding either side of Motions Creek causing significant damage • Fully closed for one week, partially reopened Saturday 4 February 2023, with some areas (Te Wao Nui and the South American Rain Forest Track) remaining closed until further notice (with a consequential ticket discount applied) • Two birds perished.
Western Springs Stadium	• Significant flooding from Western Springs Lake and Motions Creek • Subsidence evident underneath carpark, slips occurred on outer banks – currently under Geotech investigation • Clubhouses and stadium power supply submersed • Scheduled music festival (Laneways) cancelled under force majeure clause in contract • Tenants - Speedway and Ponsonby Rugby currently unable to use premises.
Mount Smart Stadium	• Moderate but extensive flooding throughout stadium • Minimal damage caused • Stage electrics flooded • Two Elton John concerts cancelled.
Auckland Film Studio	• Minimal flooding • Nearly all of the buildings suffered minor to major water leaks • Ongoing productions were not expected to be impacted as Studio was not at full capacity until April.
Aotea Centre	• Extensive flooding to Level 1 of Aotea Centre (including Hunua Rooms and backstage of Kiri Te Kanawa Theatre) • Positive E coli samples from Hunua Rooms • Extensive damage caused to ground floor carpets, walls and furnishings • Renaissance Exhibition relocated to the main stage area of The Civic • Most of Aotea was open for business (except Hunua Conference Rooms) within 10 days • Lower ground floor was expected to take 2-3 months to repair.
Town Hall	• Minor leaks • Orchestra stage lift fully flooded, and lift equipment to be repaired • Two concert grand pianos have moisture damage and will require significant repair from a UK based technician • Town Hall was fully open however the stage lift was not operational.

In responding to these events, TAU staff were directed to priority areas to lead the clean-up, assessment, and repair programmes. Project management staff were deployed to where health and safety and/or significant impacts occurred, specifically Western Springs and the Aotea Centre, and full assessments were carried out in various sites. WSP Opus were brought in to understand the Aotea Centre event and identify what options exist to reduce future impacts.

Venue resilience planning has commenced for all venues affected and a programme of improvements to eliminate or reduce the impact of future weather events is being developed to minimise further risk from extreme weather events.

As a result of the Auckland Anniversary weekend flooding there was substantial damage to the venues in the Western Springs precinct and as a consequence TAU's assets were written down by $11 million against their carrying value. Professional cost estimates for remediation are $27 million (+/- $4 million) to be completed over the next one-two years. Due to concert cancellations across Go Media Stadium Mount Smart, Western Springs Stadium and the closure of the zoo (as well as other venues) on a peak weekend, the business interruption experienced was substantial at $2 million of lost margin potential and as well as incurring $1 million of operating damage remediation costs.

Port of Auckland

POAL and the land and marine supply chains it interacts with are all susceptible to the impacts and risks of climate change. The record-setting Auckland Anniversary weekend rainfall event and Cyclone Gabrielle have illustrated this vulnerability. In the run-up to Cyclone Gabrielle, POAL was able to prepare for the event and ceased all operations for three days during the cyclone. This was the first time the port has closed during such an event. The port itself sustained only minor damage and the advanced preparations enabled the port to restart operations again immediately after the cyclone. The wider transport networks and the landside supply chain were impacted more by these events and took longer to resume normal activities.

Over the past year, POAL has experienced limited impacts from climate change and weather events. While recent weather events have not significantly affected the assets and business-as-usual work programmes of the POAL, there have been some notable impacts. Higher rainfall has led to an increased rate of pot-hole formation in asphalt yards/roading at the port, requiring additional maintenance and repair work. Severe weather events, such as high winds, have necessitated the suspension of certain operations for staff safety, resulting in minor disruptions to berthing schedules and cargo volume exchanged, along with damage to the industrial canopy shelters. The cost of replacement is relatively low and does not hinder port operations. There is a possibility in the future that long-term sea-wall protection at Fergusson East may be required to address potential storm surges.

Responding to current and anticipated impacts

The council has agreed to consult with residents on a cost-sharing arrangement with the central government that, if approved, will involve co-funding the costs of recovery from the early 2023 weather events and increasing the resilience of the region's infrastructure. This arrangement would see the council and central government fund on a 50/50 basis the estimated buy-out costs of residential properties where there is an intolerable risk to life, and it is not feasible to mitigate this risk. It would also provide incremental funding for the costs of recovering our transport networks and investment in wider flood mitigation and resilience work. Across these areas central government would be contributing around $1 billion. The council would be required to contribute a similar amount. Further detail of the scheme (including valuation and acquisition methodology) continues to be worked through.

While all parties wish to advance the buy-out process at pace, this arrangement is in-principle and subject to public consultation. While any short-term costs to the council (in the 2023/2024 financial year) would need to be met through borrowing, the sources of funding for the council's share of the investment will be considered through the Long-term Plan 2024-2034, with several options available including debt, reducing or deferring other capital spending, the sale of assets, service reductions and rates increases. These decisions may also be impacted by the outcomes of the government's water reform process.

Scenario analysis undertaken

In 2022 the group developed two transition scenarios and used an RCP 8.5 physical scenario to identify organisational climate-related risks and opportunities at both the entity and group level.

The process for creating climate change scenarios was mainly drawn from the following foundational literature:

- Haigh, Nardia. Scenario Planning for Climate Change (p. i). Taylor and Francis. Kindle Edition
- Taskforce on Climate-related Financial Disclosures (TCFD) (2020) Guidance on Scenario Analysis for Non-Financial Companies
- Schoemaker, P.J.H. 1995. Scenario planning: A tool for strategic thinking, Sloan Management Review, 36/2: 25–40

The time horizon chosen for the transition scenarios was 2023-2050. The transition risk temporal scope was different to the physical scenarios, which had a time horizon out to 2100. The extension of the time horizon for physical risk scenarios was decided due to the long-time horizons of city infrastructure and planning for human settlements.

The key stages of our transition scenario development process were:

1. Stakeholder engagement and understanding the external environment
2. Setting the focal question and scope
3. Identifying driving forces
4. Developing scenario narratives
5. Performing quality checks

For more detail on this process, see our website for Volume 4 of the 2021/2022 Annual Report climate disclosure.

Transition scenarios

We called our transition scenarios, Kakariki (green) and Kahurangi (blue). We designed them specifically for the Auckland Council Group, and the colours are reflective of the types of scenarios that they are. The scenarios are fictitious yet plausible, and were designed to challenge our thinking.

Scenario 1: Kakariki

New Zealand is a leader in the transition to net-zero.

The central government recognises that climate change is a threat and leads the "Great Pivot" where all decisions are based on achieving the 1.5 degrees Celsius target and climate resilience. The entire energy system undergoes rapid electrification and associated technology investment increases.

Scenario 2: Kahurangi

New Zealand's climate response is delayed because of political indecision.

Although climate plans are in place, initial economic impacts and industry lobbying from major polluters delay New Zealand's climate response. From 2023, the central government relies on the market to act until litigation and community uproar shifts the country into a rapid decarbonisation from 2030.

In addition to the Kakariki and Kahurangi scenarios, an RCP8.5 scenario was used to identify our physical risks.

We used Auckland's climate projections (NIWA, 2020) to assist with identifying risks under RCP 8.5 only.

Over 430 climate-related risks and 50 opportunities were identified across the group using scenario analysis.

At the time of developing the transition scenarios, we had considered developing a full set of integrated scenarios that combined physical and transition aspects, however we decided to consider physical and transition aspects separately while the group matures in its understanding of scenario analysis and climate change risks and opportunities.

In 2023, the group engaged external experts to carry out work to develop three integrated scenarios (using the scenarios developed in 2022 as a basis) that align with the requirements of the climate standards. This work included two key phases:

- Review and update the transition scenarios developed in 2022 to reflect changing science, trends, future policy, technology, market and societal shifts.
- Develop three integrated climate scenarios and incorporate integrated climate scenarios that were developed separately by Auckland Transport.

The integrated scenarios were developed with the support of a third party through four key steps:

1. The focal question was reviewed and updated to 'How could climate change affect the ACG's ability to deliver services and infrastructure that meets the needs of Aucklanders between now and 2050?'.
2. Existing datasets for each Auckland Council Group and Auckland Transport scenario were mapped.
3. Common linkages between each scenario were identified with potential gaps noted.
4. Information from the first two steps and the transition scenarios were examined to identify the most appropriate attributes to take forward.
5. A set of recommendations on what elements of the existing scenarios should. be carried forward into the integrated scenarios were reviewed and approved by Auckland Council's climate disclosure governance group.

Our focal question

How climate change effect the ACG's ability to deliver services and infrastructure that meets the needs of Aucklanders between now and 2050?

Reference scenarios

Limit warming to 1.5°C globally
CCC Tailwinds
RCP2.6
SSP1 Sustainability
SPANZ F 100% Smart

Kakariki Scenario Summary

Orderly: Net Zero 2050
Barriers to mitigation and adaptation are low.

A world where ambitious and coordinated transition is aligned with a 1.5°C warming trajectory. This scenario is categorised by economic transformative change, led by social values and policy in response to climate change. The transformative perspective focuses on a wellbeing economy, at times with high short-term and transitional costs. The physical impacts of climate change are limited relative to other plausible scenarios. The most severe impacts are mitigated. Government and local councils have a collaborative and trusted relationship to mitigate and adapt.

By 2050, New Zealand has reached net zero emissions and is using 90% renewable energy. ACG has reached net zero through low-carbon public transport, developing climate positive assets and regenerating urban and regional greenspace. Flexible decision making has improved Auckland's resilience to climate change.

Reference scenarios

Limit warming to 2°C globally
CCC Headwinds
RCP4.5
SPANZ A Kicking and Screaming
SSP2 Middle of the road

Kahurangi Scenario Summary

Disorderly: Delayed Transition
Medium challenges to mitigation and adaptation.

A scenario where Government climate action is delayed until the early 2030s. From 2030s onwards action increases in a rapid and disorderly manner in response to litigation and increasingly severe chronic and acute weather events emerging.

Private sector-driven technology advances and consumer choices succeed in keeping climate change within the 2.0°C goal of the Paris agreement (with overshoot). Government investment supporting innovation taking off in the 2030s including: electric vehicle adoption, distributed solar and batteries, and demand response. Commercial propositions and business models enable new choices for consumers and paths to energy sector decarbonisation. There is less government mandated or subsidised action taken to restrict carbon emissions.

Auckland Council Group failed to reduce emissions by 50% by 2030. Rapid and stringent policy and social pressure forced ACG into action, but at a high cost. ACG investment is focussed on short-term resilience. By 2050, ACG has decarbonised but the disruptive transition has affected the viability of local business.

Reference scenarios

Warming to >3.0°C globally
CCC Current Policy
RCP8.5
SPANZ D Homo Economics
SSP3 Regional Rivalry

Whero Scenario Summary

Current Policies
Challenges to mitigation and adaptation are high due to regional conflict and a global focus on regional issues.

A world where current policies globally are preserved, but these are insufficient to limit warming to less than 3°C. International cooperation on addressing environmental concerns is low-priority, leading to strong environmental degradation in some regions. Economic growth is slow as countries focus on achieving regional energy and food security goals at the expense of broader-based development. Geopolitical tension is high, New Zealand has entered into a pacific trade partnership with neighbouring nations. There is significant inequality across New Zealand and the Auckland region.

By 2050, New Zealand has experienced slow growth with increased emissions. Auckland Council Group is grappling with consistent physical climate impacts which has led to significant disruptions and a reduction in societal wellbeing. Insurance for many assets is unobtainable without Government support.

The time horizons identified for the scenarios include short-term, three years (2026 – to align with short-term budgeting processes), medium-term, 10 years (2034 – to align with the Long-term Plan 2024-2034), long-term 27 years (2050 – to align with Auckland 2050 Plan).

Climate-related risks and opportunities

In 2023, the group level risks identified in 2022 were reworded and consolidated from 79 to 28 risks. They were then aligned to the new integrated scenarios detailed above and prioritised, some of the most critical risks identified for the group include:

Risk statement	Risk type	Climate scenario
Acute weather events drive increased damage to council group key assets, infrastructure and facilities (including electrical assets)	Direct physical	Whero
Planning decisions do not appropriately consider climate change and create further climate related risks for Aucklanders	Transition	Kahurangi
Inability for council group to effectively respond to the changing needs and demands of Aucklanders as a result of climate change	Indirect physical	Whero
Council group's budgeting and financial forecasting becoming increasingly difficult and strained as a result of climate change	Transition	Kakariki
A reduction in the group's operational capacity and ongoing organisation performance as a result of climate change	Transition	Kahurangi
Increases on demand of group services including emergency management services due to increased extreme events and climate refugees.	Indirect physical	Whero
Failure to adequately address climate change in partnership with mana whenua	Transition	Kahurangi
Reduction in access to capital and other financial products as a result of climate change	Transition	Kakariki

Further work will be undertaken over the next 12 months to further refine and assess the group's climate-related risks and better understand its climate-related opportunities.

Risks which have been identified for some of the CCO's at an entity level and are detailed below.

Auckland Transport

Risk statement	Risk summary	Risk type
Risk to road formations due to increasing landslides	Increased rainfall increases the occurrence of landslides that damage road formations due to evacuation and inundation.	Physical
Risk to road formations due to increasing landslides	Increased rainfall increases the occurrence of landslides that damage road formations due to evacuation and inundation.	Physical
Risk to road surfaces due to coastal hazards	Sea level rise exacerbates coastal hazards causing damage to road surfaces.	Physical

Risk statement	Risk type
The risk that peripheral decisions made by government (e.g., property zoning policies or plans) will effectively prevent AT from achieving its emissions targets.	Transition
The risk that AT will not have the financial resources required to implement transition plans or provide low-emissions (low-e) transport services in-line with council's vision for the future.	Transition
The risk that AT will not have the financial resources required to transform its operating model and become 'future-fit.'	Transition

Watercare

Risk statement	Risk type
Risk to wastewater network due to changes in the variability of rainfall	Physical
Risk to the cost of service delivery due to climate related disruption (increasing maintenance, capital expenditure to adapt, increasing operational costs, changing consumer profiles and complex customer interdependencies)	Physical
Risk to source water availability due to drought	Physical
Risk to Watercare of stranded assets due to constraints on Greenfield development.	Transition – Kahurangi
Risk to source water quality due to groundwater rise and salinity stress	Physical
Risk to assets due to increased coastal inundation (sea level rise)	Physical

▲ Tuff Crater Path, Northcote

Te Whakamauru Tūraru
ā-Rōpū i Te Kaunihera o
Tāmaki Makaurau

Auckland Council Group Risk Management

◀ Renewed seawall, Waiake Beach Reserve, Torbay

Auckland Council Group Risk Management

The Auckland Council Group's risk management framework aligns with the ISO 31000 risk management standards. Our group's risk management framework sets out the approach and roles and responsibilities to support the group in managing risks effectively, and to take advantage of opportunities and innovation. Due to the unique nature and complexity of climate change and its many risks, the management of group climate risks has not yet been fully integrated into the group's risk framework, however work is underway to achieve this.

The group has been working on developing a climate risk assessment methodology and establishing a group climate risk management framework that will be incorporated into the group's enterprise risk management framework.

Our approach to climate risk management is broadly aligned with ISO 31000 risk management standards and the process set out within the 'Guide to Local Climate Change Risk Assessments'.

Our climate risk management framework will be structured around the key ISO risk framework elements:

- Establishing scope
- Risk identification
- Risk evaluation
- Risk reporting
- Roles and responsibilities.
- Context and criteria
- Risk analysis (rating)
- Risk treatment
- Monitoring and review

It is important to note that the steps in our framework relate to the management of **organisational** climate-related risks, **not community** climate-related risks. The group has a key role in managing risks to the community and there are areas of ambiguity for certain risks.

Risk identification

The group has identified climate-related risks and opportunities at both the group and entity level. Over 430 climate-related risks and 50 opportunities were identified across the group.

The scenarios detailed on page 36 were utilised across a number of physical and transition focused workshops to identify climate risks. Moving forward, the group will use the integrated scenarios detailed on page 37 to assess its climate risks against.

All areas of the group were considered as part of this identification process, however, a more detailed look at the group's value chain will be completed when a detailed assessment of the risks is carried out.

Our approach to the physical and transition risk identification workshops is as follows:

1. Climate risk categories were determined by mapping each entities organisation-specific risk categories to the risk categories detailed in the *National Climate Change Risk Assessment (MFE, 2020)*.

2. Physical and transition risks were captured across the following agreed risk categories:

- Built/operational risks
- Social/human related risks
- Economy/finance risks
- Natural environment risks
- Te Tiriti risks
- Governance risks.

3. In addition, risks relating to iwi/Māori were identified.

Physical risk workshops: Physical climate context was presented relating to RCP 8.5, and this was assessed to identify both direct and indirect physical risks across the agreed risk categories.

An RCP 8.5 scenario with a time horizon out to 2100 was used to ensure a wide range of potential risks were considered and captured. This process was completed with the assistance of a geospatial exposure assessment that considered coastal erosion, coastal inundation and rainfall induced flooding.

Transition risk workshops: The transition scenario narratives were presented, and these were used to identify risks across the agreed risk categories.

Risks were identified separately against both transition scenarios. A time horizon of 2023-2050 was chosen for the transition scenarios.

Mana outcome workshop: The group's Mana Outcomes Matrix informs how the group will embed Te Ao Māori throughout the delivery of its climate disclosure activity.

In addition to the identification of risks relating to iwi/Māori and Te Tiriti risks, a mana outcomes workshop with a specific focus on the Mana Outcomes was conducted.

The aims of this workshop were to:

- Identify risks relating to the Mana Outcome areas that may result from the climate transition scenarios.
- Identify links between the climate risks relating to Māori and Te Tiriti, and the Mana Outcome areas.

Attendees identified climate risks, relating to the Kahurangi transition scenario only, and framed by the five priority Mana Outcome areas. In addition to the risks relating to the five Mana Outcome areas, three overarching risks were also identified. Further assessments will be carried out against the integrated scenarios.

Following the workshops, risks were reviewed, edited, and summarised by the project team. They were circulated back to attendees for comment and review.

Risk prioritisation

Due to the resource intensive nature of a detailed risk assessment, an interim step to prioritise the group's risks was carried out.

The group climate risks were first reworded and consolidated from 79 to 28 risks. The Group Treasury and Risk teams then worked together to identify a prioritisation methodology in the absence of a standardised methodology for prioritising climate risks.

An approach was identified that utilised the 'first pass' risk prioritisation undertaken in the National Climate Change Risk Assessment (NCCRA) by the Ministry for Environment (MfE). The group used a modified version of the NCCRA Magnitude of Consequence Criteria (amended to reflect the group's regional focus as opposed to a national focus) to rate and then prioritise the group climate-related risks. The risks were rated based on their 'current' magnitude of consequence, as opposed to future climate change scenarios (which will be covered in the detailed assessment). 'Current' refers to the next three years (2023-2026).

Representatives from across the group conducted the risk rating process, including Legal, Ngā Mātārae, Group Services, Chief Planning Office, Infrastructure and Environmental Services, Customer and Community Services, Finance, the CCO's and POAL. Each representative was asked to rate the 28 risks.

The risks were prioritised by assigning a score between 1 (lowest potential impact) and 5 (highest potential impact) in relation to each domain impacted. Domains include:

Value domain	Description
Natural environment	All aspects of the natural environment that support the full range of our indigenous species, he kura taiao – living treasures, and the ecosystems which they form in terrestrial, freshwater and marine environments.
Human	People's skills, knowledge and physical and mental health (human); the norms, rules and institutions of society (social); and the knowledge, heritage, beliefs, arts, morals, laws, customs that infuse society (cultural).
Economy	The set and arrangement of inter-related production, distribution, trade and consumption that allocate scarce resources.
Built environment	The set and configuration of physical infrastructure, transport and buildings.
Governance	The governing architecture and processes of interaction and decision-making that exist in and between governments, economic and social institutions. Institutions are the rules and norms held by social actors that shape interactions and decision-making, and the agents that act within the institutional frameworks.

The ratings were consolidated, and average ratings determined.

The rating results and prioritised list of risks were then sent out to the attendees, Risk and Treasury, for a final sense check.

Risk assessment

A detailed risk assessment methodology has been identified for climate risks. Further testing of this methodology is required before the group can assess its climate-related risks.

In developing this methodology, the group found that there are a range of methodologies for assessing physical risks and there are few (if any) in existence for transition risks. Therefore, this method will need to be revisited in time.

The methodology is largely aligned with the IPCC (Intergovernmental Panel on Climate Change) conceptual risk framework and the ISO 31000 approach to assessing risk. The methodology is principally based on a qualitative rating of exposure, vulnerability (based on sensitivity and adaptive capacity) and organisational consequences.

This method will be applied differently for direct and indirect (downstream and upstream) physical risks and transition risks. The group also acknowledges that we may be unable to rate some of our risks using this methodology. Where this is the case and if applicable, a qualitative, deep dive will be carried out.

Following different methods for direct physical and indirect physical downstream risks, and indirect physical upstream and transition risks, our risk assessment methodology is detailed as follows:

Direct physical risk assessment

List out all elements that would be affected by each physical climate hazard, using the risk categories

For each element, assess the exposure to the hazard, the element's sensitivity, and adaptive capacity

Rate the consequence to the organisation if the risk were to manifest due to the hazard

Indirect physical and transition risk assessment

List out all elements that would be affected by each climate hazard/driver, using the risk categories

For each element, assess the element's sensitivity, and adaptive capacity with respect to the hazard/driver. Note it will be assumed under the given scenario used, that exposure is a certainty, therefore it is not included in the assessment

Rate the consequence to the organisation if the risk were to manifest due to the hazard/driver

The group will use its existing organisational consequence table in this assessment which will allow the group to easily assess and prioritise its climate risks against its other organisational risks.

Risk evaluation and management approaches will be considered as part of the group's climate risk management framework once established. The frequency of assessments will also be confirmed as part of the climate risk management framework.

Although the group is working towards a more consistent and co-ordinated approach to how it manages climate risk, each entity has its own climate risk management processes in place and will continue to do so until a group risk management approach is phased in.

Auckland Council's enterprise group risk framework is designed to provide a common platform for all risk management activities, including evolving and emerging enterprise top risks associated with council's strategic objectives, such as climate change.

Council's Risk team reviews and updates enterprise risks quarterly. The review includes updating mitigating actions, analysing control gaps, and analysing enterprise top risks. Enterprise top risks are owned and endorsed by the executive leadership team on a quarterly basis.

The council has classified climate change risk as a top risk since 2019.

Auckland Transport board recently endorsed an overall climate related risk in its risk register, identified as the 'failure to appropriately respond to or prepare for the impacts of climate change including lack of planning for network resilience', with an overall risk appetite of 'cautious'.

For **Watercare**, each business unit within is responsible for identifying and managing risks and opportunities relevant to their area. Watercare's Sustainability team facilitates collaboration across the business to increase awareness and understanding of climate change impacts and considerations for making decisions.

Climate change has been identified as a strategic risk and is part of the Watercare's enterprise risk register and reporting. Watercare's Executive Leadership Team monitors emerging risks, risk-mitigating actions, and strategies.

A dynamic adaptive pathway planning approach is being implemented to help understand the options and trigger points for infrastructure planning and delivery of services in an uncertain future. Climate risks are also addressed individually on a project-by-project basis in new infrastructure planning. An appropriate course of action will be dependent on the nature of the risks, the asset itself, or other factors such as impact on service delivery for the local community.

At a servicing strategy level (sub-region) Watercare looks at high-level climate change impacts (flooding zones, sea level rise, rainfall) to guide long-term planning of water and wastewater services.

Individual infrastructure projects have more in-depth risk assessments completed during the planning phase when climate change impacts are relevant. Technical engineering, flood mapping, sea level rise and water supply considerations are part of this.

Tātaki Auckland Unlimited conducted an initial assessment of its climate related risks and opportunities in 2020/2021 using a different methodology from the group approach.

At TAU, the Climate Innovation and Sustainability team is responsible for identifying, assessing, and directly managing climate related risks and opportunities. However, the team engages key staff across the business to undertake the risk assessments.

TAU's processes for managing climate-related risk includes:

- business units undertaking quarterly strategic risk reports
- the Climate Innovation and Sustainability team identifies, assesses, controls, and mitigates the risk, in consultation with the Head of Risk and Assurance, if required
- the Head of Risk and Assurance works with Auckland Council (Group) Risk Working Group to facilitate and monitor effective risk management practices across business units. These are subject to audit processes.

Port of Auckland (POAL) conducted an initial assessment of its climate related risks and opportunities in 2022/2023 using the group assessment methodology detailed above. The learnings from POAL's assessment will be used to refine the methodology that will then be used to assess the group climate-related risks.

POAL presented its assessed risks to its board and executive leadership team for information and discussion.

In 2023/2024, POAL will undertake an inhouse review of the current controls in place to manage each high climate related risk. Measures required to fill any identified gaps will be included in POAL's future climate adaptation plan.

Ngā Pae Ine me ngā Whāinga ā-Rōpū i Te Kaunihera o Tāmaki Makaurau

Auckland Council Group Metrics and Targets

◀ Bethells Beach surf lifesaving tower

Auckland Council Group Metrics and Targets

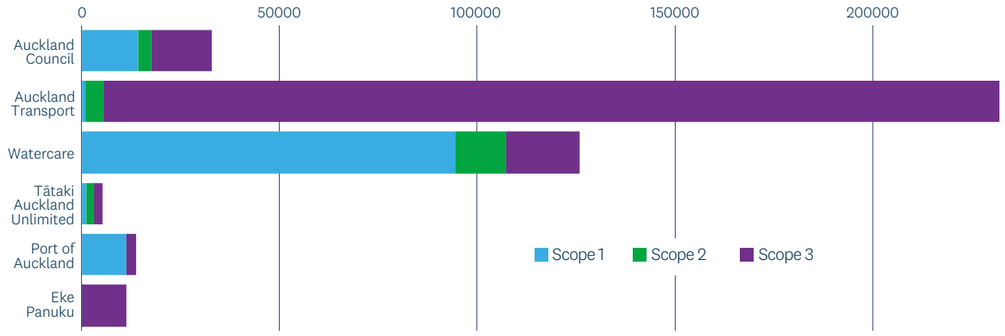
All Auckland Council Group entities excluding Port of Auckland have committed to a 50 per cent reduction in operational GHG emissions by 2030 against varying baselines:

- Auckland Council – 2017
- Watercare – 2018
- Auckland Transport, Tātaki Auckland Unlimited and Eke Panuku – 2019
- Port of Auckland has committed to a 45 per cent reduction in total emissions within the Marine business unit, a 10 per cent reduction in emissions per container handled at the Fergusson Terminal, both against a 2017 baseline.

All group entities have committed to net-zero emissions by 2050.

Our carbon footprint 2022/2023

GHG emissions (tCO2e)



Group performance measures

In 2021, the group adopted the 10-year Recovery Budget 2021-2031. The budget identified several climate-related performance measures to be reported on within our statement of service performance. They include:

- reduction in Scope 1 and 2 GHG emissions (tonnes, per cent change vs baseline) for Auckland Council
- reduction in transport-related GHG emissions (tonnes, per cent change vs baseline) for Auckland Transport
- number of native plants planted
- number of Aucklanders engaged in living low carbon lifestyles
- percentage of schools engaging in sustainability education programmes.

Refer Volume 1, Regional and Public Transport groups of activities.

Sustainable finance initiatives

The council borrows on behalf of all entities in the group. The council has $800 million in sustainability linked facilities and a sustainability linked derivative with a notional value of $120 million, making it the first local authority in New Zealand to do so. These sustainability linked instruments financially incentivise the council to meet key environmental, social and/or governance targets through the offer of lower fees or interest rates if the council achieves prescribed targets. For further information on these instruments, refer Volume 3, Note C1.

For the purposes of our sustainability linked instruments, the council's three sustainability performance targets are:

- increase the annual proportion of procurement influenceable spend with Māori and/or Pasifika owned business or social enterprises
- increase the number of operational low emission buses within the Auckland Transport bus fleet
- reduce the group's GHG emissions by 50 per cent by 2030 and reach net-zero emissions by 2050.

Aligning these targets to our financing increases accountability across the group and drives the delivery of ambitious targets.

The NZ Local Government Funding Agency (LGFA) launched its Climate Action Loan Lending Programme on 1 December 2022. Auckland Council was among the first borrowers to draw down $200 million of Climate Action Loans (CALs) at 30 June 2023. CALs are target (or incentive) based lending structures designed to incentivise borrowers to act on climate change and reduce greenhouse gas emissions. A CAL rewards a borrower through a margin discount if that borrower has adopted an Emission Reduction Plan (ERP) which sets out specific Emissions Reduction Targets (ERT).

Measuring our GHG emissions

The group reports GHG emissions by group entity and is working towards preparing a consolidated group GHG emissions inventory. Each entity's GHG emissions are measured and reported in accordance with the GHG Protocol Corporate Standard, the GHG Protocol Scope 2 Guidance and the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard as necessary. Entities have used an operational control consolidation approach to determine organisational boundaries. Specific boundaries for each entity have been outlined in the entity targets and metrics sections.

Toitū Envirocare (Toitū) provides assurance over the GHG emissions inventories of each group entity. These assurance engagements are conducted in accordance with the Programme Verification Guidelines included in ISO 14064-1-2018. They include a verification of emissions back to source data and a checking of calculations and assumptions. The inventories are aligned with industry or sector best practice for emissions measurement and reporting.

There are inherent uncertainties in the measurement and reporting of GHG emissions. This is because the scientific knowledge and methodologies to determine the emissions factors and processes used to calculate or estimate quantities of GHG sources are still evolving, as are GHG reporting standards. Where there are significant uncertainties or exclusions, they have been detailed in each entity's emissions inventories.

Other metrics in the Aotearoa New Zealand Climate Standards

The group does not:

- calculate emissions intensity, except for Auckland Transport
- use an internal emissions price to place a value on GHG emissions
- link remuneration to climate-related risks or opportunities with the exception of Watercare Services Limited.

Metrics and targets of group entities

Auckland Council

GHG emissions targets

Auckland Council has a target to achieve net zero emissions by 2050 for Scope 1 and 2 emissions with an interim target of reducing emissions by 50 per cent by 2030.

Work on an emission reduction action plan started in 2019 and focuses on opportunities to avoid, reduce and substitute GHG emissions. To halve GHG emissions by 2030, Auckland Council is targeting reductions from our largest emissions sources. This includes emissions from:

- the natural gas use for heating pools at the council's aquatic centres by 2024/2025
- the corporate property portfolio
- the corporate vehicle fleet.

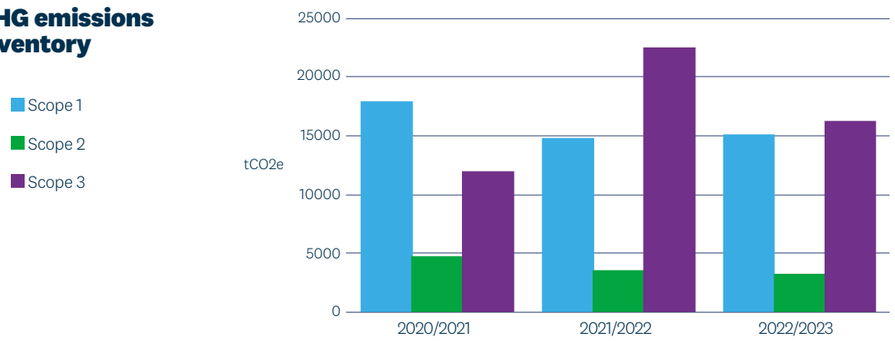
The 2021–2031 Long Term Plan allocated $24 million to actions that reduce Auckland Council's GHG emissions. The COVID-19 restrictions and an increase in remote working have accelerated actions to further downsize the corporate property portfolio and corporate vehicle fleet.

Originally, Auckland Council was targeting a 52 per cent decrease in emissions by 2030/2031. The forecast is now for a 69 per cent decrease in emissions. This forecast will be updated again in 2023/2024.

The council has not yet developed a plan to achieve its target of net zero operational emissions by 2050. The emissions reduction plan will be extended to include Scope 3 emissions and will build on the current emissions reduction plan to include:

- Actions to achieve Net Zero GHG emissions by 2050
- Actions to reduce Scope 3 emissions including how Auckland Council's supply chain will be engaged
- Details of how Auckland Council will engage with staff and customers to reduce operational emissions
- Gross emissions reduction targets leading to 2050 that include Scope 3 emissions.

GHG emissions inventory



GHG Protocol classification	ISO classification	Activity type	Baseline 2016/17	2020/21	2021/ 22	2022/23
Scope 1	Category 1 Direct GHG emissions	Stationary combustion	7781	6820	6374	6284
		Transport fuel	2247	2446	1508	2575
		Refrigerant and other gas use	106	930	72	-
		Waste facilities	631	714	304	-
		Agriculture	4970	5310	5365	5078
		Fertiliser	-	760	438	456
		Total	**15735**	**16980**	**14061**	**14393**

GHG Protocol classification	ISO classification	Activity type	Baseline 2016/17	2020/21	2021/ 22	2022/23
Scope 2	Category 2 Indirect GHG emissions from imported energy	Purchased energy	5787	4593	3439	3080
		Total	**5787**	**4593**	**3439**	**3080**
Scope 3	Category 3 Indirect GHG emissions from transportation	Business travel and accommodation	821	79	124	631
	Category 4 Indirect GHG emissions from products an organisation uses	Contractor transport fuel	83	6987	8500	8646
		Transmission and distribution losses	1015	805	804	584
		Water supply	-	-	-	44
		Wastewater services	-	-	-	500
	Category 5 Indirect GHG emissions (use of products from the organisation)	Waste	257	1531	2370	2513
		Outsourced services/ contractors providing core services	1612	1817	9345	2336
		Downstream leased assets	128	141	174	116
		Total	**3916**	**11360**	**21317**	**15370**
Total direct emissions			**15735**	**16980**	**14061**	**14393**
Total indirect emissions			**9703**	**15953**	**24756**	**18450**
Total gross emissions			**25438**	**32933**	**38817**	**32843**

Source of emission factors and the global warming potential (GWP) rates used

Auckland Council has taken an operational approach in determining the boundary of its GHG emissions. Joint ventures and external partnerships have been excluded and each CCO and POAL report their GHG emissions separately.

The emission factors included in the Measuring Emissions: A guide for organisations published by the MfE have been used for the majority of our emissions, except for certain fugitive emissions. Emissions factors are periodically revised by MfE with changes to those factors occasionally being significant. Emissions factors include the recommended Global Warming Potential (GWP) and are periodically revised by MfE with changes to those factors. MfE released its latest updated emission factors in July 2023. They have been used for our 2022/2023 reporting.

Summary of specific exclusions of sources

Auckland Council's operational emissions are primarily from council-operated buildings, farming operations, fleet vehicles and the council-owned landfill at Claris on Great Barrier Island. The following table outlines specific exclusions.

Business unit	GHG emissions source	GHG emissions level category	Reason for exclusion
General Council	Compost	Category 3	Food waste is composted in some of the council's corporate offices. No data is available for this, but it is considered *de minimis* and most of our compost goes to our worm farms.
Waste Solutions	Whitford landfill	Category 1	Auckland Council has half-ownership of the Whitford Landfill. Tonnages disposed of at this landfill are considered commercially sensitive by the other partner. As such we have excluded this landfill from previous inventories.
Healthy Waters	Contracted network maintenance	Category 3	Maintenance of the stormwater network is contracted out. The contractors have only been able to provide fuel use data for this inventory.
General Council	Closed landfills	Category 1	The method used by MfE in the Guidance for Voluntary Greenhouse Gas Reporting – 2019 has been followed, which accounts for all the potential emissions in a tonne of waste to be accounted for in the year of disposal. Therefore, closed landfills have been excluded as waste deposited prior to the inventory period is not considered to have emissions under this approach.
Community Facilities	Leased assets	Category 3	Assets owned by council but leased to other organisations have been excluded, for example leisure centres operated by groups such as the YMCA. Some leased assets are reported as Category 3 in the inventory if the utilities are billed through Ellserve and e-bench.
All Council	Construction and demolition	Category 3	Emissions from construction and demolition waste not reported in this inventory.

GHG emissions methods, assumptions and estimation uncertainty

GHG emissions have been calculated from measured activity data, such as gas, electricity, and transport fuel use. This estimation uncertainty for measured data is considered low. Electricity emissions factors are only available until 31 December 2022, so the average annual electricity factor of the latest calendar year 2022 is assumed the next most appropriate factor and applied accordingly for the entire 2022/2023. Such approach has been consistently used in the previous reporting periods.

In 2023 MfE updated emission factors for gas and electricity generation for prior years. The updated emissions factors were applied to 2021/2022. They were not applied to the baseline year due to the impact being assessed as immaterial.

Significant movements on prior year and progress to GHG emissions targets

Auckland Councils GHG inventory for financial year 2016/2017 is the baseline year for all subsequent GHG reporting. At that time, it included City Parks Services which was a standalone business unit for the maintenance of streetscapes and public spaces, the construction and maintenance of sports fields and the maintenance of metropolitan parks, including parks and cemeteries. In 2019 City Park Services was renamed AIMS (Amenities and Infrastructure Maintenance Services) but continued to be owned by Auckland Council and to provide the same services. In April 2022, Auckland Council sold AIMS to Programmed (Programmed Facility Management NZ Limited). Programmed is an operations and maintenance service company and company continues to provide the same service to Auckland Council. Consequently, the relevant emissions from these services continue to be reported in the council's GHG emissions inventory but will be reported under Scope 3 instead of Scope 1 and 2 as Programmed operates on council land. Emissions of the council's baseline year has been adjusted to reflect this scope change to ensure that we are consistent in our emissions reductions for our science-based target of reducing Scope 1 and 2 emissions by 50 per cent by 2030. This update has also been applied for the previous years including 2020/21 and 2021/ 22 as reported in the table above.

The electricity emission factors for the base year of 2016/2017 and 2021/2022 were updated to use the latest data provided by MfE in July 2023, reflecting a -5 per cent / -12 per cent respective change in Scope 1 and 2 emissions for those two years. No other emission factors were changed as the changes were considered immaterial.

Total emissions from electricity has dropped 29 per cent since the 2016/2017 base year. This reduction is due to the regularly reducing emissions factors for electricity (higher levels of renewable electricity in the national grid), the consolidation of office space and improvements to the energy efficiency of corporate buildings.

Our Scope 1 and 2 emissions have decreased from last year and some of the change is related to the council's rationalisation of its property portfolio e.g., moving out of older less efficient buildings; and some are due to improvements in fleet fuel efficiency e.g., moving to a more electrified fleet. There are also ongoing effects of COVID-19, which included a greater use of remote working, and this has shown up in a lower overall building footprint. The total Category 3 emissions have slightly decreased, and this is considered to be the result of the variability in reporting standards by contractors. This is however expected to increase as work is underway to better account Scope 3 emissions.

Other targets

New assets

The council adopted a Sustainable Asset Policy in 2021. It requires new assets to be operationally carbon neutral, achieve a minimum 5-star Green Star rating and existing assets to be decarbonised. In practice, new facilities won't have gas heating, will be energy efficient and will be energy self-sufficient through investment in solar energy. Existing assets will be upgraded as components reach the end of their useful lives with a focus on removing gas heating and boiler systems.

Renewable energy

Alongside Auckland Council's actions, central government is targeting 100 percent renewable electricity generation by 2030. If this target is achieved, it will reduce the council's GHG emissions profile, with electricity consumption currently accounting for 22 per cent of the council's total emissions. Central government actions to phase out refrigerants with a high global warming potential will further reduce the council's GHG emissions profile.

Growing our ngahere

One of the focus areas of climate change adaptation is to grow our ngahere. There are currently several different projects delivering this, using general rates, targeted rates and local board funding. The projects are all multi-year projects, and the total target has not been allocated to specific years in each case. 3,700 trees were planted against a target of approximately 4,400, and 3.4 hectares of farmland in regional parks was converted to native forest as part of year one of a 10-year programme to plant 200 hectares.

Other

Other targets which have an influence on our climate change response include:

- Reducing total council waste to landfill by 30 per cent by 2027 from a 2010 baseline
- Reduce council's own in-house office waste by 60 per cent per capita by 2024 from a 2012 baseline
- Achieve zero waste to landfill by 2040
- 100 per cent of Auckland Council's light vehicle fleet converted to electric by 2025
- 100 per cent of Auckland Council's commercial vehicle fleet converted to electric by 2030
- During 2023 council purchased an additional 53 EVs
- The current combined vehicle pool of 763 vehicles is made up of:
  - 65 Electric
  - 244 Hybrid
  - 199 Petrol
  - 255 Diesel.

Auckland Transport

GHG emissions targets

Emissions from corporate activities and assets

In 2020, the AT Board adopted a target to reduce 50 per cent of its emissions from corporate activities and assets by 2030 against a 2018/2019 baseline. This includes:

Corporate activities	Assets	Exclusions
• electricity • natural gas • refrigerants used in offices • staff travel • fuel used in corporate fleet • working from home • water and wastewater • harbourmaster boat • waste from office space	Electricity and energy used in • transport facilities • electric trains • diesel for trains • on-demand and hydrogen buses • streetlights and traffic lights Landfill waste from these assets	• Contracted public transport bus and ferry services • emissions and embodied emissions related to infrastructure, construction and maintenance

This target is aligned with science, does not currently rely on offsets, and progress is validated by Toitū.

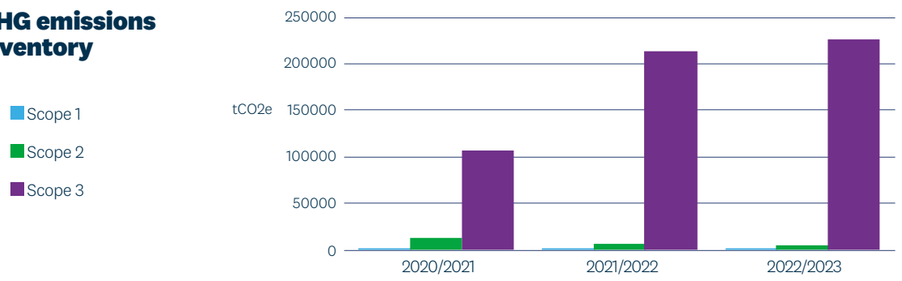
By the end of 2022/2023, AT reduced emissions from corporate activities and assets by 54 per cent – surpassing our 2030 target. While electrification of train services, retrofitting of streetlights to more energy-efficient LED bulbs, and lower office energy consumption played a role in reducing energy consumption and meeting this target (AT reduced electricity consumption by 24 per cent – 80 GWH in 2022/2023 compared to 105 GWH in 2018/2019 – for its operational activities), the latest electricity emission factors also played a role. AT's corporate activities and assets target is highly sensitive to electricity generation and higher rainfall during the year allowed for greater hydro electricity generation, reducing the use of coal. This significantly decreased the GHG emissions from electricity use, i.e., the electricity from the national grid was less carbon intense. Dry weather in the future may result in higher coal use for electricity generation increasing GHG emissions.

Embodied emissions

In February 2023, the AT board adopted an additional target, to reduce 50 per cent of its embodied GHG emissions by 2031 against a baseline of 156,000 tCO2e. Embodied emissions are generated by construction, renewals and maintenance works and the materials used, and are shown in table 1 under Category 4 emissions (capital goods).

This target is aligned with science, does not currently rely on offsets and progress will be validated going forward. For the year ended June 2023, embodied emissions increased relative to the 2021/2022 value, because of the additional maintenance and renewal works associated with the flood and cyclone recovery work. However, embodied emissions in both 2021/2022 and 2022/2023 showed reductions against the baseline of 156,000t CO2e.

GHG emissions inventory



GHG Protocol classification	ISO classification	Activity type	2018/2019	2020/2021	2021/2022	2022/2023
Scope 1	Category 1 Direct GHG emissions	Stationary combustion (natural gas distributed commercial and diesel)	268	303	194	213
		Mobile combustion (incl. company owned or leased vehicles)	2319	1648	1574	655
		Leakage of refrigerants		11	6	1
		Total	**2587**	**1962**	**1774**	**869**
Scope 2	Category 2 Indirect GHG emissions from imported energy	Imported electricity	10702	12415	6488	4745
		Total	**10702**	**12415**	**6488**	**4745**
Scope 3	Category 3 Indirect GHG emissions from transportation	Business travel – transport (non-company owned vehicles)	306	67	66	223
		Working from home	not measured	not measured	not measured	87
	Category 4 Indirect GHG emissions from products an organisation uses	Disposal of liquid waste – wastewater	not measured	not measured	not measured	24
		Disposal of solid waste – landfilled	145	208	143	189
		Disposal of solid waste – not landfilled	1	3	1	2
		Purchased goods and services (water supply)	not measured	not measured	not measured	2
		Transmission of energy (T&D losses) (Scope 1 and 2 related)	1,136	997	714	695
		Transmission of energy (T&D losses) (Scope 3 related)	not applicable	9	20	31
		Purchased fuel and energy related activities (PT bus and ferries)	128145	104938	91407	93318
		Capital goods	not measured	not measured	121217	131771
		Total	**129733**	**106222**	**213568**	**226342**
Total direct emissions			**2587**	**1962**	**1774**	**869**
Total indirect emissions			**140435**	**118637**	**220056**	**231087**
Total gross emissions			**143022**	**120599**	**221830**	**231956**

Source of emission factors and the global warming potential (GWP) rates used

All emissions were calculated using the emissions factors as a primary source from the MfE Measuring Emissions: A Guide for Organisations 2023. The guide used the Global Warming Potentials (GWP) from the IPCC fifth assessment report (AR5).

Summary of specific exclusions of sources

There are many business units that work together to deliver AT's day-to-day activities. These activities help establish the boundary for AT's GHG emissions in two broad categories - Operational and Non-operational (services and activities through third-party contracts with their assets) with further business units under each of them.

Operational emission sources include:

- Corporate: Corporate emissions (electricity, natural gas and waste from corporate properties, corporate fleet and travel, work from home, water, wastewater, transmission and distribution losses)
- Public transport (AT-owned): Emissions associated with the operation of AT owned and controlled public transport services (bus, train, ferry) including operation of the network of their respective facilities and assets
- Road network: Emissions associated with the operation of the road network (streetlights and traffic signal related assets)
- Parking: Emissions associated with the operation of the parking facilities and assets.

Non-operational (services and activities through third party contracts with their assets) emission sources include:

- Public transport (operator-owned): Emissions associated with the delivery public transport services (bus, ferry) for AT by operators, using their own assets
- Infrastructure: Embodied emissions associated with the delivery of the infrastructure construction and maintenance work for AT by third-party contractors.

This year AT reported embodied emissions associated with infrastructure construction and maintenance under Category 4, Scope 3 of our inventory for both 2021/2022 and 2022/2023. Before that, the bulk of the emissions within Category 4 were attributed to emissions from transport services (i.e., bus and ferry diesel usage).

The inventory excludes emissions related to:

- End-of-life phase of AT's infrastructure maintenance and construction activities
- Upstream emissions associated with fuel and electricity that AT use to provide operational or public transport services
- Other upstream emissions (except electricity and electricity T&D loss) for hydrogen fuel
- Petrol cars used by drivers of bus and ferry operators
- Lubricant and refrigerant used for ferry services and lubricant used for train services
- Mixed recycling waste generated from facilities and corporate
- Paper and freight emissions due to corporate activities
- Operational or upstream emissions related to private and commercial vehicle use on Auckland's roading network, a significant contributor to Auckland's total emissions
- Emissions associated with employees commuting to the office, which is a work in progress.

There may be several other sources of emissions excluded from the measure, either because these are not considered material at this time or because AT has yet to understand the size of the emissions and establish a robust system to measure them.

GHG emissions methods, assumptions and estimation uncertainty

AT has used the published emissions factors from the MfE's 2023 guidance document issued on 12 July 2023. Quantity data is obtained directly from the energy (electricity and gas) account and invoice management system, travel (air, taxi, rental car, corporate AT-HOP card) management systems and corporate and facilities waste management system. For emissions sources such as waste at facilities, work-from-home, public transport bus and ferries, hydrogen bus, harbourmaster boats, embodied emissions there is a greater degree of uncertainty because of either conversion and assumption, or model is applied for estimation or non-availability of the primary evidence such as invoices. Similarly, embodied emissions of capital goods are measured using Project Emissions Estimation Tool model and dollar spend data. Any change in the underlying assumptions could significantly impact the measurement of the embodied emissions. The level of uncertainty could be significant given the sources that have been included in the emissions inventory. Emissions associated with electricity are measured by applying quarterly electricity emissions factors to the appropriate period of the inventory as a priority, as this results in less uncertainty in the estimation. However, the quarterly electricity emissions factors are not available for the third and fourth quarters of 2022/2023. The average annual electricity factor of the latest calendar year 2022 is assumed the next most appropriate factor and applied accordingly for the third and fourth quarter of 2022/2023.

Emissions from corporate activities and assets

By the end of 2022/2023, AT reduced emissions from corporate activities and assets by 54 per cent – surpassing our 2030 target. While electrification of train services, retrofitting of streetlights to more energy-efficient LED bulbs, and lower office energy consumption played a role in reducing energy consumption (AT reduced electricity consumption by 24 per cent – 80 GWH in 2022/2023 compared to 105 GWH in 2018/2019 – for its operational activities) and meeting this target, the latest electricity emission factors also played a role. AT's corporate activities and assets target is highly sensitive to electricity generation and higher rainfall during the year allowed for greater hydro electricity generation, reducing the use of coal. This significantly decreased the GHG emissions from electricity use, i.e., the electricity from the national grid was less carbon intense. Dry weather in the future may result in higher coal use for electricity generation increasing GHG emissions.

Embodied emissions

In 2022/2023, embodied emissions increased relative to the 2021/2022 value, because of the additional maintenance and renewal works associated with the flood and cyclone recovery work. However, embodied emissions in both 2021/2022 and 2022/2023 showed reductions against the baseline of 156,000t CO2e.

Performance measures in Statement of Intent

As part of its Statement of Intent with Auckland Council, AT also had several key performance indicators related to climate change and GHG emission reductions in 2022/2023.

Measure	Target	Achievement	Note
Number of low emissions buses in Auckland bus fleet	75 buses	90 buses 89 electric and 1 hydrogen powered	
Percentage of streetlights fitted with energy efficient LED bulbs	92.5%	97.8%	
No. public transport boardings	59 million	71 million	
No. rail boardings	13.1 million	11.9 million	1
Add or upgrade 17.1 km of safe cycling facilities on cycle and micromobility strategic network	17.1 km	7.9 km	
Cycle movements past 26 selected count sites	3.85 million	3.04 million	2

1. The target was not met because of Kiwirail's Rail Network Rebuild (RNR), which meant portions of the rail network were closed for several months during the year.
2. The target was not met in part due to wet weather over the summer months, as well as the lower number of overall trips into the city centre post-COVID-19.

Watercare

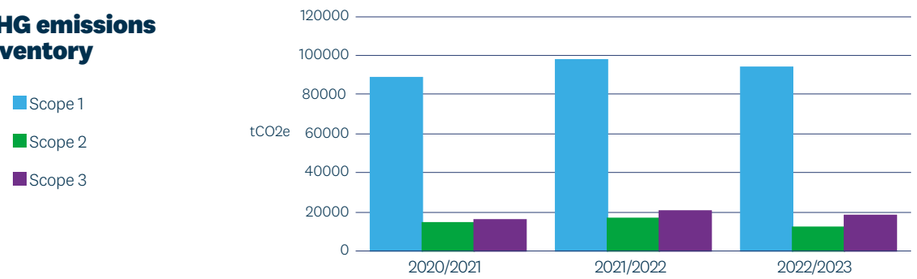
Watercare has established a Decarbonisation Roadmap which provides a high-level pathway to reducing emissions and achieving our 2030 targets. Increasing population, climatic conditions and new technology are increasing emissions, while planned investments and new ways of delivering services are being implemented over this period to reduce emissions.

GHG emissions and other climate-related targets

Target	By when	Baseline	Performance commentary
Energy neutral at major wastewater treatment sites	2030	Absolute target	Progressing well. Upgrades to achieve target are in the Asset Management Plan. Rosedale Wastewater Treatment Plant can currently be energy neutral when solar and biogas are being fully utilised.
40% reduction in built carbon	2025	2018 Asset Management Plan baseline	Progressing well. Note that baseline will be reset due to 2021 asset management plan.
50% reduction in operational emissions	2030	2018	Emissions have trended upwards in recent years but a decrease in 2022/2023. Decarbonisation Roadmap expects this and then strong reductions as investments come into effect from 2026 onwards.
Net zero emissions	2050	2018	Focus is currently on 2030 roadmap.

All targets are absolute targets and align with science. The targets have not been externally verified.

GHG emissions inventory



GHG Protocol classification	ISO classification	Activity type	Baseline 2018/2019	2020/2021	2021/2022	2022/2023
Scope 1	Category 1 Direct GHG emissions	Stationary combustion	2618	3349	1958	4797
		Transport fuel	1943	1930	1958	2,289
		Biofuel and biomass	120	31	81	129
		Refrigerant and other gas use	28	35	39	39
		Wastewater treatment	58125	55733	60863	59626
		Biological treatment of waste	22559	27865	32851	27598
		Total	**85393**	**88943**	**97750**	**94478**
Scope 2	Category 2 Indirect GHG emissions from imported energy	Purchased energy	12549	14668	16698	12807
		Total	**12549**	**14668**	**16698**	**12807**
Scope 3	Category 3 Indirect GHG emissions from transportation	Business travel and accommodation	118	72	67	63
		Transportation of goods	N/A	128	313	110
	Category 4 Indirect GHG emissions from products an organisation uses	Transmission and distribution losses	1257	1528	1674	1673
		Waste	174	3592	7420	5194
		Other purchased products and services	6378	6557	6517	7262
		Outsourced services/ contractors providing core services	N/A	1661	1501	1505
	Category 5 Indirect GHG emissions (use of products from the organisation)	Operation of assets owned by the organisation but leased to other entities - tenant electricity, waste to landfill	N/A	2659	3127	2799
		Total	**7927**	**16197**	**20619**	**18606**
Total direct emissions			**85393**	**8894**	**97750**	**94478**
Total indirect emissions			**20476**	**308651**	**37317**	**31413**
Total gross emissions			**105869**	**119808**	**135067**	**125891**
Emissions avoided		Electricity generation (solar panels, cogeneration of biogas and hydro)	5164	5524	5657	4151

Source of emission factors and the global warming potential (GWP) rates used

- For reporting years 2018-2022 AR5 Global Warming Potential values with climate-carbon feedbacks of 34 for CH4 and 298 for N2O have been used.
- For 2022/2023, AR6 Global Warming potential values with climate-carbon feedbacks of 29.8 for fossil based CH4 and 27 for non-fossil-based methane and 273 for N20 have been used.
- Emission factors have been sourced from MfE July 2023, IPCC (2019 refinement to 2006 IPCC Guidelines for National Greenhous Gas Inventories) and Water NZ Guidance 2021.

Specific exclusions of sources

A materiality assessment has been completed against the GHG reporting categories. Excluded categories and justification for exclusion is as follows:

- Scope 1 – Category 1: Vehicle air conditioners and office fridges have been excluded as immaterial.
- Scope 3 – Category 4: Purchased goods and services excluding lime and maintenance contracts have been excluded based on materiality.
- Scope 3 – Category 4 Materials from capital projects have been excluded on the bases of insufficient data.

GHG emissions methods, assumptions and estimation uncertainty

Watercare's carbon footprint has been calculated in accordance with the Greenhouse Gas Protocol (GHG Protocol) (WRI, 2004), including all six Kyoto GHG protocol and the operational control method.

Significant movements on prior year and progress to GHG emissions target

This year has seen a 7 per cent reduction in emissions from 2021/2022. The primary drivers for this change have been associated with updates to emissions factors and improvements to reporting. The extreme weather events this year were a challenge for the business, and led to increases in costs and drivers of emissions (e.g., wastewater flows at treatment plants). The emission reduction would have been larger without these events. Conversely, the emissions would have been higher than the previous year if the emissions factors and data improvements had not been made.

Changes during the year are:

- A significant decrease in electricity emissions due to the electricity grid becoming more renewable.
- A significant increase in natural gas consumption which was utilised as to save costs, but is being replaced as part of the Decarbonisation Roadmap.
- Large decrease in emissions reported in line with overflows from the network based on updates to the 2015 modelling that captures this data source.

Throughout the year we progressed longer term actions in line with the Decarbonisation Roadmap and the goal of achieving a 50 per cent reduction in operational emissions by 2030. The main focus has been on getting a better understanding of wastewater process emissions and a capital project for direct measurement has subsequently been approved.

Other highlights have included investigations into the emissions associated with Puketutu Island, scoping of the next solar project and a feasibility study for alternative uses of biogas at our two largest wastewater treatment plants.

Performance measures in Statement of Intent

As part of its Statement of Intent, Watercare also has interim targets for Scope 1 and 2 GHG emission reductions. They are not science-based targets but set the trajectory for progress in line with Watercare's roadmap.

	30 June 2023 result	30 June 2023 target	30 June 2024 target	30 June 2025 target
Scope 1 and Scope 2 GHG emissions	84,617 tonnes CO2e	<88,400 tonnes CO2e	<89,200 tonnes CO2e	<89,600 tonnes CO2e

Additional climate related metrics are expected to be identified and developed by June 2024.

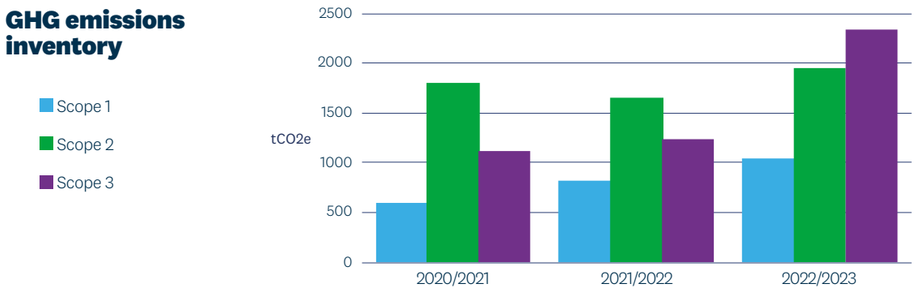
Tātaki Auckland Unlimited Limited

GHG emissions targets

Target	Interim targets	Performance against target
Contribute to Auckland Council group's emissions reduction target of 50% by 2030 from a 2018/2019 baseline. (Scope 1 and 2 in tCO2e)	0% for 2020/2021 0% for 2021/2022 -5% for 2022/2023 -17% for 2023/2024 -20% in 2024/2025 -20% in 2025/2026	2020/2021 -10.8% 2021/2022 -11% 2022/2023 +16.6%

TAU's targets are aligned with science. The emissions reduction target is absolute.

GHG emissions inventory



GHG Protocol classification	ISO classification	Activity type	Baseline 2018/2019	2020/2021	2021/2022	2022/2023
Scope 1	Category 1 Direct GHG emissions	Stationary combustion	789	471	653	778
		Transport fuel	91	102	98	108
		Refrigerant and other gas use	41	7	54	139
		Agriculture[10]	9	14	12	13
		Total	**930**	**594**	**817**	**1038**
Scope 2	Category 2 Indirect GHG emissions from imported energy	Purchased energy	1542	1803	1647	1955
		Total	**1542**	**1803**	**1647**	**1955**
Scope 3	Category 3 Indirect GHG emissions from transportation	Business travel and accommodation	650	84	94	333
		Contractor transport fuel	77	0	0	0
		Transportation of goods	86	411	84	397
		Staff commuting	0	0	310	608
	Category 4 Indirect GHG emissions from products an organisation uses	Transmission and distribution losses	0	219	196	250
		Water supply	13	0	7	8
		Wastewater services	0	0	0	81
		Working from home	0	0	114	47
		Waste	114	71	50	80
		Other purchased products and services	51	53	380	289
	Category 5 Indirect GHG emissions (use of products from the organisation)	Operation of assets owned by the organisation but leased to other entities – tenant electricity waste to landfill	0	0	0	238
	Category 6 Indirect GHG emissions from other sources	Downstream leased assets	0	282	0	0
		Total	**991**	**1120**	**1235**	**2331**
Total direct emissions			**930**	**594**	**817**	**1038**
Total indirect emissions			**2533**	**2923**	**2882**	**4286**
Total gross emissions			**3463**	**3517**	**3699**	**5324**

[10]Enteric Fermentation – Zoo.

Source of emission factors and the global warming potential (GWP) rates used

TAU uses operational control as the GHG emissions consolidation approach. Emissions factors and global warming potential (GWP) rates are provided by Toitū Envirocare's 'e-manage' software. E-manage was not updated with the July 2023 emissions factors at the time of TAU's inventory submission meaning that our certification and inventory have used the previous emissions factors.

Specific exclusions of sources

While TAU has not yet mapped out the full Category 3 – 6 sources (Scope 3) across the organisation, the known material exclusions include:

- Downstream transport (visitor transport to TAU's sites).
- Sites where TAU is a landowner (the Museum of Transport and Technology, and Trusts Arena).
- Sites where TAU provides operational and/or capital fundings on behalf of Auckland Council (Trusts Arena, Due Drop Events Centre, Eventfinda Stadium, Stardome Observatory and Plantetarium).
- Activities that have previously been shown to be de minimis, such as no staff on site (for Film Studios), tenant installation control points unknown for electricity, or no information has been received.

GHG emissions methods, assumptions and estimation uncertainty

The 2022/2023 GHG emissions for TAU have been measured and verified in line with ISO 14064-3:2019 and Toitū carbonreduce Programme Technical Requirements for the 1 July 2022 to 30 June 2023 measurement period.

TAU does not offset emissions, therefore participating in the Toitū carbonreduce certification. However, Auckland Zoo, a TAU business unit, is Toitū net carbonzero certification. Auckland Zoo compensate remaining emissions following Toitū requirements and are covering the minimum of the total Toitū boundary. Further information can be found in the Auckland Zoo certification document.

Significant movements on prior year and progress to GHG emissions targets

TAU under-reported 444 tonnes of gas usage for Auckland Art Gallery last year because of invoicing issues with the utility provider. This historical inaccuracy has now been corrected and verified by Toitū. In 2021/2022, TAU still had reduced activity due to COVID-19 restrictions which presented as a reduction in emissions. From December 2022, the Viaduct Event Centre came back into TAU's footprint, which has slightly contributed to the increase in emissions.

TAU has invested in a decarbonisation project at Auckland Art Gallery, to reduce gas consumption and instead use waste process heat. The concept design was completed in July 2022 and the project is now in the physical works phase, with anticipated commissioning in October 2023. We therefore expect to start seeing emissions reduction for the Art Gallery from 2023/2024 onwards. Other initiatives implemented this year include electrical metering, a solar feasibility study and stadium decarbonisation feasibility. These projects will feed into emission reduction projects.

Target	Interim targets	Performance against target
Reach 70% of waste diversion from landfill across all cultural festivals until 2023	None	**Diwali** 2021 cancelled 2022 cancelled 2023 90% **Pasifika** 2021 76% 2022 cancelled 2023 74%

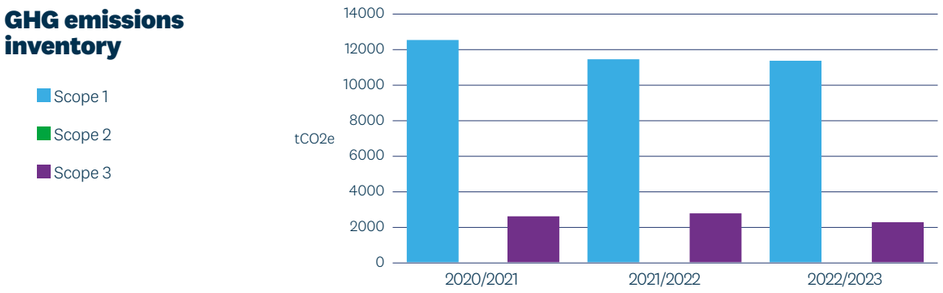
Port of Auckland

GHG emissions targets

POAL interim targets focus on operational efficiencies across the business to help drive emission reductions. These targets, and progress against these targets are:

Target	Target date	Current performance	Comments
Interim targets			
All port (less marine): 10% reduction of operational emissions (tCO2e)/TEU from 2016/2017 baseline	2029/2030	2% reduction	On track
Marine: 45% percentage reduction in operational emissions from 2016/2017 baseline	2029/2030	24% reduction	On track
Long-term target			
100% reduction in operational emissions from 2016/2017 baseline (14,223 tCO2e)	2049/2050	20% reduction	On track to achieve 2029/2030 target

GHG emissions inventory



GHG Protocol classification	ISO classification	Activity type	Baseline 2016/2017	2019/2020	2020/2021	2021/2022	2022/2023
Scope 1	Category 1 Direct GHG emissions	Stationary combustion	5	71	6	5	5
		Transport fuel	12296	11984	12479	11455	11344
		Refrigerant and other gas use	8	11	25	13	21
		Total	**12309**	**12066**	**12510**	**11473**	**11370**
Scope 2	Category 2 Indirect GHG emissions from imported energy	Purchased energy	1914	2216	0	0	0
		Total	**1914**	**2216**	**0**	**0**	**0**
Scope 3[1]	Category 3 Indirect GHG emissions from transportation	Business travel and accommodation	423	266	13	27	96
	Category 4 Indirect GHG emissions from products an organisation uses	Transmission and distribution losses	128	139	155	156	132
		Outsourced services, contractors	0	0	0	0	38
		Water supply	0	0	2	2	3
		Waste	87	31	29	22	23
		Waste recycled	2	9	7	6	20
	Category 5 Indirect GHG emissions (use of products from the organisation)	Operation of assets owned by the organisation but leased to other entities – tenant electricity, waste to landfill	1881	2160	2375	2521	1984
		Total	**2521**	**2605**	**2581**	**2734**	**2296**
Total direct emissions			**12309**	**12066**	**12510**	**11473**	**11370**
Total indirect emissions			**4435**	**4821**	**2581**	**2734**	**2296**
Total gross emissions			**16744**	**16887**	**15091**	**14207**	**13666**
Emissions avoided		Renewable electricity generation solar panels	0	0	0	3	0

Source of emission factors and the global warming potential (GWP) rates used or a reference to the GWP source

All emissions were calculated using ESP software with emissions factors and Global Warming Potentials incorporated into the software.

The main sources were:

- Emissions factors for fuel, electricity, transmission and distribution losses, air travel, car rental, hotel stays, taxi travel and water were taken from Measuring emissions: A guide for organisations: 2023 summary of emission factors. Wellington: MfE, Published July 2023
- Emissions factors for waste were a combination of Measuring emissions: A guide for organisations: 2023 summary of emission factors, Wellington: MfE, Published July 2023 and UK GHG Conversion Factors for Company Reporting. 2023 Full Set V1.1.

Summary of specific exclusions of sources, including facilities, operations and assets

Organisational boundaries were set with reference to the methodology described in the GHG Protocol and ISO 14064-1:2018 standards. An operational control consolidation approach was used to account for emissions. The following business units are excluded from the organisation boundary:

- North Tugz – 50 per cent ownership and not within operational control of POAL.
- PortConnect – 50 per cent ownership and not within operational control of POAL.
- Marsden Maritime Holding – 19.9 per cent ownership and not within operational control of POAL.

The excluded emissions do not exceed 5 per cent of the total footprint within the organisation boundary stated.

Note also that while Seafuels Limited is included under POAL's operational control, due to the 100 per cent charter arrangement with BP, the vessel emissions are not included in POAL's Scope 1 emissions.

GHG emissions methods, assumptions, and estimation uncertainty

The 2022/2023 GHG emission inventory for POAL has been prepared in accordance with the requirements of the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) and completed to meet the requirements of ISO 14064-1:2018 and the Toitū carbonreduce programme, using an operational control method. The inventory has been measured and independently verified by Toitū, in line with ISO 14064-1:2018, and carbonreduce Programme Technical Requirements for the 01 July 2022 to 30 June 2023 measurement period.

There is good certainty for the data, all calculations being based on actual consumption values. All emissions were calculated using ESP with emissions factors and Global Warming Potentials provided by the Programme. GWP from the IPCC fifth assessment report (AR5) are used as the preferred GWP conversion.

Significant movements on prior year and commentary on progress to GHG emissions target

Net emissions (Scope 1 and 2, net of certified green electricity) fell 1 per cent to 11,370 tC02-e this year from 11,473 tC02-e in 2021/2022. This reduction has occurred against an increasing unmitigated baseline. Our container throughput increased at the terminal, processing an additional 7,245 TEU (20-foot equivalent units; a 1 per cent increase from 2021/2022) and the port received 162 more ships than 2021/2022 (a 17 per cent increase in ship calls) resulting in more tug activity.

Performance against 2022/2023 targets

- A reduction in diesel consumption of 2 per cent is the clear contributor to gross emissions reductions. Category 1 diesel consumption for 2022/2023 was 4,172,292L, compared to 4,248,708L in 2021/2022.
- Between November 2022 and June 2023, our electric tug, Sparky, completed 492 jobs consuming on average 435kwh per job. Over this commissioning and early operational period Sparky reduced emissions by 97 per cent compared to POAL's comparable diesel tug Hauraki.

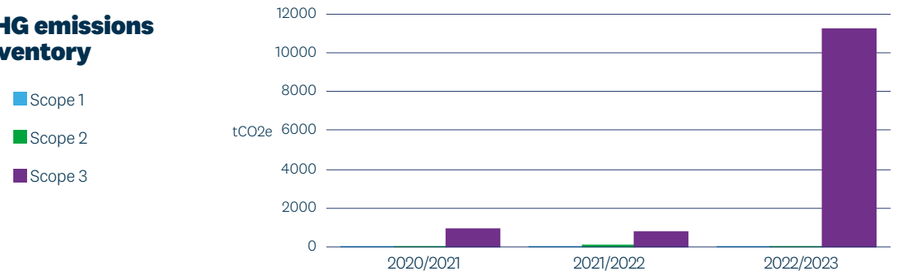
Eke Panuku

Eke Panuku's GHG emissions have been measured in line with the ISO 14064-1:2018 standards using an operational control consolidation approach.

GHG emissions target

Eke Panuku has a target to reduce operational Scope 1 and 2 carbon emissions by 50 per cent by 2030.

GHG emissions inventory



GHG Protocol classification	ISO classification	Activity type	Baseline 2018/ 2019	2020/ 2021	2021/ 2022	2022/ 2023
Scope 1	Category 1 Direct GHG emissions	Transport fuel	47	32	30	38
		Total	**47**	**32**	**30**	**38**
Scope 2	Category 2 Indirect GHG emissions from imported energy	Purchased energy	82	72	142	79
		Total	**82**	**72**	**142**	**79**
Scope 3	Category 3 Indirect GHG emissions from transportation	Business travel and accommodation	0	0	1	4
		Contractor transport fuel	26	5	37	37
		Staff commuting	0	0	65	132
		Transmission and distribution losses	0	50	13	7
		Working from home	0	0	23	12
		Waste	317	104	238	233
		Materials	0	0	0	0
	Category 4 Indirect GHG emissions from products an organisation uses	Other purchased products and services	0	0	0	10420
	Category 5 Indirect GHG emissions (use of products from the organisation)	Operation of assets owned by the organisation but leased to other entities - tenant electricity, waste to landfill	447	801	408	399
		Total	**790**	**960**	**785**	**11244**
Total direct emissions			**47**	**32**	**30**	**38**
Total indirect emissions			**872**	**1032**	**927**	**11323**
Total gross emissions			**919**	**1064**	**957**	**11361**

Source of emission factors and the global warming potential (GWP) rates used

- Emissions factors and global warming potential (GWP) rates are provided by Toitū's 'e-manage' software.
- The emission factors used are drawn from a variety of sources including government published emission factors (such as the NZ MfE), other government publications or data, industry publications or data, international bodies, technical reports, peer-reviewed journals or literature, the IPCC, supplier-specific data (from providers), third-party software or tools or factors that are derived internally by Toitū.
- In terms of GWP, Toitū is currently using AR5 values following the release of the MEG 2023. The UK BEIS (formerly DEFRA) will also be switching to AR5 GWP values for its 2023 publication.

Specific exclusions of sources

Freight and courier, refrigerants and marina office waste are excluded as they are de minimis. Electricity and waste for leased assets is excluded due to insufficient data. The following spend based emissions sources have been excluded as they are not sources that we would be seeking to reduce expenditure on: Māori engagement including consultation, audit expense – financial statements, computer software expense.

GHG emissions methods, assumptions and estimation uncertainty

There is good certainty on a range of sources such as energy and fuel use as we have meter readings and records of fuel purchased. The waste data is less accurate as we either have waste estimates or spend data which is used as a proxy for waste volumes. Spend data for our value chain emissions is the most uncertain but we have included these emissions for completeness.

Significant movements on prior year and progress to GHG emissions target

This year we undertook a significance screening and added in spend-based Category 4 emissions from products and services purchased. Emissions from these far outweighed emissions from other sources.

Overall, there has been a decrease in absolute emissions from Category 1 and 2 of 9 per cent, against our base year. There has been a large increase in emissions across all sources due to the large number of emissions sourced added from our Category 4 spend.

Category 1 emissions from transport this year are less than our base year but have increased from last year. This is potentially due to a gradual return to the office and more face-to-face meetings and site visits since 2021/2022 which was impacted by COVID-19 restrictions. Category 3 commuting emissions also increased, and this is also likely to be due to this year not being subject to the same COVID-19 restrictions as last year. In terms of energy, the usage in 82 Wyndham Street (head office) increased, but this is likely due to increased occupancy.

He Pārongo atu anō

Additional Information

◀ Flood damage at Marawhara Stream, Piha

Te Papakupu Whāiti

Glossary of terms

CCC
The Climate Change Commission is an independent Crown entity that advises the New Zealand Government on climate change policy within the framework of the Climate Change Response Amendment Act.

IPCC
Intergovernmental Panel on Climate Change.

NGFS
The Network of Central Banks and Supervisors for Greening the Financial System.

RCP
Representative Concentration Pathway.

SPANZ
Shared Policy Assumptions for New Zealand.

SSP
Shared Socioeconomic Pathways.

Adaptation
Actions taken to help communities and ecosystems cope with changing climate condition (United Nations Framework Convention on Climate Change) OR Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities (IPCC).

Bank battering
A technique that involves excavation works to reduce bank slope in order to improve riverbank stability and create more favourable conditions for vegetation to establish.

Baseline
A hypothetical scenario for what GHG emissions, removals or storage would have been in the absence of the GHG project or project activity.

Base year
Specific, historical period identified for the purpose of comparing annual GHG emissions over time.

C40 cities
C40 cities is a network of over 90 cities around the world committed to addressing climate change. C40 support cities to collaborate effectively, share knowledge and drive meaningful, measurable, and sustainable action on climate change.

Carbon footprint
The total greenhouse gas emissions caused by an individual, event, organisation, service, or product, expressed as carbon dioxide equivalent.

Chapter Zero
Chapter Zero is part of a global network of board directors committed to taking action on climate change, hosted in New Zealand by the Institute of Directors. It is governed by a steering committee of high-profile corporate, social and scientific leaders.

Climate-related opportunities
The potentially positive climate-related outcomes for an entity. Efforts to mitigate and adapt to climate change can produce opportunities for entities, such as through resource efficiency and cost savings, the adoption and utilisation of low-emissions energy sources, the development of new products and services, and building resilience along the value chain.

Climate resilience
The ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner. This includes ensuring the preservation, restoration or improvement of its essential basic structures and functions.

Climate risks
The exposure to climate related danger, harm, or loss. See also the definitions of physical risks and transition risks.

Climate risk assessment
The process of evaluating an organisation's exposure and vulnerability to climate-related risks, such as extreme weather events, regulatory changes, and supply chain disruptions.

Climate scenario analysis
An examination of how different future climate scenarios might impact an organisation, including their financial performance and resilience.

Committee of the whole
An Auckland Council committee made up of all Governing Body members.

Emissions factor
A factor allowing GHG emissions to be estimated from a unit of available activity data (for example, tonnes of fuel consumed, tonnes of product produced) and absolute GHG emissions.

Executive leadership team (ELT)
The chief executive officer and those employees reporting directly to them.

Greenfield development
A property development project that utilises this bare, undeveloped land to build. The land may exist in residential, industrial, commercial, or even agricultural zones. Greenfield developments typically occur in areas of a city or town that are expanding, such as the periphery.

Greenhouse gas emissions (GHG)
Gases emitted to the atmosphere which contribute to the greenhouse gas effect where more than the normal amount of atmospheric heat is retained in the atmosphere. These emissions include water vapour, carbon dioxide, nitrous oxide, methane, ozone, halocarbons and other chlorine and bromine containing substances.

Integrated scenarios
Climate scenarios that consider both physical and transition climate risks.

Kia ora Tāmaki Makaurau
Auckland Council's Māori outcomes performance measurement framework developed in conjunction with mana whenua and mataawaka.

Low carbon economy
An economy based on low-carbon power sources that therefore has a minimal output of greenhouse gas emissions into the atmosphere, specifically carbon dioxide.

Mitigation
The action of reducing the severity, harm and seriousness of climate change through emissions reduction.

Net-zero carbon economy
This is an economy in which the amount of carbon dioxide emitted into the atmosphere is equal to the amount sequestered or offset (e.g., by forestry).

Physical risk
Risks related to the physical impacts of climate change. Physical risks emanating from climate change can be event-driven (acute) such as increased severity of extreme weather events. They can also relate to longer-term shifts (chronic) in precipitation and temperature and increased variability in weather patterns, such as sea level rise.

Renewable energy
Energy taken from sources that are inexhaustible, e.g. wind, water, solar, geothermal energy, and biofuels.

Resource and Recovery Network
This network comprises community recycling centres that are run in partnership with community enterprises and Auckland Council to reduce waste to landfill by reusing, re-purposing and recycling as much as possible, creating a circular economy.

Risk register
A tool for documenting risks and associated actions to manage each risk.

Scope 1 emissions
Direct GHG emissions from sources owned or controlled by the group.

Scope 2 emissions
Indirect GHG emissions from consumption of purchased electricity, heat, or steam.

Scope 3 emissions
Other indirect GHG emissions not covered in Scope 2 that occur because of the group's activities but from sources not owned or controlled by the group.

Supply chain
The sequence of processes involved in the production and distribution of a commodity.

Sustainability
Protecting or even restoring the natural environment as well as looking after the wellbeing of people and communities – both locally and in overseas markets.

Statement of intent
A public statement of the activities and intentions of a CCO for the three years ahead, and the objectives to which those activities will contribute. It responds to a council's mayor's letter of expectations.

Task Force on Climate-related Financial Disclosures (TCFD)
An international framework that provides recommendations for voluntary climate-related financial disclosures by companies.

Transition risk
Risks related to the transition to a low-emissions, climate-resilient global and domestic economy, such as policy, legal, technology, market and reputation changes associated with the mitigation and adaptation requirements relating to climate change.

Transport Emissions Reduction Pathway (TERP)
The TERP sets out a plan to reduce Auckland's transport emissions by 64 per cent by 2030. It describes what it will look like when achieved and helps identify potential barriers to achieving it.

tCO2e
Tonnes (t) of carbon dioxide (CO2) equivalent (e). 'Carbon dioxide equivalent' is a standard unit for counting greenhouse gas emissions regardless of whether they are from carbon dioxide or another gas, such as methane.

Te Whakapākehātanga o ngā Kupu Māori

Translation of Te Reo Māori terms

Kahurangi
Blue

Kaitiaki
Guardian

Kakariki
Green

He kura taiao
Living treasures

Hīkina te Wero
Environmental action plan

Iwi
A number of hapū (sub-tribes) related through a common ancestor

Mana whenua
Territorial rights, power over the land / by extension: Māori who have customary authority over land through ancestral links

Nga ara hei whai
Objectives

Ngahere
Forest

Te Taiao
The environment that contains and surrounds us

Te Tāruke-ā-Tāwhiri
Auckland's Climate Plan

Te Tiriti
The Treaty of Waitangi

Whero
Red

Te huarahi whakapā mai ki te kaunihera

How to contact us

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aucklandcouncil.govt.nz/contactus

Phone
09 301 0101

Post
Auckland Council, Private Bag 92300, Auckland 1142

Locations that offer council services

Aotea / Great Barrier Island
75 Hector Sanderson Road, Claris, Great Barrier Island

City Centre Library
44-46 Lorne Street, CBD

Helensville
49 Commercial Road, Helensville

Waitākere Central Library (Henderson)
3 Ratanui Street, Henderson

Kumeū Library
296 Main Road (SH16), Kumeū

Manukau Library
3 Osterley Way, Manukau

Ōrewa Library
12 Moana Avenue, Orewa

Papakura Sir Edmund Hillary Library
1/209 Great South Road, Papakura

Pukekohe Library, Franklin: The Centre
12 Massey Avenue, Pukekohe

Takapuna Library
9 The Strand, Takapuna

Te Manawa
11 Kohuhu Lane, Westgate

Waiheke Library
131-133 Oceanview Road, Oneroa, Waiheke Island

Warkworth Library
2 Baxter Street, Warkworth

For opening hours and a list of services available at each service centre, visit **https://www.aucklandcouncil.govt.nz/report-problem/visit-us/Pages/default.aspx**

▲ Epsom Community Garden

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Te Kaunihera o Tāmaki Makaurau