# TE TĀRUKE-Ā-TĀWHIRI: AUCKLAND'S CLIMATE PLAN

December 2020

Auckland Council
Te Kaunihera o Tāmaki Makaurau

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# He Takutaku

| | |
|---|---|
| He huarahi ki te ao tūroa | In the beginning there was The Void |
| I te tīmatanga, ko Te Kore | Within The Void was The Night |
| Ko Te Pō | From within The Night, seeds were cultivated |
| Nā Te Pō | It was here that movement began – The Stretching |
| Ka puta ko Te Kukune | There The Shoots enlarged and swelled |
| Ko Te Pupuke | Then there was Pure Energy |
| Ko Te Hihiri | Then there was The Sub-conscious |
| Ko Te Mahara | Then The Desire to know |
| Ko Te Manako | Movement from Darkness to Light, from conception to birth |
| Ka puta ki Te Whei Ao | From the learning comes Knowing |
| Ki Te Ao Mārama | I sneeze and there is life |
| Tihewa mauri ora | |

Traditional Māori ways of knowing the world and the genealogy of creation begin with Io Taketake (The Originator) and evolve through different spheres of development until the present day. The recital above is an example of these spheres.

# He Mihi

Tuia ki te rangi

Tuia ki te whenua

Tuia ki te moana

Tuia te here tangata

E rongo te pō, e rongo te ao

Bind the tapestry of life which affirms humanity's connection to the natural world. To the celestial realm, to the earthly realm, to water – the sustenance for all life forms, and, to remember to keep everything in 'balance'.

E whēkite ana, e whēkaro ana i ngā uhitai a Wainuiātea

Tupuna o ngā moana kiriwaiwai mō Papatūānuku

Ngaki tonu ana a Taitua rāua ko Taiaro

E haehae tonu ana i te uma o Nuku

The mists of Wainuiātea, the mother of all oceans and waterways, rise like tears above the waterways that provide the fluid skin to clothe Papatūānuku.

The ancient waterways of Taitua and Taiaro forever eroding and tearing at the breast of Papatūānuku.

Pipī tonu mai ana ngā wai o Roi i ngā kamo

Tangi ana mō Moana-tū-ki-te-repo

I kekeria kia rere tōna waiora

ki a Tangaroa-whakamau-tai

Ngaro atu, kāhore he hokinga mai

The tears (Roimata) continuously flow from the eyes

Mourning the death of Moana-tū-ki-te-repo (swamplands, the youngest child of Wainuiātea). Killed and drained of her life-giving purpose, to cleanse the waters of Tangaroa Whakamautai.

Kei hea rā he kāinga mō Matuku

He manu o te repo?

Ka ngaro i te aro tirohanga

Kua korokī ki ngā rākau teitei o te wao nui

Waiho ake a Poroka te tangi mokemoke

Lost forever and never to return

Where is home for Matuku now?

The bird of the marshlands and swamps?

He is no longer seen.

His spirit floating on the highest branches of Te Wao Nui a Tāne.

Leaving Poroka to his lonely cry.

Ngaoki tonu mai ana te oati a Tangaroa ki a Tāne

Ngaki ana ki uta

Tāpohutu mai ana ngā uri a Tāne

Ki te whakatutuki i te oati i Te Paerangi

Waiho ake ngā uhitai hei roimata

Whakamākūkū i ngā pāpāringa

Kia tū kau ake ki te wharehukahuka a Tangaroa

Ki te patatai e tau ai, e tau ai, kua tau

The promise Tangaroa made to Tāne is yet to be satisfied.

He continuously digs and scrapes at the ramparts of the domain of Tāne. Fulfilling the promise to take the life of the children of Tāne.

The promise he made to Tāne at Te Paerangi

May the seaspray be evidence of those tears

That continually moisten the cheeks of Papatūānuku

They flow to the foamy domain of Tangaroa

Where in their own time they leave the turbulence of the oceans to come ashore to find peace and rest.

# Why we need to act now

Our climate is changing.

Our emissions continue to rise, and we are seeing more extreme events regionally and around the world.

We need to act now – and we must act fast. We have less than a decade to avoid the worst impacts of climate change and dramatically reduce our emissions.  For Auckland, we have committed to halving our emissions by 2030.

Our climate actions will also have wider positive effects, such as:

- reducing the health impacts of transport
- regenerating our urban and rural natural environments
- restoring the mauri (life essence) of Tāmaki Makaurau
- supporting a more affordable and equitable Auckland.

By acting on climate now, we can better support our communities and businesses in building resilience to the changes we will face.

## How we plan to take action

Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan is our roadmap to a zero-emissions, resilient and healthier region that is better connected to our environment and able to thrive in the face of ongoing change and disruption.

Te Tāruke-ā-Tawhiri takes a deeply cultural narrative that is embedded in this place – Tāmaki Makaurau and calls for a change in our response to climate change, a shift from a human-centred approach to an ecological approach.We will do this by dramatically changing how we move around the region, what and where we build, and how we work.

We will need to rethink our economy to one that is less based on consumption and more focused on ensuring that we do not take more than we can replenish for future generations.

## We need to act together

No one can do this alone. It will take government, businesses, mana whenua, communities and you. Every choice matters.

We must make urgent, radical changes to how and what we do as individuals, communities and businesses.

# He urupare nā Tāmaki Makaurau ki te huringa o te āhuarangi
# A Tāmaki Makaurau response to climate change

Our response to climate change must reflect our values and principles as Aucklanders and be appropriate for Tāmaki Makaurau / Auckland.

## He urupare nā Tāmaki Makaurau ki te huringa o te āhuarangi
## Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan

Tāmaki Makaurau / Auckland is in a climate emergency. We have less than a decade to make the major changes to avoid the worst impacts of climate change.

Our region is already experiencing the effects of a changing climate. Over the last decade, Auckland felt the impacts of heavy rain events, storm surges and coastal inundation, extreme heat events, and droughts. These climate change impacts are expected to increase in frequency and severity.

Tāmaki Makaurau / Auckland is unique, which gives us strength in how we address climate change together. A Tāmaki Makaurau / Auckland response reflects our values and the foundations we need to succeed, including how we embed mātauranga Māori and Te Ao Māori principles, and how we work together as a region to ensure no one is left behind.

### Our core goals

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

### How we will deliver our core goals

To deliver our goals we have eight priorities for action. These priorities focus on the areas where we can have the greatest impact to reduce our emissions and adapt to climate change.

Increasing the scale and pace of action will be hard, but if done well, our climate actions can deliver broader environmental, economic, social and health benefits for all Aucklanders.

We have collaborated with stakeholders across Tāmaki Makaurau / Auckland to develop this plan. No single group can deliver the changes needed. We need to do this together.

We know from experience that we can make major shifts when we are united in a common purpose. This plan sets the pathway for the changes we need to make for a net zero carbon, resilient future.

# He aha ai, ko te kaupapa o Te Tāruke-ā-Tāwhiri?

## Why Te Tāruke-ā-Tāwhiri?

Te Tāruke-ā-Tawhiri takes a deeply cultural narrative that is embedded in this place – Tāmaki Makaurau.

The narrative speaks to the struggles of Tāwhiri-mātea, the primal ancestor associated with weather. Tied to the Māori creation narratives of the universe and the world, Tāwhiri-mātea is seen to be influencing our climate and accelerating the change in our climate in response to human induced climate change.

The narrative calls for a change in our response to climate change, re-framing, re-imagining and re-setting the current system, and a shift from a human-centred approach to an ecological-centred approach given our symbiotic relationships with the natural environment.

The call to action is now.

Mana whenua cultural narratives speak to two key themes that are a result of almost 1000 years of observations and applied learning within Tāmaki Makaurau (built upon 50,000 years of mātauranga / indigenous knowledge systems that arrived with tupuna waka from across Te Moana-nui-a-Kiwa).

- the climate, as part of a wider whakapapa / intergenerational symbiotic system of relationships, is always moving and changing. We are responding specifically to the impacts of human induced change as a result of western-centred values, behaviours and systems.
- our tupuna Atua / primal ancestors are reciprocating those behaviours, which we refer to Te Tāruke-a-Tāwhiri – the struggles of Tāwhiri
- within those cultural narratives also lay the key to our response to 'climate change' through the construction of a mātauranga Māori framework or tāruke, using the knowing, thinking, lived experience and wisdom of our tupuna / ancestors, as in the construction of a tāruke / crayfish pot from aka / supple jack.

## Tāmaki Makaurau is a story of place

**Tāmaki Makaurau** – Tāmaki loved by many

**Tāmaki herenga waka** – Tāmaki the converging place of many canoes

**Tāmaki herenga tangata** – Tāmaki the converging place of many peoples

**Te pai me te whai rawa o Tāmaki** – The abundance and prosperity of Auckland

Blessed with a temperate climate, natural resources and a distinctive coastal isthmus, Tāmaki Makaurau / Auckland has attracted human settlement and commerce for about 1000 years.

It is a coastal region, bordered by the Hāuraki Gulf, Waitematā, Manukau and Kaipara harbours and it is formed by a volcanic landscape, bush clad ranges and fertile plains.

Today, the number of people that have been attracted to the region has grown exponentially, and with this growth, comes benefits and challenges.

Our region is unique. Tāmaki Makaurau / Auckland benefits from its diversity and the opportunity to learn from all the knowledge and experience that has come before us. We cannot succeed unless we all work together, build on our collective knowledge, and make sure that no one is left behind.

## Te Ora ō Tāmaki Makaurau

## The wellbeing of Tāmaki Makaurau / Auckland

The global response to climate change must be underpinned by the best knowledge available.

Indigenous knowledge systems have developed and implemented extensive mitigation and adaptation strategies. This has enabled indigenous peoples to reduce their vulnerability to past climate variability and change, which exceed those predicted by models of future climate change. However, this knowledge is rarely taken into consideration in the design and implementation of modern mitigation and adaptation strategies.

Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan acknowledges mana whenua as the first peoples of Tāmaki Makaurau, and an intimate part of the ecological and cultural fabric of the region.

In response to the plan and to sustainability challenges, mana whenua have developed a Te Ao Māori well-being framework in parallel to the plan to the plan called Te Ora ō Tāmaki Makaurau wellbeing framework.

This wisdom and knowledge have enabled mana whenua to remain resilient for over 1000 years of living in Tāmaki Makaurau, despite the intergenerational impacts of colonisation, westernisation, and urbanisation over the last 200 years.

Te Ao Māori calls for the protection and preservation of whole living systems, and for maintenance, sustainability and regeneration of the whakapapa relationships that enable the well-being of these systems.

With a changing climate, the legacy of our ancestors that we leave for future generations lies in the balance.

To guide Auckland's approach to climate action, mana whenua, through the Mana Whenua Kaitiaki Forum has partnered with the council to provide a Te Ao Māori perspective throughout the development of the plan. Early in the process, this forum set up a climate change working group to work with council representatives and subject matter experts on their response to climate change.

Principles of te Tiriti o Waitangi, particularly the principles of partnership and active protection, underpinned the development of this plan. At the outset, the council sought a positive partnership with Auckland's mana whenua to respond to the threat of climate change.

Te ora ō Tāmaki Makaurau incorporates kaupapa Māori and mātauranga-ā-iwi. This lens is reflected in the development of climate actions within Te Tāruke-ā-Tāwhiri.

## A response to Te Tāruke-ā-Tāwhiri

Te Tāruke-ā-Tāwhiri, a narrative of climate change, speaks to the struggles of Atua as a result of human behaviour which is out of balance with the world around us.

Climate change is a threat to whakapapa connections of nature, people and place.

## Leading the response

The Mana Whenua Kaitiaki Forum has taken the lead role in anchoring and guiding a Māori response to climate change within Tāmaki Makaurau and working closely with Māori community organisations. The approach has been underpinned by the following principles:

- whakapapa centred approach to understanding and responding to climate change (Te Tāruke-ā-Tāwhiri)
- mātauranga Māori forming the foundation to restoring balance with our tupuna Atua
- mana whenua-led conversation, focused on a practical expression of our obligations of kaitiakitanga of Tāmaki Makaurau and the manaakitanga of its people and, in particular, our Māori communities
- whakamana Te Tiriti o Waitangi – Working in partnership with the Kaunihera (and the Karauna)
- recognising our wider whakapapa relationships with Māori communities, Tāmaki Makaurau, as well as, across Te Moana-nui-a-Kiwa and the plight of our tangata pasifika whanaunga.

# He maha ngā hua ka puta i te mahi āhuarangi

# Climate action can deliver multiple benefits

In declaring a climate emergency, Auckland Council recognises that urgent climate action is necessary to build a better future.

But the actions we take can also deliver social, environmental, economic and cultural wellbeing. These four wellbeings underpin quality of life in our communities. By recognising and maximising all benefits in the actions we take we can create a more equal, happy, prosperous, climate-positive region.

An example of how this can be delivered is Auckland's Urban Ngahere (Forest) Strategy which shows a range of co-benefits in growing our urban ngahere.

We need to make sure that every action we take delivers the maximum value for all Aucklanders. Our indicators of progress measure not only emissions reduction, but also broader potential benefits such as health, economy and wellbeing.

*Benefits of Auckland's Urban Ngahere*


## Te tōkeke me te huringa o te āhuarangi

## Equity and climate change

Auckland is a founding signatory of C40 Cities' Global Green New Deal, an initiative that reinforces the equity principles within the Auckland Plan, our Climate Emergency declaration and our collaborative approach to the development of this plan. The core of this initiative is a commitment to create thriving and fair communities for everyone; with inclusive, equitable climate action at the centre of all decision making.

Equity refers to whether the distribution of impacts (both benefits and costs) is fair and appropriate – being aware that people have different starts in life and different needs.

Equality treats everyone the same, but equity acknowledges the different needs people have and ensuring that everyone has what they need to succeed.

### Climate change is a social issue

Climate change is not only an environmental issue. It is also a deeply social issue, with significant implications for those that are most vulnerable.

As climate impacts increase, society faces the prospect of exacerbating existing poverty and inequality. Climate change may become the biggest human rights challenge of the 21st century.

There are many different areas of equity that need to be considered in the context of climate change:

- socio-economic differences (e.g. household income)
- where people live
- the access people have to services and workplaces
- differences in people's jobs (e.g. whether the job is indoors or outdoors)
- differences in accessibility needs.

Climate change also creates intergenerational inequity. If we do not act, we risk leaving a significantly different and less habitable world to our children and our children's children.

## Equity, fairness, and climate change through a Te Ao Māori lens

From a Te Ao Māori perspective, we need to consider equity and fairness from the perspective of nature, place and people. Recognising the rights and interests of nature, place and people from a whole living systems perspective is critical. Mana whenua have used the term taurite, that speaks to the reciprocal obligations and responsibilities of restoring and maintaining balance and harmony of those symbiotic-whakapapa relationships between, nature, people and place, including past, present and future generations.

At a human level, it is also about addressing issues of equity and equality for Māori and in particular tamariki (children), rangatahi (youth) and whānau hauā (whānau with disability). The outcomes are that Māori experience equity and equality in the enjoyment of all benefits of living in Tāmaki Makaurau, including the benefits of being citizens of Aotearoa New Zealand.

In practice, this means that both the Crown and Auckland Council need to actively protect and reduce disparities between Māori and non-Māori. This includes acknowledging, confronting and addressing institutional / systemic racism. It means that the council needs to ensure it addresses the inequality of the capability and capacity of mana whenua to practically express their kaitiakitanga obligations and responsibilities across Tāmaki Makaurau. Also, that the council ensures Māori communities effectively respond and participate in council decision-making processes.

## How we are addressing equity in our plan

There are clear risks to equity that we need to address, and some actions may produce inequitable outcomes.

Equity issues need to be clearly identified, assessed and made transparent as part of any decision-making process. We have applied an equity lens throughout the plan, considering the implications of our actions on all Aucklanders and making sure that we are not leaving anyone behind in our transition to a zero carbon and climate resilient region.

This plan also has the potential to create a much fairer and vibrant Auckland through well designed actions of Auckland Council, central government, business, Māori, and communities all working together.

# Ā mātou takohanga
# Our commitments

Auckland Council is committed to reducing emissions and ensuring our region is resilient to the impacts of climate change.

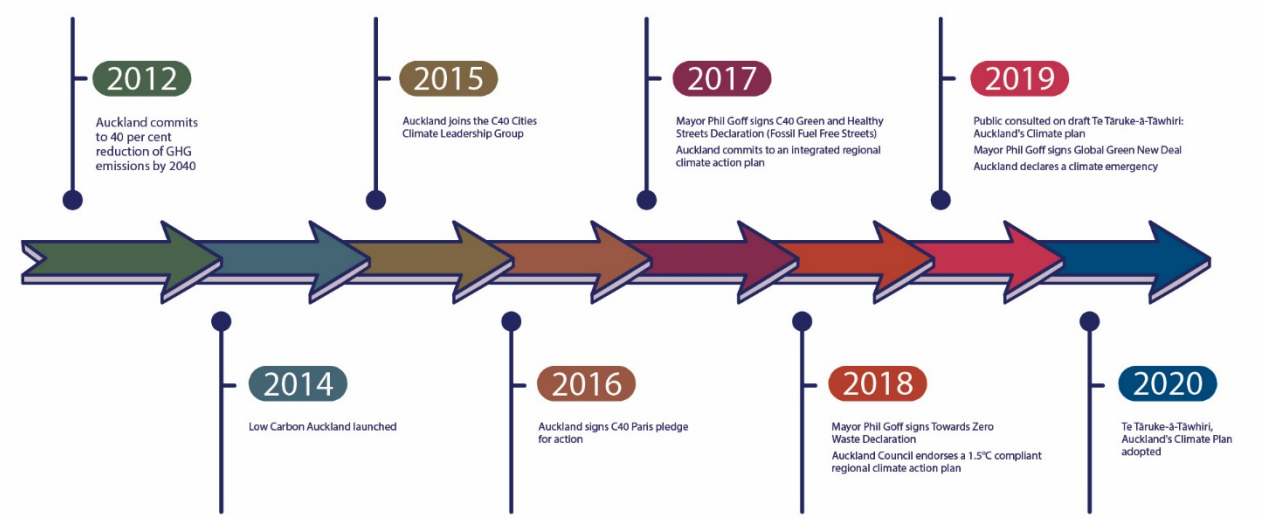
Auckland Council first committed to significant emissions reductions in 2012, and now we're scaling up our commitments alongside the growing ambitions of cities, businesses and governments globally.

The principles of Te Tiriti o Waitangi are foundational to our commitments to climate action.

Auckland's climate response is also directed by several international, national and regional commitments and legislative instruments.

We continue to update our climate response as these commitments evolve

## Timeline of our commitments




*Auckland's Key Climate Commitments*

| Year | Commitment | | |
|---|---|---|---|
| 2012 | Auckland commits to 40 by 40 | Our first emissions reduction target is set in the Auckland Plan 2012 at 40 per cent reduction of greenhouse gas emissions by 2040.<br>Auckland's vision is established for a prosperous city with a thriving green economy, powered by efficient, affordable and clean energy, using sustainable resources. | Read about the Auckland Plan |

| Year | Commitment | | |
|---|---|---|---|
| 2014 | Low Carbon Auckland launched | The action plan outlines five key transformation areas required for Auckland to achieve the 40 by 40 target and sets an interim goal of 10-20 per cent reduction by 2020.<br>It provides a 30-year pathway and a 10-year plan to guide Auckland's transformation. | Read about Low Carbon Auckland |
| 2015 | Auckland joins the Global Covenant of Mayors for Climate and Energy | Auckland's mayor commits to the Global Covenant of Mayors for Climate and Energy, and pledges to reduce Auckland's greenhouse gas emissions, track progress and prepare for the impacts of climate through a climate change adaptation action plan. | Read about the Global Covenant of Mayors for Climate and Energy |
| | Auckland joins the C40 Cities Climate Leadership Group | Auckland joins the global network of over 90 cities committed to tackling climate change while at COP21, where the Paris Agreement was negotiated. C40 membership enhances and resources Auckland's ability to work with and learn from leading global cities facing similar climate challenges. | Read about the C40 Cities Climate Leadership Group |
| | The Auckland Transport Alignment Project is initiated | The council and central government agree a strategic approach to guide the development of Auckland's transport system over the next 30 years. The reduction of transport-related greenhouse gas emissions is one of the several benefits of this partnership. | Read about the Auckland Transport Alignment Project |
| | National Civil Defence Emergency Management Plan | The National Civil Defence Emergency Management Plan sets out the roles and responsibilities of central and local government, lifeline utilities providers, emergency services and non-government organisations in emergency management. That is, the roles of these agencies in reducing risks, preparing for, responding to and recovering from emergencies. | Read about the National Civil Defence Emergency Management Plan |

| Year | Commitment | | |
|---|---|---|---|
| 2016 | Global Paris Agreement enters into force | The Paris Agreement between 196 countries signals a concerted global effort to limit global temperature increase by reducing emissions. The aim is to keep global temperature rise well below 2 degrees Celsius, whilst pursuing efforts to limit the rise to 1.5 degrees Celsius. | Read about the Paris Agreement |
| | Auckland signs Paris pledge for action | Auckland signs the Paris Pledge for Action in support of the objectives in the Paris Agreement to limit global temperature rise to less than 2 degrees Celsius and raise ambition before the agreement takes effect in 2020. | Read about the Paris Pledge for Action |
| | Auckland Unitary Plan becomes operative in part | The Auckland Unitary Plan sets policy for a quality compact urban form which can enable low carbon development. It also sets the objective to ensure communities are more resilient to natural hazards and the effects of climate change. | Read about the Auckland Unitary Plan |
| 2017 | Auckland Council commissions research to understand climate change impacts in Auckland | New Zealand's National Institute for Water and Atmospheric research (NIWA) is commissioned to model the impacts of climate change on the Auckland Region to 2110. This research allows us to better understand the risks, vulnerabilities and opportunities associated with our changing climate so we can better plan, invest and build for the future. | Read about the NIWA Climate Projections |
| | Mayor signs C40 Green and Healthy Streets Declaration (formerly the Fossil Fuel Free Streets Declaration) | The mayor signs a declaration to transform Auckland's streets into greener, healthier, and more prosperous places to live by:<br>• procuring only zero-emission buses from 2025<br>• ensuring a major area of our city is zero carbon by 2030.<br>It seeks to make our streets safe and accessible for everybody, improving air quality and reducing greenhouse gas emissions. | Read about the Green and Healthy Streets Declaration / Fossil Fuel Free Streets Declaration |

| Year | Commitment | | |
|---|---|---|---|
| 2018 | Auckland commits to an integrated regional climate action plan | Auckland Council approves the development of a strategy incorporating both climate change adaptation and mitigation. | Read about the development of Auckland Climate Action Plan |
| | Auckland Council commits to partner with mana whenua through the Mana Whenua Kaitiaki Forum to develop an integrated regional climate action plan | Auckland Council has co-developed Te Tāruke-ā-Tāwhiti: Auckland's Climate Plan. | |
| | Mayor signs Towards Zero Waste Declaration | By signing C40's Advancing Towards Zero Waste Declaration, the mayor pledged to move Auckland towards:<br>• cutting the amount of waste generated by each citizen 15 per cent by 2030<br>• reducing the amount of waste sent to landfills and incineration by 50 per cent<br>• increasing the diversion rate to 70 per cent by 2030.<br>Auckland's Waste Minimisation Plan 2018 builds on these with a target for Zero Waste to 2040. | Read about C40's Zero Waste Declaration<br>Read Auckland's Waste Minimisation Plan 2018 |
| | Auckland Council joins the Climate Leaders Coalition | Auckland Council becomes a member of the Climate Leaders Coalition committing to alignment with the Paris Agreement, public transparency on emissions, setting targets for emissions reductions and influencing emissions reductions in supply chains. | Read about New Zealand's Climate Leaders Coalition |
| | Auckland Council endorses a 1.5 degrees Celsius compliant regional climate action plan | Auckland Council successfully reapplied for membership to the C40 Cities Climate Leadership Group, including the requirement to develop a climate plan consistent with the Paris Agreement aspiration of 1.5 degrees Celsius maximum temperature rise. | Read about Auckland Council's C40 membership |

| Year | Commitment | | |
|---|---|---|---|
| 2019 | Public consulted on draft Te Tāruke-ā-Tāwhiri, Auckland's regional climate action response | Consultation draft of Te Tāruke-ā-Tāwhiri, Auckland's regional climate action response approved along with the resolution to develop detailed and costed actions for Auckland Council's contribution to climate action. | Read the Auckland Climate Action Framework |
| | Climate Change Response (Zero Carbon) Amendment Act 2019 | The Climate Chane (Zero Carbon) Amendment Act 2019 provides a framework by which New Zealand can develop and implement clear and stable climate change policies that:<br>• contribute to the global effort, under the Paris Agreement to limit global average temperature increase to 1.5 degrees Celsius above pre-industrial levels<br>• allow New Zealand to prepare for and adapt to, the effects of climate change. | Read about the Climate Change Response Act 2002 and the (Zero Carbon) Amendment Act 2019 |
| | Mayor signs Global Green New Deal | Through the Global Green New Deal, cities have reaffirmed their commitment to protecting our environment, strengthening our economy, and building a more equitable future by cutting emissions from the sectors most responsible for the climate crisis. This means putting inclusive climate action at the centre of all urban decision-making. | Read about the Global Green New Deal |
| | Auckland declares a climate emergency | Declaration of a Climate Emergency including the requirement to include climate impact statements in all Auckland Council committee reports. | Read about Auckland Council's declaration of a 'climate emergency' |
| 2020 | Te Tāruke-ā-Tāwhiri, Auckland's Climate Plan approved | Auckland Council approves Te Tāruke-ā-Tāwhiri, Auckland's Climate Plan. | |

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# Ngā takohanga ā-ao
# International commitments

Our international commitments include:

- United Nations Framework Convention for Climate Change
- Paris Agreement
- The Sustainable Development Goals
- C40 Cities.

## United Nations Framework Convention for Climate Change

The United Nations Framework Convention for Climate Change (UNFCCC) was adopted by over 185 countries, including New Zealand at the Rio Earth Summit in 1992.

It entered into force on 21 March 1994 and now has near-universal membership with 197 Parties to the Convention.

The UNFCCC enabled countries to collectively consider how to mitigate climate change and cope with its impacts and did several significant things:

- it recognised there was a problem
- it set a specific goal to stabilise greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system"
- it put the onus on developed countries to lead the way
- it directed new funds to climate change activities in developing countries
- it set up a process to monitor the issue and actions being taken to deal with it
- it charted the beginning of a path to strike a balance between economic development and mitigating climate change
- it began formal consideration of adaptation to climate change.

## Paris Agreement

The Paris Agreement is one of the most recognised agreements within the UNFCCC. It was the result of negotiations at the 21st Conference of the Parties (COP) to the UNFCCC in 2015.

The Paris Agreement entered into force on 4 November 2016, thirty days after the date on which at least 55 Parties to the UNFCCC accounting in total for at least an estimated 55 per cent of the total global greenhouse gas emissions, had ratified the Agreement.

One of the central components of the Paris Agreement was to reaffirm the long-term goal of "holding the increase in the global average temperature to well below 2 degrees Celsius above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 degrees." This has formed the basis of commitments that Auckland Council has made as members of C40 Cities and the Climate Leaders Coalition.

To deliver on the Paris Agreement, each Party to the Agreement is required to prepare, communicate and maintain successive Nationally Determined Contributions (NDCs) that it intends to achieve. New Zealand's NDC is to reduce greenhouse gas emissions by 30 per cent below 2005 levels by 2030.

To read more about New Zealand and the United Nations Framework Convention on Climate Change.

## The Sustainable Development Goals

The Sustainable Development Goals (SDGs) are a collection of 17 goals designed to be a "blueprint to achieve a better and more sustainable future for all". The SDGs were adopted by all UN Member States in 2015, as part of the 2030 Agenda for Sustainable Development which set out a 15-year plan to achieve the goals.

Whilst the SDGs acknowledged that UNFCCC is the primary international, intergovernmental forum for negotiating the global response to climate change[1], SDG 13 (Climate Action) and SDG 11 (Sustainable Cities and Communities) includes targets and action areas focused on addressing climate change mitigation and adaptation.

Auckland Council has reviewed the Auckland Plan, Auckland's overarching spatial strategy, against the specific goals and targets set out within the SDG framework. This has shown a strong link between the Auckland Plan and the direction that it sets out for Auckland with the achievement of the SDGs. Delivering the Auckland Plan and supporting strategies such as this climate plan therefore plays a key part in Auckland's response to the SDGs.

*Sustainable Development Goal and Auckland Plan 2050 linkages*


[1] https://www.un.org/sustainabledevelopment/climate-change/

## C40 Cities

The C40 Cities Climate Leadership Group is a group of over 90 global cities that are committed to taking bold climate action, leading the way towards a healthier and more sustainable future.

Auckland has been recognised as an Innovator City within the C40 network since 2015 and has endorsed a range of C40 commitments, including:

- the Green and Healthy Streets Declaration (formerly the Fossil Fuel Free Streets Declaration)
- the Advancing towards Zero Waste Declaration
- the Global Green New Deal.

As a member of C40 cities, Auckland is also committed to adopting a climate action plan that will deliver action consistent with the objectives of the Paris Agreement – an integrated and inclusive plan that addresses the need to reduce greenhouse gas emissions, adapt to the impacts of climate change, and deliver wider social, environmental and economic benefits[2]. This climate action plan delivers on that commitment.

# Ngā takohanga ā-motu
# National commitments

Our national commitments include:

- Climate Change Response Act 2002 and the Zero Carbon Amendment Act 2019
- New Zealand Climate Leaders Coalition.

## Climate Change Response Act 2002 and the Zero Carbon Amendment Act 2019

The Climate Change Response Act 2002 is the legal framework that enables New Zealand to:

- develop clear and stable policies to limit global warming to 1.5 degrees Celsius above pre-industrial levels; and allow New Zealand to prepare and adapt to the effects of climate change
- meet its international obligations under the UNFCCC and the Kyoto Protocol.

To meet its obligations under the Kyoto Protocol, the Act empowers the Minister of Finance to manage New Zealand's holdings of units that represent New Zealand's target allocation for greenhouse gas emissions under the Protocol. It enables the minister to trade those units on the international market. It establishes a registry to record holdings and transfers of units. The Act also establishes a national inventory agency to record and report information relating to greenhouse gas emissions in accordance with international requirements. Thereby, the Act underpins the New Zealand's Emissions Trading Scheme.

In 2019, the Act was amended by the Climate Change Response (Zero Carbon) Amendment Act.

[2] https://resourcecentre.c40.org/

The 2019 Amendment Act expanded the purpose of the Climate Change Response Act 2002, to:

- recognise the outcomes of the Paris Agreement (i.e. a global effort under the Paris Agreement to limit the global average temperature increase to 1.5 degrees Celsius above pre-industrial levels)
- allow New Zealand to prepare for, and adapt to, the effects of climate change.

The amendments resulted in four key things:

- set up a new domestic greenhouse gas emissions reduction target
- establish a system of emissions budgets that contribute towards the long-term target set out in the Paris Agreement
- require the Government to develop and implement policies for climate change adaptation and mitigation – which is the basis for the National Climate Change Risk Assessment
- establish a new Climate Change Commission to provide expert advice and monitoring to meet long term targets.

## New Zealand Climate Leaders Coalition

The New Zealand Climate Leaders Coalition was launched in July 2018 to promote business leadership and collective action on the issue of climate change.

Over 110 New Zealand organisations have joined the Coalition, including Air New Zealand, Westpac, the Warehouse Group, Ports of Auckland, Auckland Airport, Counties Manukau District Health Board and Sky City Entertainment Group.

To mark its first anniversary, the Coalition launched a second higher ambition pledge in July 2019[3]. The revised pledge reflected the need to limit global warming to 1.5 degrees Celsius and aligned with the Government's zero carbon ambitions.

Auckland Council, Auckland Transport, Watercare and Panuku have been members of the Climate Leaders Coalition since September 2018 and have set measures to mitigate operational greenhouse gas emissions whilst also delivering on the Coalition's broader commitments.

3 https://www.climateleaderscoalition.org.nz/about/2019-statement

## Ngā takohanga ā-whaitua
## Regional commitments

Our regional commitments include:

- the Auckland Plan 2050
- the Māori Plan.

### The Auckland Plan 2050

The Auckland Plan 2050 is our long-term spatial plan to ensure Auckland grows in a way that will meet the opportunities and challenges of the future. It is required by legislation to contribute to Auckland's social, economic, environmental and cultural wellbeing.

The plan outlines the big issues facing Auckland and recommends the way in which Aucklanders and others involved in the future of Auckland can best respond to them. The Development Strategy and six outcomes set Auckland's strategy to 2050. They consider how we will address the key challenges of high population growth and environmental degradation, and how we can ensure shared prosperity for all Aucklanders.

Within the Auckland Plan 2050, climate change is one of the three key challenges facing Auckland. Further detail is provided in the Environment and Cultural Heritage Outcome.

It is clear however, that action on the priorities detailed within Auckland's Climate Plan will deliver opportunities and benefits across each of the Auckland Plan 2050 outcomes, not just Environment and Cultural Heritage. Action within the Transport priority for example supports the directions and focus areas outlined in the Transport and Access outcome of the Auckland Plan 2050, whilst the Built Environment priority has strong links to both the Homes and Places outcome and the broader Development Strategy.

*Auckland Plan 2050 Overview*

## The Māori Plan

The Māori Plan for Tāmaki Makaurau / Auckland was developed by the Independent Māori Statutory Board as a record of what Māori in the region said was important to them. The Māori Plan provides a framework for understanding Māori development aspirations and sets measures for monitoring progress towards desired cultural, economic, environmental and social outcomes for Māori.

The Māori Plan sets out five key directions that reflect the overarching goals or aspirations that Mana Whenua and Mataawaka want for their iwi:

- Developing Vibrant Communities
- Enhancing Leadership and Participation
- Improving Quality of Life
- Promoting a Distinctive Māori Identity
- Ensuring Sustainable Futures.

There are also 49 focus areas within the plan that detail specific issues, for example papakāinga or marae development, which mana whenua and mataawaka highlighted as being important to them. These focus areas contribute to the overall achievement of a set of high-level Māori outcomes that Māori are seeking.


## Te Reo Rangatahi

## Rangatahi voice

Throughout the development of the plan, over 100 rangatahi have provided their voice and input through a series of events and wānanga.

This section has been developed by rangatahi to highlight their unique and critical role in addressing climate change. It identifies strategic actions rangatahi see as vital to ensure we address climate change in a fair way.

Rangatahi have identified the value of ka noho teina te tangata, ka noho tuakana te taiao as a core philosophy that guides our kaupapa and tikanga in this climate space.

Through this foundational philosophy, rangatahi have identified strategic action areas.

### Kawa: Ka noho teina te tangata

Our generation has a unique and critical role to play in reviving the practices and customs that support transformative change to happen in relation to climate change, building our current and future resilience.

**"Ka noho teina te tangata"** captures an ancient belief system, articulated through our indigenous creation stories; that Ranginui cohabitated with Papatūānuku. From this union births the natural world and all within, including humanity. This solidifies our co-existence and interdependence with nature.

**"Ka noho teina te tangata"** affirms the importance of whakapapa as our traditional system that measures our standards of behaviour, sense of belonging and sense of responsibility. This reaffirms and acknowledges the antiquity of 'te taiao' in contrast to the existential infancy of 'te ira tangata'.

**"Ka noho teina te tangata"** is a whakataukitkī suggesting, in order of priority, that we must:

- *ka noho* – be still, be prepared, be present, be observant
- *teina* – actively understand our infancy, be reminded of our position, know our place
- *te tangata* – then interact accordingly.

As a generation our natural disposition as teina, within the constructs of whānau and society, perfectly positions us to better understand the expectations derived from "ka noho teina te tangata".

We accept and declare our role and responsibility in climate action and resilience is to restore and protect intergenerational equity.

This calls for urgent transformation and behavioural shifts that ensure governance, decision-making, monitoring, accountability and action must be rangatahi-led, founded in the philosophies of 'ka noho teina te tangata'. For how we respond to climate change today, determines how future generations are impacted by climate change tomorrow.

## Kaupapa: Indigenous framework

Climate resilience is secured by re-lensing the narrative surrounding climate change. Focusing on these four pou guides our ability to maintain the integrity of '*ka noho teina te tangata'.*

### Whare

The omnipresent nature of this pou refers to "ngā tohu o te rangi, ngā tohu o te whenua" – the all-encompassing eco-systems that exist within our universe, both celestial and terrestrial. Manifested as tohu within the environment, 'whare' disciplines our attention to the greatness of nature and provides a means by which we can evaluate the vitality of the tangible ecosystems of kai, wai and whenua.

### Wai

Wai is a universal connector, which possesses mauri and sustains all forms of life. Wai depicts the deep connection between the environment, the celestial and the people. Whilst whenua sustains physically, wai grounds the individual's identity (Ko wai au?). The way that we move and connect must be reflective of the ebb and flow of waters across Tāmaki.

### Whenua

Whenua solidifies the physical dependence of each individual to the land, both in our connection to whenua (placenta) as the source of sustenance, and to the earth (whenua) as a source of sustenance. In ensuring the health and sustenance of our whenua, we safeguard the wellbeing of all ecosystems within. Whenua manifests in our role of practicing kaitiakitanga.

### Kai

Kai is the transmitter of systems of sustenance. It allows for the retention of indigenous knowledge which reinforces the inextricable link between interdependent ecosystems. This affirms our responsibility to ensure sustainable and regenerative food systems, in accordance with geographically local indicators of the land.

## Tikanga: Te Nanakia a Māui (Innovation waka)

Climate actions today will survive futures when we are capable of changing as fast as change itself. This depends on our ability to '*ka noho teina te tangata'* and be haututu (explorers and disruptors).

*"Te nanakia a Māui"* refers to the mischievous and adventurous nature of Māui. Spoken throughout Polynesian narratives, Māui is a common ancestor renowned for his trickery, curiosity, self-confidence, resolve and innovative wisdom who, in concern of comforting future generations, altered the climate forever.

According to whakapapa, the sense of innovation derives from ancestors like Māui. Instinctively rangatahi attain *"te nanakia a Māui"* and are active disruptors, heretics, radicals, and mavericks. These are qualities vital to leading and transforming climate action.

The innovation waka depends on our collective ability to celebrate and nurture the innate desire of rangatahi to operate at the edge of current thinking, espouse unorthodox views, question existing practice and open new fields of inquiry.

Ultimately, all scales of government and society must contribute to intergenerational equity and the delivery of *'ka noho teina te tangata'*, led by rangatahi, as the tool that transforms our praxis of climate action and resilience, shifts us into innovation and supports us to move in the right direction as quickly as possible.

Our learning, from working together as individuals, organisations, communities and agencies, to develop this framework, has been dependent on our preparedness to actively realise intergenerational equity. As we collectively embark on this journey for climate action and resilience, rangatahi are uncompromising in the philosophies of *'ka noho teina te tangata'*.

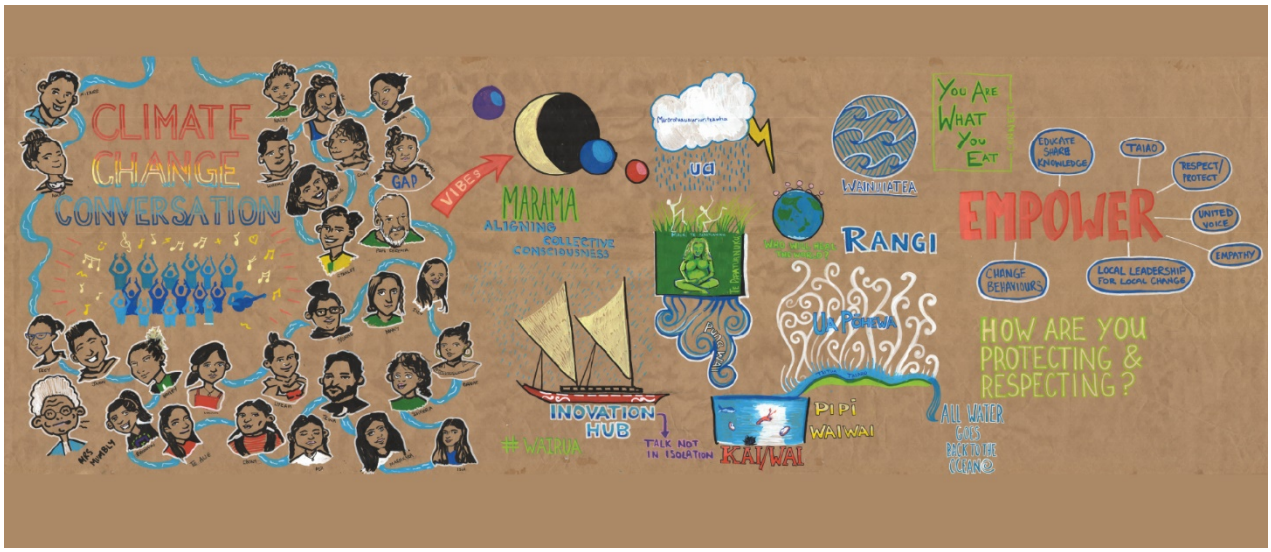
## Ngā Mahinga: Ko Tā Mātou Kaupapa Rautaki

## Ngā Mahinga: Our strategic agenda

Informed by the framework we have curated four strategic actions that prioritise climate action and resilience.

Each action includes:

- **support:** through council process and practice and enabling access to the right tools at the right time, in the right way
- **endorse:** through your words and actions, rangatahi are enabled and encouraged to deliver in their own ways
- **resource:** through financial, pro-bono, and products so that we can do our work
- **ka noho – wairua / ngākau:** our raising agent of care that causes spiritual and emotional attachment
- **teina – hinengaro:** our determinant of transforming understanding and relationship
- **te tangata – tinana:** our physical interaction.



## Strategic action 1

### Support, endorse and resource the establishment of a rōpū that enables us to put the indigenous framework into action

***What this means in practice*** *– form an intergenerational collective, that is rangatahi-led, to act as a channel between council and stakeholders. The purpose of the collective is to manage activities to support climate action and resilience.*

1. Phase One: Establish trust and rapport through a series of wānanga that facilitates collective consciousness and a common agenda.
2. Phase Two: Develop an indigenous measurement tool to support management, prioritisation, and measurement of the state of progress against the indigenous framework.
3. Phase Three: Using a collective impact model, establish a term of reference for working between the intergenerational collective, council and stakeholders.
4. Phase Four: Establish rangatahi rōpū (group) to create a collective impact movement for change (that supports bringing climate justice and resilience actions to life). Members represent key Atua māori that are most impacted by climate change.

## Strategic action 2

### Support, endorse and resource the restoration of 'te mauri o te wai' in accordance with our indigenous measurement tool

***What this means in practice*** *– enabling capability and capacity for ancient knowledge sharing, transformational education approaches and action that rejuvenates and regenerates our natural water systems within the Tāmaki Makaurau region.*

Sub Actions:

1. **'Ka noho' – wairua and ngākau:** Assist mana whenua to re-educate themselves, regenerate and recapture local pū rākau, waiata, mōteatea, haka and other narrative stories through various media.
2. **'Teina' – hinengaro:** Re-educate communities and organisations across Tāmaki Makaurau, and abroad, by developing materials and providing permanent platforms and opportunities for local narratives to be shared.
3. **'Te tangata' – tinana:** Promote, progress and fund current and emerging initiatives, programmes and groups who are actively committed to the restoration, sustainability, and protection of water systems within their communities.

## Strategic action 3

### Support, endorse and resource the relationship between tangata (people) and whenua (place) in accordance with our indigenous measurement tool

**What this means in practice** – actively partnering with hapū, iwi and recognised organisations to co-design and implement reconnection programmes for rangatahi and their whānau.

Sub Actions:

1. **'Ka noho' – wairua and ngākau:** Assist rangatahi and their whānau to reconnect with their own pepeha and the pepeha of Tāmaki Makaurau.
2. **'Teina' – hinengaro:** prioritise ancient wisdom and cultural perspectives in co-designed programmes that address climate change issues and inspire climate action.
3. **'Te tangata' – tinana:** Promote, progress and fund current and emerging initiatives, programmes and groups who are actively committed to the restoration, sustainability, and protection of interaction between tangata and whenua systems within their communities.

## Strategic action 4

### Support, endorse and resource food sovereignty in accordance with our indigenous measurement tool

**What this means in practice** – reconnecting people of all ages to where our sustenance comes from - how it grows and how we can be more resilient when we understand this.

Sub Actions:

1. **'Ka noho' – wairua and ngākau:** Assist rangatahi to reconnect with mātauranga Māori to nurture skills and awareness around what it means to be self-sufficient.
2. **'Teina' – hinengaro:** Enable educational programmes focused on reviving ancient Māori food practices as a way to help rangatahi and their whānau understand self-sovereignty beginning with food sovereignty.
3. **'Te tangata' – tinana:** Promote, progress and fund current and emerging initiatives, programmes and groups who are actively committed to the restoration, sustainability and protection of food sovereignty systems within their communities.

# Te Tiriti o Waitangi
# The Treaty of Waitangi

## Treaty principles and Auckland Council

Auckland Council is a delegate of the Crown exercising powers of local government in Auckland. It has statutory obligations to Māori in order to recognise and respect the Crown's responsibility to take appropriate account of the principles of the Treaty.

The Treaty is articulated in law through an evolving set of principles.

Treaty principles have been expressed and recognised through a range of courts and the Waitangi Tribunal. They are not exhaustive, and it is recognised that other principles may be developed with time.

They must be considered holistically rather than separately due to the overlaps and synergies between them.

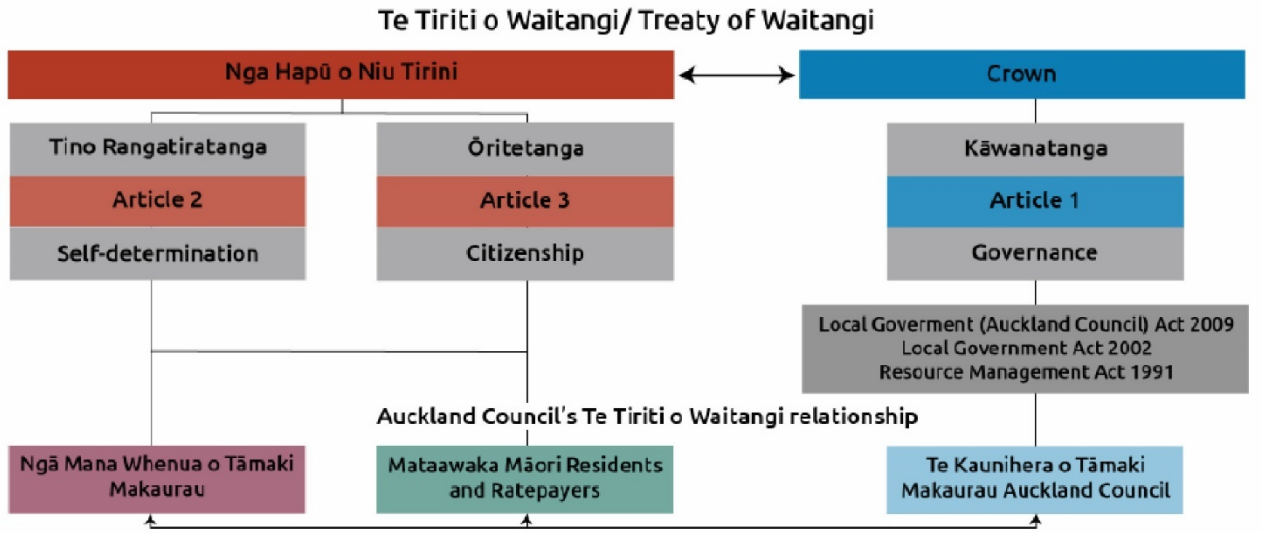
The following principles are relevant to local government:

- partnership
- active protection
- rangatiratanga
- reciprocity
- mutual benefit
- options
- right of development
- redress
- informed decision making.

Te Tiriti / the Treaty is a guide for how Auckland Council fosters more positive and productive relationships with Auckland's Māori.

Whiria Te Muka Tangata is Auckland Council's Māori Responsiveness Framework. It brings together the council's commitments and obligations to Māori. This enables Auckland Council to ensure that it considers how its policies and actions recognise and protect Māori rights and interests, and contribute to Māori needs and aspirations.

*Auckland Council's Te Tiriti o Waitangi relationship*



The Independent Māori Statutory Board was established in Auckland and has specific responsibilities and powers under the Local Government (Auckland Council) Amendment Act 2010.

The Board's mission is to advance the interests of Māori in Tāmaki Makaurau by:

- helping Auckland Council to make decisions, perform functions and exercise powers that improve outcomes for Māori
- promoting cultural, economic, environmental, and social issues of significance to Māori.

The board also ensures that Auckland Council follows statutory provisions relating to Te Tiriti o Waitangi.

## Te Wānanga Kaitiaki Mana Whenua

### Mana Whenua Kaitiaki Forum

The Mana Whenua Kaitiaki Forum is a governance forum of the 19 hapū and iwi authorities of Tāmaki Makaurau.

The vision of the forum is for mana whenua and mataawaka to be thriving and leading in Tāmaki Makaurau. Their mission is to partner on all collective decisions that shape Tāmaki Makaurau.

Their partnership approach is guided by five pou:

- governance: Te Tiriti partner
- culture and identity: seen, heard, felt and celebrated
- natural environment: te taiao, te wai, te hau are thriving and cared for
- wellbeing: whānau are happy, healthy, thriving, and achieving
- economic: economic force at the whānau, hapū and iwi levels.

## Te Anga Oranga o Te Ora o Tāmaki Makaurau

## Te Ora ō Tāmaki Makaurau Wellbeing Framework

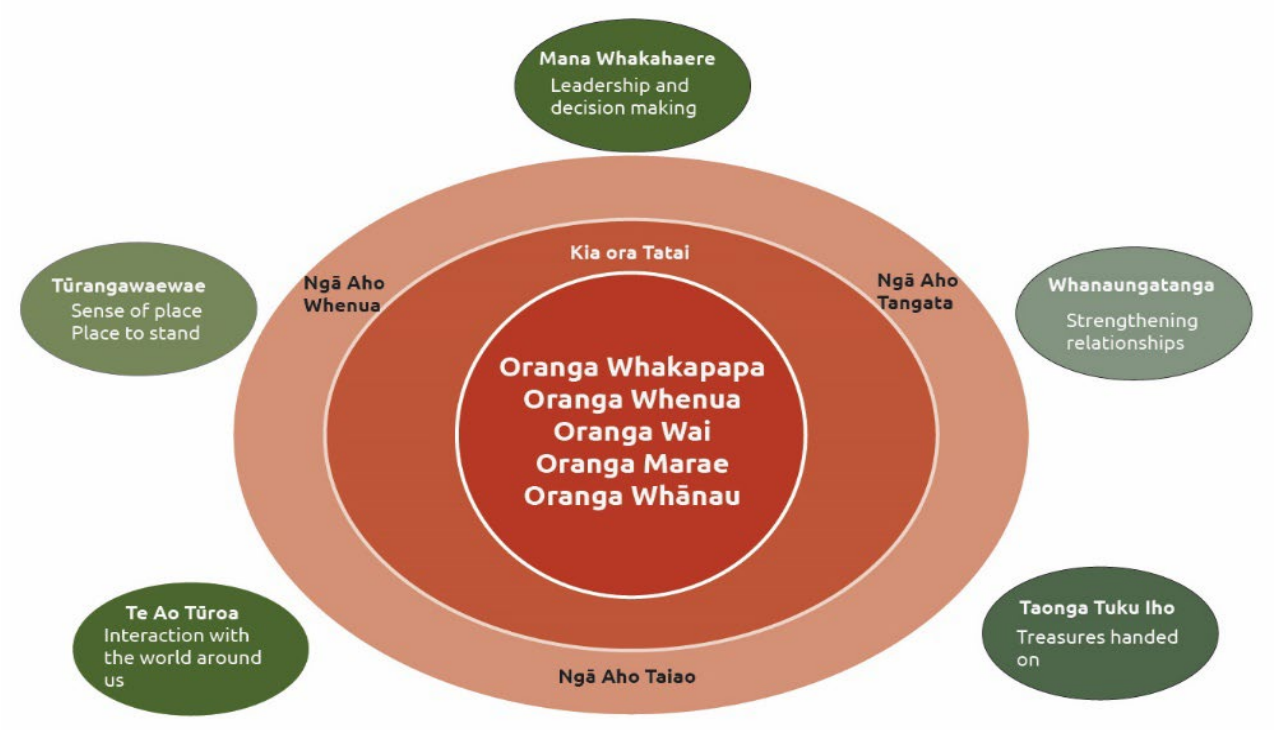
Te Ora ō Tāmaki Makaurau is the well-being framework developed by the Mana Whenua Kaitiaki Forum in response to Te Tāruke-ā-Tāwhiri.

Within the framework, Kia Ora Te Tātai describes the world as a dynamic and complex ecosystem of whakapapa interconnections and interdependencies. All things – people, birds, fish, trees, weather patterns – are members of a cosmic family. Humans not only depend on ecosystems, but also influence them.

There are key linkage points between Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan and Te Ora ō Tāmaki Makaurau, which will allow them to be used together. The wellbeing framework is a regional innovation that is built on generations of knowledge and reflects the world view of the various mana whenua iwi, rangatahi Māori and Māori communities of Tāmaki Makaurau.

Descending from Kia Ora Te Tātai are three dimensions of well-being. These dimensions can frame our understanding of an ecosystems or whole living systems approach to health and wellbeing.

*Te Ora ō Tāmaki Makaurau Wellbeing Framework*



## Ngā Aho Taiao

The ability and capacity of te taiao to sustain and maintain whole living systems and regenerate its own mauri, while contributing to the mauri of people and land.

## Ngā Aho Whenua

The ability and capacity of the whenua to sustain and maintain whole living systems and regenerate its mauri, while contributing to the mauri of people and nature.

## Ngā Aho Tangata

The ability and capacity of tangata to sustain and maintain their mauri, while contributing to the mauri of the land and nature.

For mana whenua, this relates to their ability and capacity to maintain, sustain and regenerate their specific whakapapa relationships with land, nature and people of Tāmaki Makaurau.

For Māori communities, this relates to their ability and capacity to maintain, sustain and regenerate whānau and community well-being within Tāmaki Makaurau.

## Māori values and principles

A Te Ao Māori lens can frame our thinking about and approaches to climate change. It also ensures the notion of taiao, whenua and tangata remain an important focal point for all climate change related decisions.

Our Te Ao Māori lens is structured around core Māori values and principles derived from Māori views of the world. These values and principles provide an insight into Māori concepts and beliefs anchored upon intergenerational symbiotic relationships between people, place, nature and the wider universe (whole living systems) and the reciprocal responsibilities and obligations to care for, protect, activate, maintain and regenerate these whakapapa relationships.

The values and principles in the well-being framework are:

- manaakitanga
- kaitiakitanga / tiakitanga
- whanaungatanga
- rangatiratanga
- mātauranga
- ōritetanga
- tōnuitanga.

These values and principles when applied, can also be categorised as Ngā Mahi a te Ora / Well-being Activities.

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*Ngā Ara Whakaahua Matua: Transformational priority pathways for Tāmaki Makaurau*

| Immediate / Short-medium shifts | | Big shifts / Big opportunities | | |
|---|---|---|---|---|
| **Recalibrate business as usual** | **Drive systemic change** | **Regeneration of ecological systems** | **Shift from a carbon dependent city and region** | **Shift to regenerative economy underpinned by kaitiakitanga** |
| Existing activities and programmes are reviewed and re-calibrated to align Te Tāruke-ā-Tāwhiri Auckland's Climate Plan priorities. | Educate and prepare whānau, Māori communities, Māori landowners, marae, Māori sector organisations and businesses, and iwi for a systems shift. | Kaitiakitanga – stewardship centred / mana whenua underpinned and led, collaborative partnerships between mana whenua, council, Crown and communities anchor the regeneration of ecological systems. | Tāmaki Makaurau / Auckland no longer relies on fossil fuels to function. | Tāmaki Makaurau/ Auckland leads by example in a regenerative economy that transforms the ecological, social, cultural and economic well-being of Tāmaki Makaurau. |
| **ISSUE: Existing systems, strategies, plans and programmes are not climate resilience ready.** | **ISSUE: Readiness and preparedness of Māori for the shift to a climate resilient system.** | **OPPORTUNITY: Transformation of ecological, social and cultural wellbeing through the regeneration of symbiotic-whakapapa systems.** | **OPPORTUNITY: Reduction of emissions and co-design innovative solutions** | **OPPORTUNITY: Kaitiakitanga values underpin our economy** |

| Immediate / Short-medium shifts | | Big shifts / Big opportunities | | |
|---|---|---|---|---|
| **Recalibrate business as usual** | **Drive systemic change** | **Regeneration of ecological systems** | **Shift from a carbon dependent city and region** | **Shift to regenerative economy underpinned by kaitiakitanga** |
| ACTIONS:<br>• collectively review and recalibrate all existing legislation, strategies, and policies<br>• use of mātauranga Māori as a fundamental evidence base and foundation<br>• invest in practical expressions of kaitiakitanga<br>• celebrate the abundant wealth and resilience of Māori | ACTIONS:<br>• mātauranga Māori plays an equal role in decision-making<br>• establish a Māori Sustainability Office / Think Tank for the Mana Whenua Kaitiaki Forum<br>• establish Mana Whenua supported rangatahi group (intergenerational)<br>• establish an online Māori knowledge and information portal<br>• preparing and educating Māori communities, businesses and landowners for change<br>• promote new ways of collective action | ACTIONS:<br>• restore, rejuvenate and replenish our repo (wetlands), for example, by using whole of catchment for decision-making<br>• restore and rejuvenate our moana (seas and harbours)<br>• restore, rejuvenate and replenish our puna wai (freshwater springs)<br>• restore, rejuvenate and replenish of mahinga kai (food production) | ACTIONS:<br>• use our dual knowledge systems to determine what a fossil fuel free future could look like for Tāmaki Makaurau<br>• invest in opportunities for innovation and green technology<br>• improve existing systems for waste, energy, land use and transport)<br>• enable whānau to prosper, be resilient and strong as we transition away from carbon dependence | ACTIONS:<br>• embed a resilient living systems approach, into the Tāmaki Makaurau economy<br>• use our dual knowledge systems to transition and transform Tāmaki Makaurau<br>• support innovation through the application of Māori values and mātauranga Māori<br>• education & training programmes for a regenerative economy |

## Manaakitanga

Reciprocal relationships include mana whenua, mataawaka and all people in the context of Tāmaki Makaurau. Whakapapa relations of ira Atua, whakapapa rights of mana whenua, and customary rights to Māori. The point of difference is the mana whenua relationship to the natural environment that gives mana whenua the obligation.

The Mana Whenua Kaitiaki Forum takes the view that our rapidly changing climate and its impacts tell us that we need to approach the issues in a fundamentally different way. The Forum calls for the acknowledgement of a worldview that places the environment before people, to coalesce in harmony, in and of service to one another.

The Forum recognises the danger and challenges of climate change and is committed to working with iwi, hapū and marae, central and local government, and other agencies and stakeholders to keep warming below 1.5 degrees. In particular, the Forum is concerned for:

- the responsibility of mana whenua to care for the large and growing population of Tāmaki Makaurau
- the specific policy focus that such a large population requires
- rapid population growth
- the vulnerability of human and ecological systems as climate change impacts increase.

Alongside these concerns the Forum sees the opportunity for Māori to participate in the move to a blue-green economy and will actively pursue these opportunities.

## Kaitiakitanga

Kaitiakitanga for mana whenua is centred on the symbiotic whakapapa relationship with the natural environment. As tāngata our responsibilities to tupuna, Atua and mokopuna as kaitiaki in the ira tangata context, we become the human voice to the Atua through the tohu.

Kaitiakitanga is the ethics and practice of protection and conservation of the natural environment and the resources within it, on which people depend. It is considered an obligation of mana whenua to care for their lands and waters to which they whakapapa (have a genealogical relationship). For this reason, kaitiakitanga is concerned with maintaining a natural and appropriate balance.

We need to understand the role of people in the world within the balanced framework of both ira Atua and ira tangata and the significance of the practice of kaitiakitanga for everyone. Stories, traditions, philosophies and values passed down from generation to generation underpin this ao Māori view.

Māori do not see themselves as separate from the natural world, rather that they are related through whakapapa, whereby all elements, living or otherwise descend from Papatūānuku, Ranginui and their children. Accordingly, the Māori worldview is distinct from a Western one, in which mankind has dominion over the world. For Māori, the use of natural resources is subject to kinship obligations and thus a symbiotic and reciprocal relationship exists.

## Tōnuitanga

Māori have had to bear the negative impacts of colonisation, westernisation and urbanisation for over 160 years within Tāmaki Makaurau. Any response to climate change needs to consider the impacts on Māori and, in particular, mana whenua.

Our collective response to climate change needs to enable sustainable circular Māori economic development and growth and encourage innovation across Māori business ecosystems. A key outcome is to focus on lifting whānau Māori from poverty and transform the conditions of wellbeing with whānau.

## Mātauranga Māori

Mātauranga Māori – Māori knowledge systems and practices hold a key to climate change response. Mātauranga Māori is community-based and collective knowledge that offers valuable insights that complement western scientific data with chronological and landscape specific precision and detail. This is critical to verifying climate models and evaluating change scenarios.

Māori knowledge systems and practice provide a strong foundation for community-based adaption and mitigation actions. Mana whenua have been able to observe and interpret change through the environment within Tāmaki Makaurau over many generations.

## Whakapapa

Mai i te rangi, ki te whenua, ko tātou, te ira tangata kei waenga.

From the heavens, to the earth, and then, there we are, the human element in the middle.

We, the human element, te tangata inhabit the space between Ranginui and Papatūānuku.

Our space was created by their children. They form the natural realms and the life-forms that inhabit them. These elements are connected by whakapapa that weaves through their wairua. These connections and whakapapa surround, extend and give rise to tangata whenua, the human element, and our individual experience in the world.

Ira is the word representing these connections that link toward an element and the identity that comes into existence through this whakapapa. Ira tangata is the life principle of the human element, our genetic code, our genes and the spiritual flow of energy and matter from which our individual consciousness emerges.

Each of these connections and patterns are unique, they are the products of the place from which they emerge and remain closely connected. They become the people of the place and the connections that ground them to the whenua. These individuals act in a social, political, economic and spiritual environment, behaving in predictable ways. They have a personality and their character is known to others. However, individuals can also make decisions. They have space for free will, to develop their own preferences and act upon them.

These decisions and actions are not always consistent with the whakapapa from which they are born, or their kaitiaki. As kaitiaki, the human element in the world is an active guardian. It is our obligation and whakapapa that we should nurture and protect the physical and spiritual wellbeing of the natural systems that gave birth to us and supports us.

We are charged with this responsibility until future generations can carry it forward. To care, nurture, connect and safeguard the natural world, the human element must understand our lineage from the natural world, our position within the natural world, and the relationships that weave us into it. This is a deliberate positioning of the human element as being interrelated with everything within the cosmos. It recognises that the human element has a role within the cosmos, but it is not beyond reproach.

The human element has a role as kaitiaki, but if we do not perform that role, the mauri of the spiritual and physical relationships they were born to will dissipate along with its mana. We are subject to the mauri and mana of our kaitiakitanga in the cosmos, and we are mortal. If our kaitiaki has insufficient mauri and mana, our role in the cosmos will fade and vanish. Our whakapapa will be broken and lost. The cosmos will continue and the relationships amongst the natural realms will adjust in our absence. Whakapapa connects all of us, tying us all together. It reminds us of our mortal position in the natural world and how its relationships constitute and sustain us. This reminder needs to be acted upon if we are to continue to have our tūrangawaewae and for humanity to thrive.

Our environmental and sustainability challenges in our ever-changing world, specifically climate change, tell how our behaviour is inconsistent with our kaitiaki responsibilities. The whakapapa and mauri that hold us and our shared ecology together is 60 being degraded. This risks our existence as we have known it. We must remember what is important and we must change our behaviour or we and the world we know will be lost.

The tools to help us change our behaviour are where we left them. They are in our pūrākau and whakataukī. The stories and legends about the relationships that bind us to the natural world, of our dependencies and vulnerabilities, our position and role as caretakers and kaitiaki. The language we use and what we tell ourselves and others is important. The stories and narratives we share with each other and the values and meanings they carry weigh on us and shape us. They shape who we are, what we value, and the choices we make. This behaviour then influences the behaviour of those near to us, and those near to them.

These values ricochet about people, evolving and creating a culture and humanity that individuals identify with and feel they belong to. These are paradigms and epistemologies become mātauranga and become the whakapapa of a people. They are taonga. Importantly, how this ancestral knowledge becomes interpreted in each valley, coastline and community is specific to the whakapapa of that place.

Mana whenua share high-level whakapapa, but how this relates and connects to their own identity and place is unique and shared through their own pūrākau and whakataukī. This grounding is important as the connections and whakapapa that weave each community and whānau into the natural world are unique, and so must be their pūrākau.

Ira tangata offers modern humanity a paradigm through which it might rediscover itself, its position, its role and the relationships that weave it into the natural world. Ira tangata is ancient mātauranga and wisdom. It complements modern philosophies and evidence-based forms of knowing that have dominated the last few centuries of humanity's industrialisation and its subsequent discovery of environmental disaster and the emergency of our rapidly changing global and local climates. Ira tangata is an important part of our change, but it needs governing support.

Our tikanga and whakataunga, our rules, regulations and legislation needs to support the framework. They need to facilitate its proliferation while consolidating the progress our people and culture make within it. As our kaitiaki strengthens, our rules need to ensure that this strength is the new normal and the benchmark from which further mauri is fostered.

There will be times when our leaders need to decide and act to protect and enhance mauri before everybody is ready. Actions to keep climate change below 1.5 degrees Celsius of warming and to adapt to its impacts may be one of these times.

## Te pātuitanga o ngā mana whenua me te kaunihera mō te huringa āhuarangi

## Mana whenua and council partnership for climate change

Te ao Māori acknowledges the interrelationship of all living and non-living things and the interconnectedness of taiao and tangata.

A te ao Māori perspective can help us identify ways to adapt and prepare for climate change, and to change our practices to reduce the impacts of climate change.

In the Tāmaki Makaurau context, a te ao Māori perspective guided by mana whenua is fundamental to navigate and develop Auckland's approach to acting on climate change. The council has understood and honoured this, partnering with mana whenua iwi of Tāmaki Makaurau in the development of the plan.

In the early stages of planning, all mana whenua iwi of Tāmaki Makaurau were invited to take part in workshop hui to input into scoping the action areas for the public consultation document.

These and other early interactions with mana whenua iwi shaped the action areas in the first consultation document, now referred to as priorities, and set the foundation for how the plan has developed with input from mana whenua and other rōpū Māori.

The Mana Whenua Kaitiaki Forum, a collective of the 19 hapū and iwi authorities of Tāmaki Makaurau, worked closely with the council throughout the development of the plan.

The forum set up a working group with representatives from the forum, the council, and Māori subject matter experts to focus on supporting the development of climate actions for Tāmaki Makaurau. This partnership has been instrumental in ensuring the incorporation of kaupapa Māori and mātauranga a-iwi values and principles into the plan from the outset.

The council and forum partnership also supported the contribution of a Māori subject matter expert rōpū and rangatahi Māori rōpū to contribute and take part in the development of the plan.

During the consultation phase of the plan, mana whenua and the council piloted a parallel engagement approach to support and activate Māori communities on climate change issues.

With direction from the Mana Whenua Kaitiaki Forum, an intergenerational whakapapa centred approach was undertaken to support whānau to reconnect with the atua and, ultimately, their responsibility to care for taiao.

The shared goals of this partnership approach were to:

- share mana whenua and Māori narratives of climate change
- provide Māori communities with a greater understanding of climate change
- provide Māori communities with places to share their whakaaro of climate change
- increase Māori engagement and feedback on the draft plan during the council's consultation period
- seek out and secure opportunities for collective activations in the short and long term.

To seed the kōrero of climate change action with Māori in way that was meaningful and accessible for Māori, mana whenua iwi were given the opportunity to lead wānanga, hui and other community activations in their rohe. These activations included:

- local and sub-regional events at marae, hosted by mana whenua and community partners
- rangatahi-led activations
- social media, radio and online campaigns
- linking up with existing events, such as Hīkoia te kōrero and Poukai.

Feedback from these activations helped the council to make some immediate improvements to the formal consultation process, including the development of different consultation submission forms that acknowledge the needs of different Māori communities and audiences.

The breadth and depth of engagement with Māori and Māori communities that was achieved as a result of this partnership approach was a council first, setting a new benchmark of 25 per cent Māori consultation response through formal submissions.

## Ohotata āhuarangi
## Climate emergency

We are seeing millions of people around the world strike, led by youth calling for a safe climate future.

People across Aotearoa have called for decisions and action to protect our regions and our planet from the impacts of climate change.

In June 2019, Auckland Council responded to this call and the irrefutable evidence of climate change by declaring that our region is facing climate emergency.

By declaring a climate emergency, the council commits to:

- incorporate climate change considerations into work programmes and decisions
- provide local government leadership in the face of climate change, including collaborating with local and central government partners advocate for greater central government leadership and action on climate change
- increase the visibility of our climate change work
- lead by example in monitoring and reducing its greenhouse gas emissions
- include climate change impact statements on all council committee reports.

Responding to the climate emergency will require rapid and transformational change in how we live, work and travel. Our eight priorities identify the actions we need to take in our emergency response.

# Te whakaheke iho i tā tātou tuku hauhā
# Reducing our emissions

Our goal is to reduce our greenhouse gas emissions by 50 per cent by 2030 (against a 2016 baseline) and achieve net zero emissions by 2050. This will need bold and ambitious action by everyone.

## Tō tātou ara whakamua o nāianei mō te tuku hauhā
## Our current emissions pathway

Between 2009 and 2016, Auckland's gross greenhouse gas (GHG) emissions increased by over 5 per cent, while net GHG emissions reduced by 1 per cent due to increased carbon sequestration from forestry.

In 2016, Auckland's gross GHG emissions were 11.3 million tonnes of carbon dioxide equivalent ($MtCO_2e$). Carbon sequestration from forestry, where carbon dioxide is removed from the atmosphere and stored in trees, reduced this figure by around 10.5 per cent resulting in net GHG emissions of 10.1 $MtCO_2e$.

Under a 'business as usual scenario', without additional action to reduce emissions, Auckland's net greenhouse gas emissions are expected to increase by around 19 per cent by 2050 to 12.4 $MtCO_2e$. This is clearly at odds with Auckland's climate goal of net zero emissions by 2050. The 'business as usual' scenario reflects estimated population growth and growth rate assumptions across sectors and activities.

## He kōrero mō tā Tāmaki Makaurau tuku i te haurehu kati mahana
## Auckland's greenhouse gas emissions profile

GHG emissions produced in Auckland can be broken down in to five key sectors.

The emissions data is from Auckland's Greenhouse Gas Emissions Inventory 2016 the latest data available at the time of writing.

### Transport

This sector consists of emissions from private and light commercial vehicles, trucks, buses, trains, ferries and other ships and aviation.

This sector is Auckland's biggest source of emissions at 43.6 per cent of our total emissions, with 86 per cent of this from travel by road.

### Stationary energy

This sector includes emissions from energy consumption in buildings, including electricity and natural gas, and energy use in manufacturing and construction.

'Stationary energy' generates 26.6 per cent of Auckland's total emissions.

### Industrial processes and product use

This sector consists mostly of non-energy related greenhouse gases from industrial processes, which in Auckland, are mainly associated with steel production.

GHG emissions from industrial product use are mainly associated with the use of hydrofluorocarbons (HFC's) and perfluorocarbons (PFCs) which are used as refrigerants in air conditioning units and refrigerators.

This sector generates about 20.2 per cent of Auckland's total emissions.

## Agriculture

Agriculture emissions include methane and nitrous oxide from livestock, animal wastes and fertiliser use. Agricultural energy use, such as for heating greenhouses, is classified differently and sits under the 'Stationary energy' sector.

This sector generates about 6.4 per cent of Auckland's total emissions.

## Waste

Emissions from landfilled waste and wastewater treatment are reported for this sector, with emissions from decomposing waste in landfills responsible for most reported emissions.

The 'Waste' sector generates about 3.1 per cent of Auckland's total emissions.

The graph below shows further detail on the activities and associated emissions across these five sectors.

Auckland's GHG emissions profile and the climate actions modelled to develop the illustrative decarbonisation pathway are based on production-based emissions (sector-based emissions), primarily from emissions generated within Auckland's boundary and grid supplied energy.

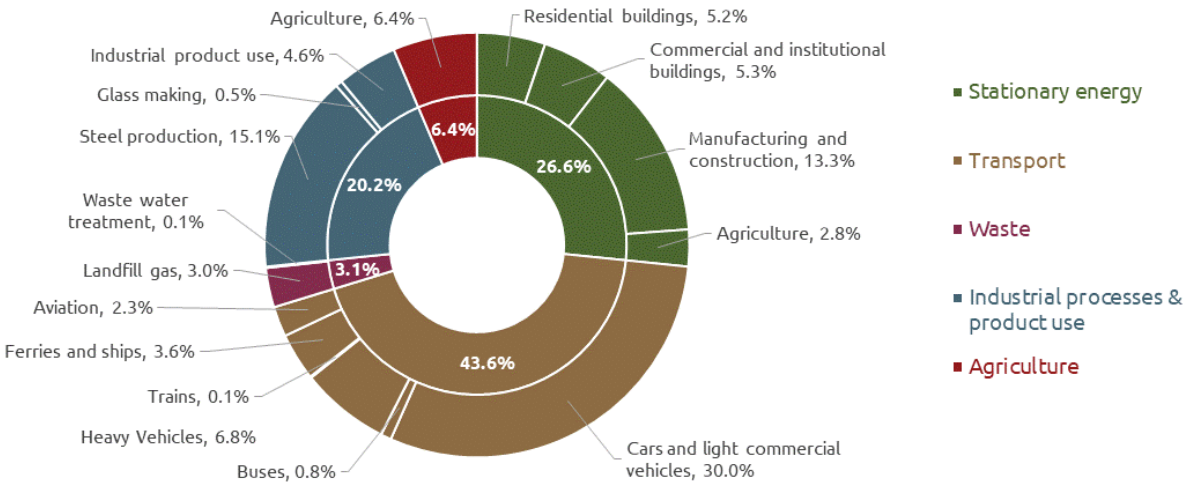
It is also important to consider climate action in the context of consumption-based GHG emissions relating to the consumption of goods and services in Auckland that give rise to emissions outside of Auckland's boundary, e.g. certain construction materials and imported food.

Production-based emissions and consumption-based emissions are accounted for differently and further work is underway to understand Auckland's consumption emissions profile.

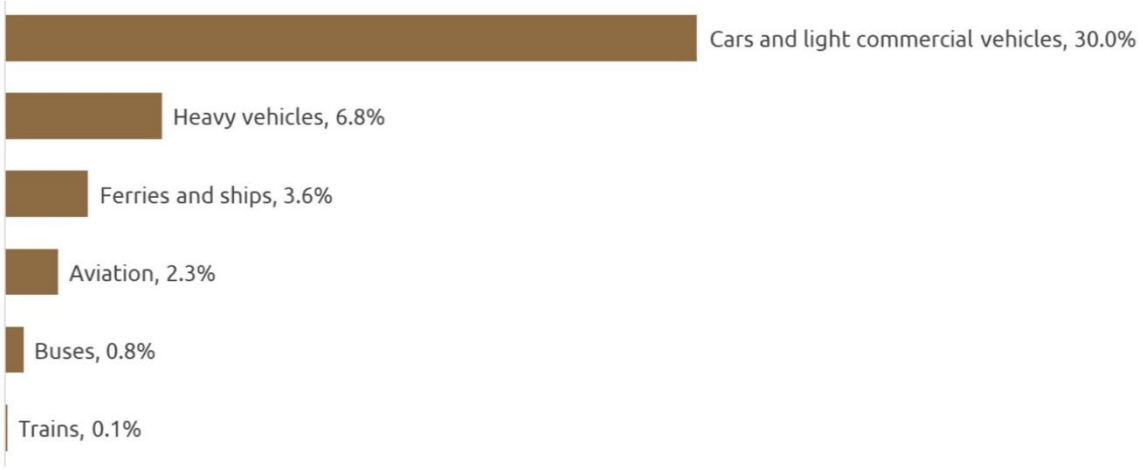
Although our emissions reduction targets relate to production-based emissions, some of the actions in this Plan also focus on reducing consumption-based emissions. This includes several actions in Built environment, Economy, Communities and coast and Food.

Auckland's GHG emissions are reported in line with the Global Protocol for Community-scale Greenhouse Gas Emission Inventories, a robust framework for accounting and reporting city-wide GHG emissions.

*Auckland's greenhouse gas emissions profile (2016)*



*Auckland's greenhouse gas emissions: transport breakdown for 2016*




## Te mahere a Tāmaki Makaurau ki te whakakore i te whakamahinga o te waro

# A decarbonisation pathway for Auckland

One of the main goals of the plan is to reduce emissions by 50 per cent by 2030 and achieve net zero emissions by 2050 (against a 2016 baseline).

This aligns the plan with the objective of the Paris Agreement to limit global temperature rise to well below 2 degrees Celsius above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5 degrees Celsius above pre-industrial levels.

Auckland's emissions need to peak and then rapidly decline to move onto a decarbonisation pathway that meets our climate goals. We need significant, bold action across sectors.

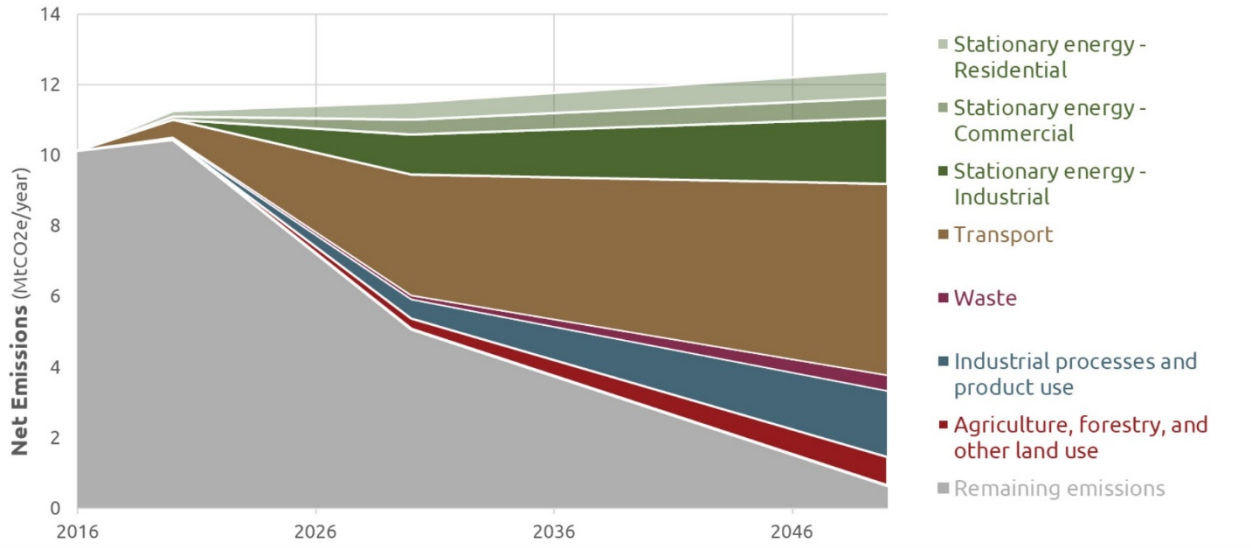
The longer it takes to achieve peak emissions, the steeper and more severe Auckland's emissions reduction pathway will need to be to meet our emissions reduction targets and stay within our carbon budget. Continuing on our current pathway, we are likely to exceed our carbon budget by around 2030.

## Emissions modelling

To develop an illustrative decarbonisation pathway, the CURB Tool (developed by the World Bank in partnership with C40 Cities) and supplementary modelling were used to model climate action across the sectors in Auckland's greenhouse gas emissions profile.

Not all sectors have been modelled to deliver the same level of emissions reductions. This is intentional to reflect the different challenges and opportunities facing each sector. However, our modelling has shown that, to achieve our climate commitments, we need bold, ambitious climate action across every sector.

*Modelled decarbonisation pathway showing net emissions reductions across sectors*



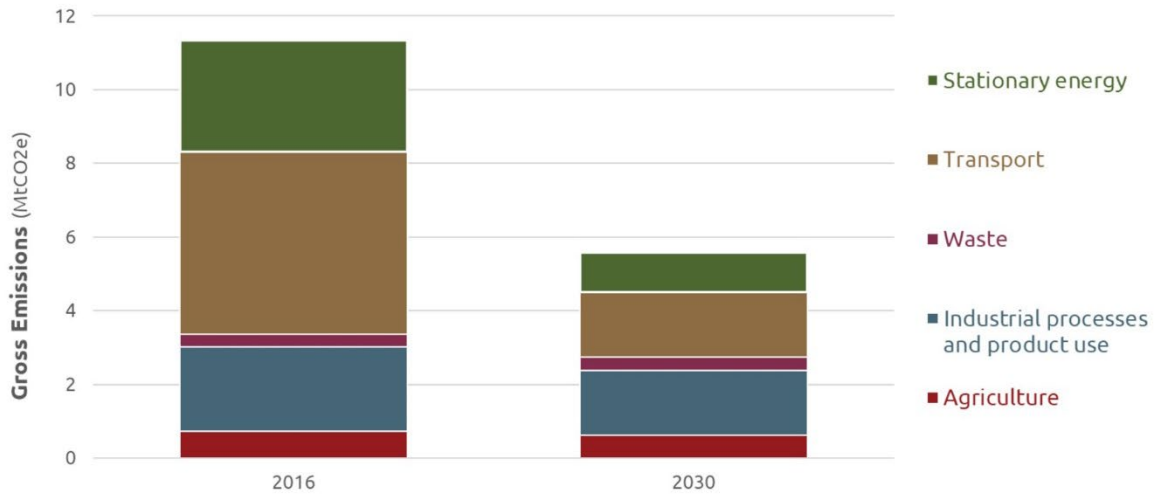

The graph above illustrates one pathway as to how modelled climate actions for each sector could reduce emissions from the business as usual projection (the top line on the graph). This is based on several assumptions, with the level of certainty decreasing over time.

Each coloured band represents the emissions reduction that has been modelled for that sector from 2016 to 2050. Each band subtracts emissions from the business as usual projection. The grey area under the coloured bands represents the total emissions that remain over time (our residual emissions).

*Summary of the data from the illustrative decarbonisation pathway*

| | 2016 | 2030 | 2050 |
|---|---|---|---|
| Auckland's estimated population | 1,614,400 | 2,040,100 | 2,464,100 |
| Business as usual projection: net emissions (MtCO2e) | 10.1 | 11.5 | 12.4 |
| Decarbonisation pathway: net emissions (MtCO2e) | 10.1 | 5.1 | 0.6 |
| Decarbonisation pathway % reduction against 2016 baseline | - | 50% | 94% |
| Business as usual projection emissions per capita (tCO2e) | 6.3 | 5.6 | 5.0 |
| Decarbonisation pathway emissions per capita (tCO2e) | 6.3 | 2.5 | 0.3 |
| Decarbonisation pathway % reduction per capita | - | 56% | 94% |

*Modelled decarbonisation of sectors from 2016 to 2030*




## Residual emissions

Even with ambitious action across sectors, there is likely to be residual emissions in 2050. The illustrative pathway shows approximately six per cent of emissions staying in 2050.

To achieve net zero emissions by 2050, it is likely that additional strategies and new technologies will be required, as well as carbon sequestration, to address these remaining emissions.

This is an issue shared by other C40 cities, who have also identified residual emissions in 2050 in their climate action plans and recognise that additional strategies and technologies will be needed.

We will be monitoring progress against the decarbonisation pathway on an annual basis and updating Auckland's emissions trajectory every three years to keep an up to date estimate of residual emissions.

## Ngā mahi huringa āhuarangi me ngā whāinga paetae

## Climate actions and targets

The targets outlined below provide a summary of the climate actions modelled to develop a decarbonisation pathway for Auckland.

*Modelled Climate Actions and Targets*

| 2030 | 2050 |
|---|---|
| **Buildings** | |
| All new residential and commercial buildings to operate at net zero emissions | |
| Retrofit 50% of existing residential and commercial buildings to a high standard of energy efficiency | Retrofit 100% of existing residential and commercial buildings to a high standard of energy efficiency |
| Replace 75% of gas heaters in existing residential and commercial buildings with electric heat pumps | Replace 100% of gas heaters in existing residential and commercial buildings with electric heat pumps |
| Replace 50% of gas water heaters in existing residential and commercial buildings with electric heat pump water heaters | Replace 100% of gas water heaters in existing residential and commercial buildings with electric heat pump water heaters |
| 40% of new dwellings are in transit-oriented developments | 65% of new dwellings are in transit-oriented developments |
| **Energy** | |
| 94% of grid electricity is renewable - all coal and half of gas-fired power generation replaced with renewable electricity generation | 100% of grid electricity is renewable |
| 20% of residential and commercial buildings installed with solar PV | 50% of residential and commercial buildings installed with solar PV |
| 22% of process heat switched from gas to electricity by 2030 | 50% of process heat switched from gas to electricity by 2030 |
| 42% reduction in process heat emissions as a result of waste heat recovery, high temperature heat pumps, best practice technology and switching from gas to biofuels. | 50% reduction in process heat emissions as a result of waste heat recovery, high temperature heat pumps, best practice technology and switching from gas to biofuels. |

| 2030 | 2050 |
|---|---|
| **Transport** | |
| Vehicle kilometres travelled by private vehicles reduced by 12% as a result of avoided motorised vehicle travel, through actions such as remote working and reduced trip lengths | |
| Public transport mode share to increase from 7.8% to 24.5% | Public transport mode share to increase from 7.8% to 35% |
| Cycling mode share to increase from 0.9% to 7% | Cycling mode share to increase from 0.9% to 9% |
| Walking mode share to increase from 4.1% to 6% | Walking mode share to increase from 4.1% to 6% |
| 100% of Auckland's bus fleet to be zero emission | |
| 40% of passenger and light commercial vehicles to be electric or zero emission | 80% of passenger and light commercial vehicles to be electric or zero emission |
| 18% increase in fuel efficiency of the light vehicle fleet (internal combustion engine) | 25% increase in fuel efficiency of the light vehicle fleet (internal combustion engine) |
| 8% of road freight to shift to rail | 20% of road freight to shift to rail |
| 40% of road freight to be electric or zero emission | 80% of road freight to be electric or zero emission |
| 15% increase in fuel efficiency of the freight vehicle fleet (internal combustion engine) | 25% increase in the fuel efficiency of the freight vehicle fleet (internal combustion engine) |
| **Waste** | |
| Food waste reduced by 30% and 30% of the remaining waste diverted to anaerobic digestion and composting | Food waste reduced by 50% and 100% of the remaining waste diverted to anaerobic digestion and composting |
| Paper/cardboard waste reduced by 30% and 30% of the remaining waste recycled | Paper/cardboard waste reduced by 50% and 100% of the remaining waste recycled |
| Plastic waste reduced by 30% and 30% of the remaining waste recycled | Plastic waste reduced by 50% and 100% of the remaining waste recycled |
| Wood waste reduced by 30% and 30% of the remaining waste incinerated to produce energy | Wood waste reduced by 50% and 100% of the remaining waste incinerated to produce energy |

| 2030 | 2050 |
|---|---|
| 50% of electricity currently imported by wastewater treatment plants is met by internal generation | 100% of electricity currently imported by wastewater treatment plants is met by internal generation |
| **Industrial processes and product use** | |
| 23% reduction in GHG emissions from industrial processes as a result of efficiency gains, innovation and introducing biochar into the steel making process | 82% reduction in GHG emissions from industrial processes as a result of efficiency gains, innovation and the use of hydrogen and biochar in the steel making process |
| **Agriculture, forestry and land use** | |
| 10% reduction in methane emissions from livestock | 47% reduction in methane emissions from livestock |
| Plant 80% of 19,350 hectares of new forest (15,480 hectares) | Plant 100% of 19,350 hectares of new forest |
| 30% reduction in GHG emissions sources on land e.g. from fertiliser use and liming | 80% reduction in GHG emissions sources on land e.g. from fertiliser use and liming |

## The urgent need to move onto a decarbonisation pathway

The modelled decarbonisation pathway starts from 2016 as, at the time of modelling, the latest annual GHG inventory data was to 2016.

The modelled decarbonisation pathway shows emissions holding steady from 2016 to 2020 and then decreasing rapidly. However, provisional data considered after the modelling was completed suggests that annual emissions may have increased above the values modelled for 2017 – 2019.

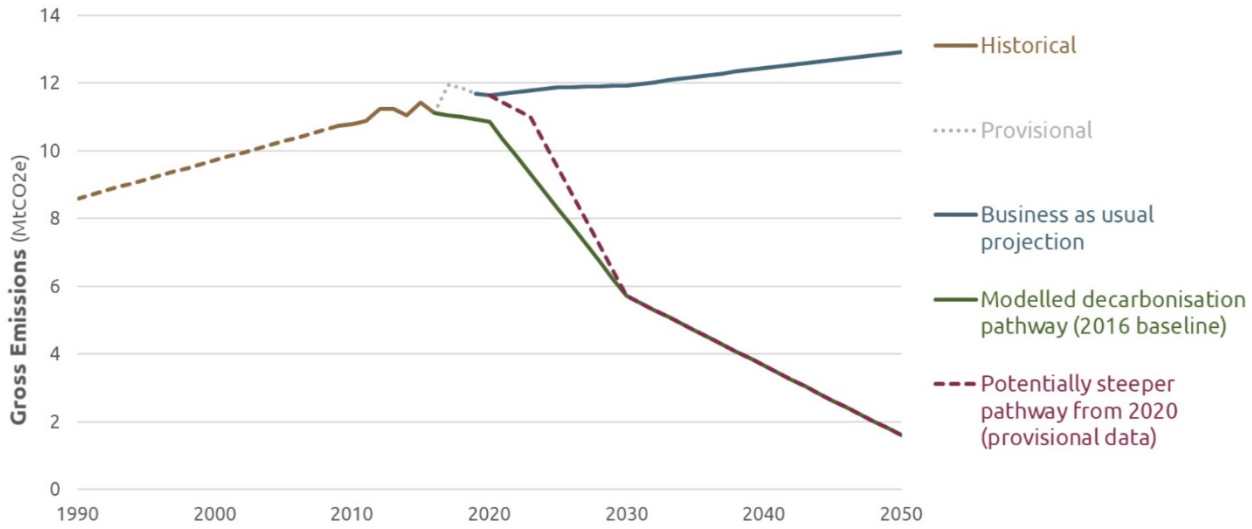
As a result, a steeper decarbonisation pathway may be needed than the one outlined by the modelled decarbonisation pathway to achieve a 50 per cent reduction in GHG emissions by 2030.

Delivering a decarbonisation pathway in line with the modelled pathway, will require transformative and committed action across sectors and by a range of diverse stakeholders including Auckland Council, central government, businesses, and individuals.

Reducing GHG emissions by 50 per cent by 2030 is not plausible, unless bold and ambitious climate action is taken.

Auckland Council cannot deliver the required reduction in greenhouse gas emissions on its own, but has an important role to lead and support emissions reductions in Auckland.

*Auckland's historical annual emissions, business as usual projection and modelled decarbonisation pathway*



## Tahua hauhā

# Carbon budget

Under the projected business as usual scenario, we are likely to exceed our carbon budget around 2030.

Our emissions reduction targets are informed by a carbon budget ($CO_2e$) that sets out the total cumulative GHG emissions that Auckland can produce to play its part in keeping global emissions within the 1.5 degrees Celsius temperature rise threshold.

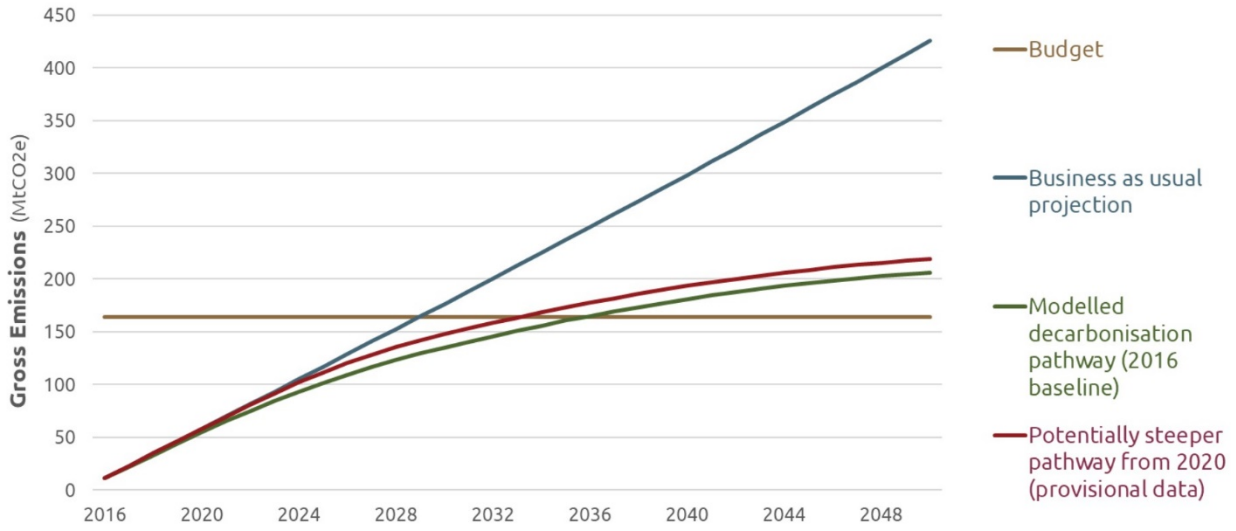
Auckland's carbon budget is 164 $MtCO_2e$ from 2017-2050 – equivalent to a budget 14 times the size of Auckland's annual emissions in 2016.

Our carbon budget has been calculated by C40 Cities in line with Auckland delivering a 'fair share' contribution to achieving the objectives of the Paris Agreement.

The modelled decarbonisation pathway delays the date at which the carbon budget is exceeded until around 2038 and flattens the curve, significantly slowing the rate at which emissions are added to our cumulative total.

The modelled decarbonisation pathway still exceeds our carbon budget, emphasising the need for additional strategies and new technologies, as well as carbon sequestration, to address remaining emissions and achieve net zero emissions by 2050.

*Auckland's cumulative gross emissions projections and carbon budget*



## Tā mātou tauira

# Our modelling

To develop an indicative emissions pathway the CURB Tool was used to model climate action, with additional bespoke modelling to address sectors not covered in CURB, such as industrial processes. CURB was developed by the World Bank in partnership with C40 Cities, the Global Covenant of Mayors and AECOM to enable cities to model climate action using city specific data.

Using a customised version of the CURB tool incorporating local data, context and emissions factors, a baseline representation of emissions was established. A range of variables were then adjusted to measure potential changes over time against a projected business as usual scenario.

The projected business as usual emissions scenario modelled by CURB reflects estimated population growth and growth rate assumptions across sectors and activities. Auckland Council Research and Evaluation Unit, RIMU, also developed a projected business as usual emissions scenario. Both projections were reviewed by Arup, an independent consultancy firm, and found to be comparable.

CURB uses generic variables and estimation of outcomes rather than projecting the impacts of specific investments or policies, for example construction of a rapid transit line or changes to land use policies.

As with any model, CURB is subject to limitations including use of generalised variables and default values based on average or proxy data. Its use projecting potential future emissions scenarios for Auckland is to provide guidance only.

The actions presented for each priority are not necessarily calibrated to CURB's inputs and outputs.

## Halving emissions by 2030

Our goal to reduce net emissions by 50 per cent by 2030 brings into focus the need for significant and rapid climate action to deliver decarbonisation across sectors.

Key aspects of the modelled decarbonisation pathway at 2030 include:

### Transport

Auckland's largest source of emissions represents 68 per cent of the overall emissions reduction modelled for 2030.

Modelled actions for reducing transport emissions include:

- remote working and reduced trip lengths – around 10 per cent emissions reduction
- shift to public transport, walking, and cycling – 14 per cent emissions reduction
- switching to electric and zero emissions vehicles (passenger, commercial and freight) – 55 per cent emissions reduction
- increase fuel efficiency of vehicles
- increase transport orientated developments.

### Stationary energy

Modelled actions include:

- decarbonising process heat through switching from gas to electricity, in addition to best practice technology and energy efficiency measure – 36 per cent of emissions reductions
- renewable grid electricity increases to 94 per cent – 37 per cent of the emissions reductions
- retrofitting 50 per cent of existing residential and commercial buildings to a high standard of energy efficiency and replacing natural gas boilers with heat pumps for heating (75 per cent replaced) and hot water (50 per cent replaced) significantly reduces emissions from energy use in buildings
- all new residential and commercial buildings run at net zero emissions from 2030.

### Industrial process and product use

Steel making accounts for most emissions from industrial processes in Auckland and presents significant decarbonisation challenges.

The 23 per cent reduction in emissions in this sector focuses on energy efficiency and the adoption of best practice technology.

### Waste

Although ambitious waste reduction targets have been modelled, the emission reductions from the waste sector make a small contribution to the decarbonisation pathway.

### Agriculture, forestry, and land use

Methane emissions from livestock decrease by 10 per cent in line with the Climate Change Response (Zero Carbon) Amendment Act.

On land emissions, such as those from fertiliser use, are also reduced.

Extensive tree planting delivers added carbon sequestration to reduce net emissions.

*Gross emissions reduction modelled for each sector from 2016 to 2030*

| Sector | Gross emissions reduction 2016 – 2030 |
|---|---|
| Stationary energy | 65% |
| Transport | 64% |
| Waste | 0% [1] |
| Industrial processes and product use | 23% |
| Agriculture | 15% |

Notes

[1] Modelled emissions for the waste sector remain at around the same level from 2016 to 2030. Compared to the 'business as usual' projection for the waste sector this represents a 24% reduction in emissions.

# Te urutau ki te huringa o te āhuarangi
# Adapting to climate change

## Our climate is changing and we need to prepare

### Ko te take kia urutau tātou
### Why we need to adapt

It is likely that our current emissions pathway will result in an average warming of 3.5 degrees Celsius or more by 2110. This will lead to a continued and catastrophic increase in the impacts and risks we are already facing across our region, such as flooding, heatwaves, drought, and coastal storms.

For example, the drought Auckland experienced in 2020 is likely to become more common, with seasonal changes in rainfall patterns and more dry days projected.

The impacts of climate change will be stark for the ecosystems on which we rely – from ocean acidification and increasing pests and diseases to mass extinctions.

The loss of our natural environment will play out further in large scale movements of people, and health implications from declining food sources, air, and water quality.

All warming will lead to significant changes to our world. To reduce the impacts we will face, we must continue the drive to keep within 1.5 degrees Celsius of warming globally.

This plan lays out our contribution.

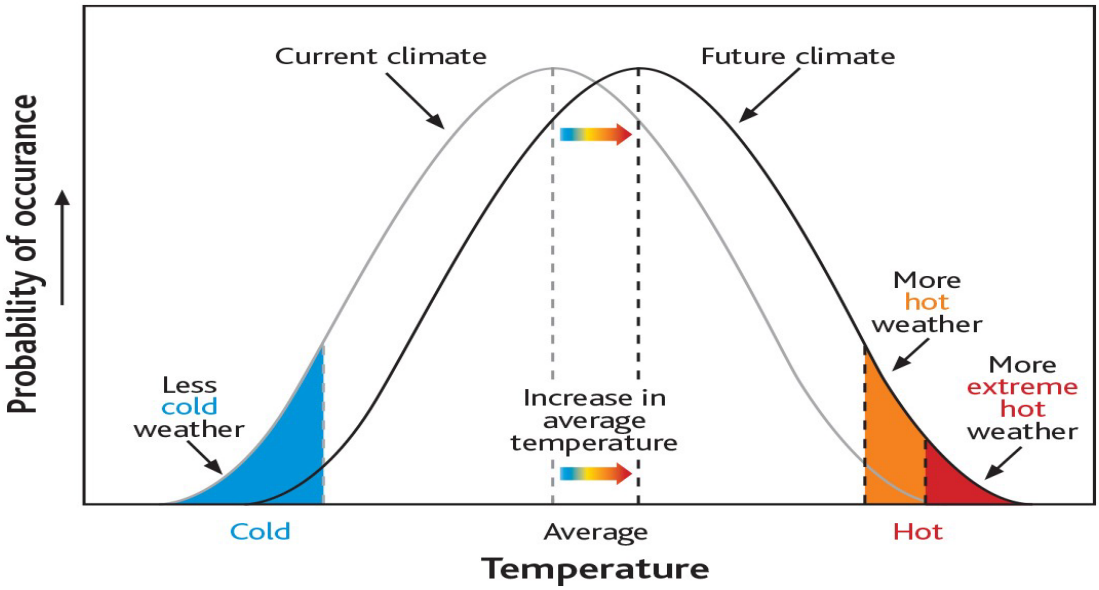
We must plan for uncertainty, taking a precautionary approach and preparing for the impacts of a continued 'business as usual' emissions pathway.

This does not mean that we are taking every adaptation action now.

Planning well together, with clear timelines for when decisions must be made, can avoid unnecessary investments or risks.

One way of doing this is through Dynamic Adaptive Policy Pathways (DAPP).

*Implications of future climate shifts*




## Te anamata o te āhuarangi o Tāmaki Makaurau

## Auckland's climate future

Auckland's temperature is projected to increase by between 1.5 and 3.75 degrees Celsius by the end of the century, depending on the pace and scale of change in our global emissions.

Our current emissions pathway is likely to result in a 3.5 degrees Celsius rise for the region, by the end of the century.

As our average temperature increases, so does the probability of more extreme weather events.

This means that what we would see as a hot day today is more common into the future with more even hotter extreme events

Climate projections for Auckland, prepared by New Zealand's National Institute of Water and Atmospheric Research (NIWA), looked at how Auckland's climate will likely change by 2120.

### Temperature changes

The Auckland region is projected to become progressively warmer into the future.

Over the past century, Auckland's mean annual temperature has increased by about 1.6 degrees Celsius and the impacts of this are already felt across the region.

It is projected to increase further by between 1.5 and 3.75 degrees Celsius by the end of the century, depending on the pace of global emissions reductions.

This means we're likely to have four times as many 'hot days' per year. That is 80 days above 25 degrees Celsius, compared to 20 days currently.

### Rainfall changes

Annual total rainfall and seasonal rainfall patterns are likely to change in the Auckland region.

Rainfall in spring is likely to decrease by 15 per cent in some parts of the region. Auckland is projected to be more drought prone, with an increase in the number of dry days. This will add more than 21 dry days per year by 2110. Drier periods will bring water shortages for residential, agricultural, and industrial use.

Rainfall intensity is projected to increase because a hotter atmosphere can hold more moisture. The intensity of short-duration events is projected to increase by 14 per cent per degree of warming. This could mean more intense flooding, affecting our infrastructure, properties, health and safety, as well the local economy.

### Marine and coastal changes

The Auckland region is starting to feel the effects of sea level rise. If global emissions stay unchecked, they are projected to rise by a metre by the end of this century.

We also know that melting of glaciers and ice sheet is accelerating, so the change could be even greater.

In a region with 3200kmof coastline, this means serious threats of coastal erosion, storm surges and flooding.

This means that before the end of this century, approximately 1.5 to 2.5 per cent of Auckland's land area, may be exposed to sea level rise. This covers 0.3 per cent of buildings, 80 per cent of coastal ecosystems and six per cent of dairy land.

Low lying coastal towns and infrastructure will be more exposed to coastal inundation / flooding with storm surge.

Marine ecosystems are highly susceptible to climate change. Ocean acidification will threaten the condition and survival of some marine species. A rise in ocean temperatures will see species on the move and changes to ecosystems and moana kai.

### Other combined effects

Climate change does not happen in isolation from other changes like population growth, changes in land use, changes to food and energy security, and rising inequality. In fact, climate change may make many of these challenges even more difficult to solve or may make related impacts on people and communities even more severe. Find out more about the impacts on climate change for Māori.

It is also true that our climate change effects are not isolated from other regions and countries. Migration related to climate is already happening across the world. Auckland will need to be part of the solution to support these displaced people.

Many of the implications of climate change will play out through our water systems, whether through too much water in the wrong place (flooding) or too little (drought).

Climate and water are fundamentally linked and actions to address this cut across our priorities.

## Ngā tūraru torohū ki Tāmaki Makaurau

## The potential risks to Auckland

To both mitigate and adapt to climate change, and to inform planning and decision-making, we must understand the climate change risks and impacts on our ecosystems, people, and economy.

### Our research

To support this, Auckland Council produced a Climate Change Risk Assessment technical report series.

This research is underpinned by the Auckland Region Climate Change Projections and Impacts research undertaken by NIWA (Pearce et al., 2018).

The Climate Change Risk Assessment technical report series used the Intergovernmental Panel on Climate Change methodology (IPCC, 2014) to assess impacts on people, the environment and infrastructure. It identifies the parts of Auckland most susceptible to impacts of climate change and the associated social and environmental vulnerability.

The research specifically covers:

- health effects of extreme heat
- climate change, air quality and health impacts
- creating conditions for disease vectors
- social vulnerability
- climate change impacts and risks for terrestrial ecosystems
- climate change impacts and risks for marine and freshwater ecosystems
- effects of coastal inundation and sea level rise on Auckland.

The following infographic summarises some climate impacts on the Auckland region.

The technical report series will be expanded and built on as new data and other resources become available. Our eight priorities have been informed by the risks identified in these reports and expert input from across Auckland.

## Climate change and natural hazards

Details on Auckland's natural hazard risks and the actions Auckland Council will continue to take to mitigate the impact will be found in the Natural Hazard Risk Management Action Plan once finalised.

Find out more about Natural hazards and climate change.

*Climate change in Auckland: causes and effects*

## Tā mātou rautaki mō te urutaunga
# Our approach to adaptation

Our plan takes a precautionary approach, preparing for the potential of a continued increase in greenhouse gas emissions.

The precautionary approach applies when a potentially serious risk exists alongside scientific uncertainty. This allows us to consider some risks as unacceptable not because their occurrence is probable, but because their consequences may be severe or irreversible.

This does not mean that we are reacting to a 3.5 degrees Celsius warmer world right now, but that we are planning and building resilience, so that we are ready if this happens.

Our approach to flexible planning and adaptation, in the face of uncertainty and changing conditions, is called dynamic adaptive policy pathways planning (DAPP).

## Prioritising adaptation action

Adaptation can often be thought of a future issue, but without action now we risk far greater financial and human costs into the future. There are some key areas we need to prioritise to be as prepared as we can be for the impacts we face:

- development of long-term, strategic approaches to change that keep options open, e.g. DAPP
- community and business engagement and empowerment, focusing on those impacted the most
- ensuring climate change is a key consideration in decisions that have the potential to lock us into poor resilience outcomes in the long term
- addressing immediate, known risks that are affecting Aucklanders today
- establishing strong partnerships and governance that allows complex decision making, and for a variety of voices to be heard
- addressing research gaps that are preventing adaptive action.

These areas of focus are reflected in the priorities of this plan.

To measure the progress adaptation targets and indicators continue to be developed as we establish baselines and continue to learn from experience.

## Ngā pānga o te huringa āhuarangi ki a Ngāi Māori

# Impacts of climate change for Māori

Indigenous peoples constitute less than five per cent of the world's population, but they safeguard 80 per cent of the world's biodiversity.

The global response to climate change requires applying all the best knowledge available, including the perspectives of indigenous peoples.

Indigenous peoples are not only among the most vulnerable to the impacts of climate change, they also hold many of the solutions to adapting to it.

Te ao Māori calls for the protection and preservation of all that is culturally significant, to protect and preserve our taonga. The legacy of our ancestors that we in turn leave for future generations, lies in the balance.

The impacts of climate change on the cultural, social, environmental, and economic wellbeing of Māori are potentially profound. Māori communities are already vulnerable and many marae, wāhi tapu and papakāinga are located in rural coastal communities.

These implications include:

- being predominantly coastal people, mana whenua relationships to ancestral taonga, cultural knowledge and practices are at risk. Sea rise is compromising wāhi tapu, Māori land holdings, marae and other significant sites
- there will also be potential socio-economic impacts on whānau. Proposed responses to climate may present a further disadvantage for Māori
- whānau Māori who are already in a precarious financial position, have less access to resources to respond to rapidly worsening conditions
- marae, urupā and wāhi tapu will be exposed to inundation and flooding
- the indigenous flora and fauna are under threat from a changing environment, particularly where those changes are so fast or significant that species cannot adapt or are overrun by exotic invasive species that can.

Those climate migrants within Tāmaki Makaurau and our Pacific island whānau will require additional support.

## Te huringa o te āhuarangi me ngā wai

# Water and climate change

Wai is life. It is a critical resource that we rely on for our survival, cultural and environmental health. Mana whenua of Tāmaki Makaurau see strong links between water and their identity – water is their birthright and a taonga. Wai enables communities to be resilient and provide for their social, economic, environmental and cultural wellbeing, as well as the health of generations to come.

## The impacts of climate change on our water will continue to grow

Water and climate change are inextricably linked. The impacts of a changing climate on water in Tāmaki Makaurau is already apparent. Variability in rainfall patterns already reduces Auckland's water supply and contributes to drought events. At the same time, increases in storm events contribute to more frequent flood and coastal inundation events.

As our climate changes, these events will increase in severity. Changes in the volume and location of rainfall will mean we have to rethink how we manage water and deal with issues from flooding and coastal inundation, to drought and scarcity.

Water quality will also be impacted by climate change. Higher temperatures and lower water flows have the potential to increase the growth of algae and other pest species within our water environments. Conversely, increased storm events could displace greater qualities of sediment and other contaminants from our waterways into the marine environment.

### We need to support and increase resilience in our water cycle

Aucklanders have told us that they want the mauri (or life-supporting capacity) of water to be protected and enhanced. Auckland Council family has responded for example through the water quality targeted rate and exploration of alternative supply options. However, it is important to recognise that the ability of these interventions to improve water outcomes for Aucklanders is significantly influenced by the projected impacts of climate change.

Our response needs to take an adaptive, holistic approach, while being grounded by the climate change effects that are projected for the region.

We need to make better use of what we have and ensure that resilience is built into the region's natural water cycle at every level.

Individual responses could include enabling the capture and reuse of water at a household scale

Wider hapū, community and regional solutions would involve shifting to more circular water systems that restore and build resilience within the natural environments, habitats and ecosystems that are critical to a healthy and thriving water system.

Our water response also needs to recognise the potential opportunities for carbon capture within the natural environment. Watercare has a climate change strategy that sets out its future direction as it moves towards operating as a low carbon organisation that is resilient to climate impacts.

## Ngā mōrearea taiao me te huringa āhuarangi

## Natural hazards and climate change

Climate change and natural hazards are interlinked. We know that changes in our temperatures globally directly influences the frequency and severity of many natural hazards.

Increases of air and water temperatures lead to rising sea levels, supercharged storms and higher wind speeds, more intense and prolonged droughts and wildfire seasons, heavier precipitation and flooding.

We have been managing our natural hazards for many years. Planning for an increase in these is a key focus of this plan and the Natural Hazards Management Action Plan once finalised. Actions in these two plans support each other to deliver greater resilience for the region.

Find out more about natural hazards through Auckland's Hazard Viewer.

## Ara Kaupapa Here Urutau me te Hihiri

# Dynamic adaptive policy pathways

We cannot be certain of all the changes we will face from climate change. For instance, temperature increase is dependent on a range of factors, like how quickly emissions reduce globally. This means we need to keep our options open for as long as possible while we are preparing for any outcome.

Adapting to climate change requires decisions that avoid the risk of locking decisions and investments into something that cannot be changed if it is no longer fit for purpose, e.g. building infrastructure.

The Dynamic Adaptive Policy Pathways approach develops a series of actions over time (pathways). It is based on the idea of making decisions as conditions change, before severe damage occurs, and as existing policies and decisions prove no longer fit for purpose.

To determine which pathway we should follow, we develop a series of 'triggers'. For example, as the sea-level rises, the frequency of hazard events (e.g. flooding)) exceeds an agreed 'trigger'. At this point we need to take additional or different actions, and an alternative pathway to avoid reaching the threshold at which damage occurs.

By exploring different pathways early and testing the consequences, we can design an adaptive plan that includes a mix of short-term actions and long-term options.

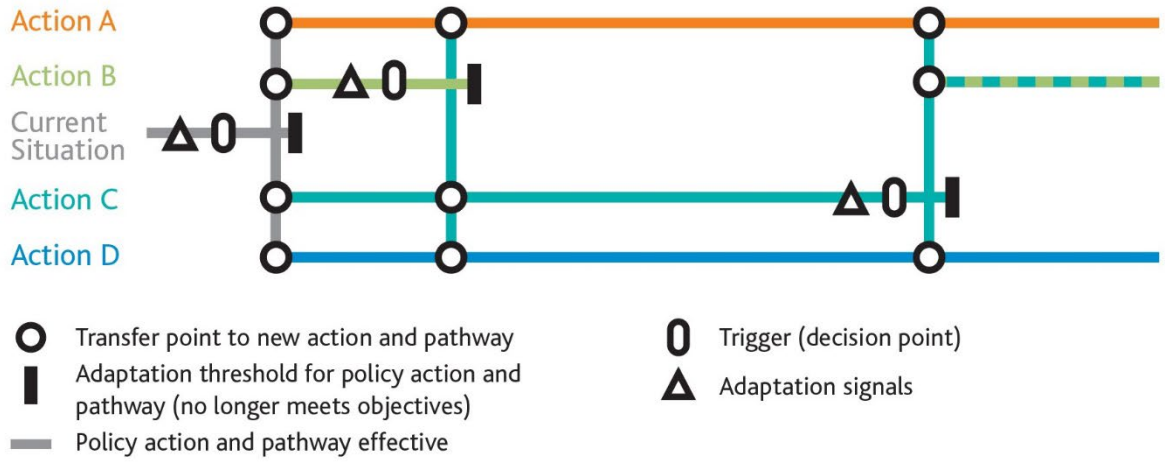
The plan is monitored for signals that a decision point is approaching to:

- implement the next step of a pathway
- shift to an alternative pathway
- reassess the objectives of the plan itself.

The DAPP approach was developed in the Netherlands and is now embedded into the national Coastal Hazards and Climate Change Guidance and is being used in coastal and riverine flooding settings and for infrastructure decision making. Our plan takes this approach across our priority areas, particularly in the Built Environment and Communities and Coast priorities.

An example of how this approach can be applied is in the case of how we manage our water.

*Adaptation Pathways Map*



## Addressing our climate impacts

The table below highlights which priorities contain actions to address the impacts we face from our changing climate.

| Climate changes | Some example impacts | Priorities with actions to address the impacts |
|---|---|---|
| **Higher temperatures and more hot days** | • Stress to ecosystems and associated impacts to health and economy<br>• Favourable conditions for some / different pests and diseases<br>• Damage to transport infrastructure<br>• Risks of heat stress to people and animals<br>• Impacts to water quality<br>• Extended leisure and tourism seasons<br>• Risks to agriculture and horticulture<br>• Reduced productivity in the workplace<br>• Increased fire risk | • Natural environment<br>• Built environment<br>• Transport<br>• Communities and coast<br>• Economy<br>• Food<br>• Te puāwaitanga ō te Tātai |
| **Changing rainfall patterns and intensity** | • Challenges to water availability during dry periods<br>• Health risks from contamination of drinking water supply in flood events<br>• Elevated stress to indigenous ecosystems<br>• Increased rainfall intensity and flood events impacting infrastructure performance<br>• Increased river and flash flooding impacting communities and businesses directly and in the long term<br>• Availability of insurance<br>• Reduced soil moisture leading to increase in slips and erosion | • Natural environment<br>• Built environment<br>• Transport<br>• Communities and coast<br>• Economy<br>• Food<br>• Te puāwaitanga ō te Tātai |

| Climate changes | Some example impacts | Priorities with actions to address the impacts |
|---|---|---|
| **Sea level rise and coastal erosion** | • Inundation risks to coastal communities and infrastructure<br>• Saltwater incursion into freshwater habitats<br>• Increased flooding to assets and infrastructure with knock-on effects to people and economy<br>• Coastal squeeze for ecosystems (i.e., where there is no space for ecosystems to move inland)<br>• Availability of insurance<br>• Impact to livelihoods | • Natural environment<br>• Communities and coast |
| **Oceanic changes (acidification)** | • Altered marine ecosystems, particularly affecting species with hard shells<br>• Reduced recreational and economic benefits | • Natural environment<br>• Economy |

## Measuring adaptation progress and establishing targets

Measuring progress in relation to climate change adaptation is complicated. An adapted, resilient region is dependent on a wide range of factors, from our infrastructure and environment to our health and wellbeing.

To help us understand how our people, environment, economy and culture are coping with, and preparing for, on-going changes and disruptions we use indicators.

These indicators are provided in the *implementation section* of the plan.

Establishing targets for adaptation requires us to understand our current preparedness and we need to allow for planning under uncertainty. The actions we take will need to be flexible as we understand more about the changes and disruptions we are facing and how our region is coping with them.

By monitoring our indicators over the next three years, we aim to establish a baseline on which we can establish targets to 2050 and beyond. This will enable us to develop targets across our priority areas.

Research is also currently underway to identify further targets and indicators that draw on consideration of disaster resilience and recovery, past and future hazard risk and Auckland's unique geology, terrain, demography and governance.

This is part of the development and implementation of the Natural Hazards Risk Management Action Plan but extended to consider broader climate change implications.

In the interim, there are targets already established for the region that we know will support adaptation in the long term and are aligned to our climate plan and its goals. These will be retained and strengthened over the coming years.

- Plant 1.5 million trees by 2023
- Plant 15,480 hectares of new forest by 2030 and 19,350 hectares by 2050
- Increase canopy cover to 30 per cent across Auckland's urban area, and at least 15 per cent in every local board area by 2050
- Save 21 million litres of water per day by 2025 (a 15% reduction from 2004)
- Complete removal of all introduced predators from offshore island nature reserves and an additional one million hectares of land where pests have been suppressed or removed by 2025
- Pest free by 2050
- Climate change risks to transport assets and infrastructure fully assessed by 2021
- Climate change risk assessment for Tāmaki Makaurau / Auckland economy undertaken by 2020
- Reduce total waste to landfill by 30% by 2027 and reach net zero waste by 2040.

# Taiao māori
# Natural environment

## E pā ana ki te whakaarotau i ngā take taiao māori
## About the natural environment priority

**Our goal:** Oranga taiao, oranga tāngata: a healthy and connected natural environment supports healthy and connected Aucklanders. The mauri (life essence) of Tāmaki Makaurau is restored

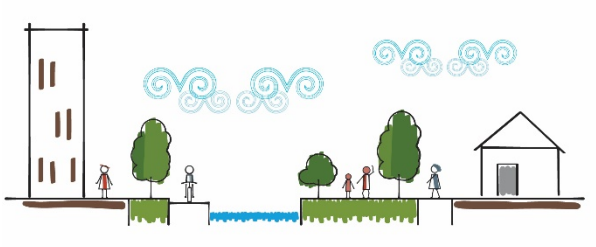
Ki te kore te tangata e manaaki i tōna taiao, ka kore te tangata e whai oranga

If people do not take care of the environment, we are not taking care of our own health and wellbeing

### Why this is a priority

The quality of our beaches, harbours, bush, streams and maunga is dependent on how we treat them.

When we lose sight of the environment in our daily actions, we directly impact the quality of our natural world and degrade the basis of our economy, our health, wellbeing, and our cultural and spiritual identity.



### Our natural environment is at risk

We rely on healthy ecosystems to:

- trap and sequester carbon
- retain water
- prevent soil erosion
- offer protection from extreme weather
- provide a local source of food.

Auckland holds about 20 per cent of New Zealand's threatened birds, reptiles and plants. Rapid urban growth, pests and diseases, pollution and ongoing loss of habitat have affected these species and their ability to move and adapt to climate change.

Many existing biodiversity and biosecurity programmes, such as Auckland Council's Natural Environment Targeted Rate (NETR) already help build the resilience of native species and ecosystems to climate change, by reducing threats to their survival and promoting landscape functionality through improved connectivity. But this is not enough.

These targeted programmes need to expand and develop, as our understanding of the likely impacts of climate change grows.

## We need to capture carbon

Increasing the potential to capture carbon in terrestrial and marine environments is key to meeting our goal of reducing emissions.

It is estimated that in 2016, carbon sequestration from Auckland's forests reduced the region's gross emissions by just over 10 per cent.

We need to protect existing carbon sinks, including mature forests and other terrestrial and freshwater ecosystems, coastal ecosystems, and healthy soils.

## We need more trees

We also need to plant more trees and expand these carbon-capturing ecosystems to enhance carbon sequestration in the future.

Access to green space is not equal across the region, as shown by tree canopy cover.

In the southern suburbs, tree cover dips as low as 8 per cent, but in the northern and western suburbs it increases to 30 per cent.

This affects air and water quality, access to shading, biodiversity, safety and mental health, resulting in real impacts on the quality and length of peoples' lives.

# Our priority action areas

Our action areas to deliver this priority are guided by the values and principles in Te Ora ō Tāmaki Makaurau Wellbeing Framework.

- build resilience of indigenous biodiversity, habitats and ecosystems
- grow our rural and urban ngahere/forest
- implement nature-based solutions in planning
- increase carbon capture potential of ecosystems
- promote sustainable land management practices
- Te Puāwaitanga ō te Tātai and natural environment.

## Te manahau o te kanorautanga hauropi taketake, o ngā nōhanga me ngā pūnaha hauropi

## Resilience of Auckland's indigenous biodiversity, habitats and ecosystems

### Action area N1: Build the resilience of Auckland's indigenous biodiversity, habitats and ecosystems to the impacts of climate change

Indigenous flora and fauna are under threat from a changing environment, particularly where those changes are so fast or significant that species cannot adapt or are overrun by exotic invasive species that can adapt quickly.

To reduce the vulnerability of our indigenous biodiversity we need to:

- increase our understanding of potential climate change risks to Auckland's indigenous ecosystems and species and ensure that these are integrated into planning and policy considerations
- increase our commitment to control key pests and weeds that are expected to benefit from climate change, across a full range of Auckland's indigenous ecosystems
- expand habitat protection, restoration and enhancement programmes to increase the viability, geographical extent and connectivity of indigenous terrestrial, freshwater and marine ecosystems
- expand habitat restoration within the Kaipara Harbour, Hauraki Gulf and Manukau Harbour
- develop approaches that support resilience and recovery of indigenous biodiversity from climate change effects (e.g. drought, storms) and increase public understanding of the importance of pre-emptive action
- increase opportunities for community-led monitoring programmes and connection to our natural environment
- promote, progress and fund current and emerging initiatives, programmes and groups actively committed to the restoration, sustainability and protection of interaction between tangata (people) and whenua (land) systems within their communities.

Find out about Whakaoratangi i te Puhinui/ Puhinui Stream regeneration.

## Te whakatupu i ō tātou ngahere tuawhenua, tāone hoki
## Grow our rural and urban ngahere/forest

### Action area N2: Grow and protect our rural and urban ngahere/forest to maximise carbon capture and build resilience to climate change

We need to follow the principles of knowing the benefits of trees in the Auckland region, growing the right tree in the right place and protecting existing trees.

These principles have been developed and endorsed through our Urban Ngahere Strategy.

- undertake and support research to improve understanding of the multiple benefits of trees in the Auckland region, incorporating mātauranga Māori and indicators of mauri
- increase indigenous tree plantings in road corridors, parks and open spaces
- provide support, guidance and advice for landowners to undertake ecological restoration and tree planting on private land and establish mechanisms to track these
- use research and technology, in partnership with iwi and communities, to identify priority areas for future planting that achieves multiple outcomes
- build the capacity and capability of existing marae and community nurseries and conservation/planting groups through assistance, advice, and training programmes
- protect important trees through improved planning regulations and ensure publicly managed trees are not removed without clear justification.

## Te whakatutuki i ngā rongoā ā-māori i ngā mahi whakamahere
## Implement nature-based solutions in planning

### Action area N3: Integrate connected, nature-based solutions in development planning

Nature-based solutions are actions that work with and enhance the environment to help people adapt to climate change.

These may include protecting, restoring or enhancing natural habitats or incorporating natural elements into built environment projects, for example, green infrastructure and enhancing natural ecosystems, to provide for coastal management.

Investing in nature-based solutions in growth and regeneration areas can address inequity in the quality of our natural environment.

- Increase uptake of nature-based solutions within the council family projects and develop further supporting tools for decision making, where these are not currently available
- provide new and promote existing regulatory, planning and educational tools to support nature-based solutions and maintain habitat corridors on private land and developments
- incorporate protection, managed retreat and restoration of indigenous coastal ecosystems into planning for sea level change
- establish a monitoring framework to show the benefits of nature-based solutions projects
- empower and partner with community groups and the public to encourage community-led projects
- enhance, extend and connect Auckland's blue-green networks to protect and enhance ecosystem function and species viability.

## Te pitomata o ngā pūnaha rauropi ā-whenua, ā-moana hoki ki te hopu waro
## Carbon capture potential of terrestrial and marine ecosystems

### Action area N4: Maximise potential of terrestrial and marine ecosystems to capture carbon

- support research and pilot projects that measure the biological sequestration of carbon in terrestrial, freshwater and marine ecosystems
- improve understanding of soil carbon sequestration potential of different land management practices
- identify opportunities for businesses and individuals in the region to contribute to carbon sequestration schemes that support their emissions reduction goals and wider social and environmental outcomes.

## Te whakatairanga ake i ngā tikanga tiaki toitū i te whenua
## Promotion of sustainable land management practices

### Action area N5: Advocate for land use practices that deliver healthy, resilient soils, waterways and ecosystems

- support rural Aucklanders to manage land in ways that grow resilience to climate change and enhance mauri, support biodiversity and health of waterways

- establish land management actions that will create 'green infrastructure' to benefit farmers, land managers and the wider region (e.g. planting trees, riparian fencing and planting, protecting and restoring wetlands)
- trial soil quality enrichment practices to enhance plant growth and carbon sequestration.

## Te Puāwaitanga o te Tātai me te taiao māori

## Te Puāwaitanga ō te Tātai and natural environment

### Alignment to Te Puāwaitanga ō te Tātai

The actions in the eight priority areas were developed with the values and principles of manaakitanga, kaitakitanga, whanaungatanga, rangatiratanga, mātauranga and taurite in mind.

Kaitiakitanga is particularly relevant to the actions within this priority area. A healthy and connected natural environment will restore, maintain, and protect mana whenua whakapapa connections to kaitiaki (people), whenua (place), and ātua (primal ancestors). Enabling active kaitiakitanga (guardianship) of the natural environment will achieve our goals of climate mitigation and adaptation.

Specific Ngā Mahi a Te Ora / Wellbeing Activities that relate to the Natural Environment Priority area include:

- co-design a Kaitiakitanga and stewardship framework between mana whenua and the council
- restore, rejuvenate, and replenish our repō (wetlands), using a whole of catchment system for decision-making, including land use change)
- restore and rejuvenate our moana (seas and harbours)
- restore, rejuvenate and replenish our puna wai (freshwater springs)
- restore, rejuvenate and replenish our mahinga kai (food production)
- State of the Environment Report
- State of Hauraki Gulf
- sustainability report (supports the environment, wellbeing of individuals and communities and improved economy.

## Ngā tūtohu taiao māori
## Natural environment indicators

| Indicator | Source | Frequency of reporting | Current direction |
|---|---|---|---|
| Carbon sequestered by trees/vegetation, soils and marine ecosystems | Sequestration by harvested wood measured nationally (MfE / Stats NZ Environmental Economic Account)<br>Regional sequestration not currently monitored – working towards inclusion in Auckland's GHG Inventory | Annual | Overall increase in carbon pool in forests nationally. |
| State and quality of locally, regionally and nationally significant environments | Auckland Plan 2050, but composite measure under development | Annual snapshot / 3-yearly progress report | Recorded as no significant change but measure still under development. |
| Tree canopy cover, regionally and by local board area | RIMU state and change analysis (LiDAR data) | 3 – 5 years | Static |
| Marine and freshwater quality indicators (e.g. nutrients, sediment, temperature) | State of the Environment Report | 5 years | 2015 report showed overall decline in freshwater quality and stable but low marine water quality.<br>New report due 2020. |
| Air quality indicators | State of the Environment Report | 5 years | 2015 report showed declining trends in benzene, particulate matter, and nitrogen dioxide (air quality improving).<br>New report due 2020. |

| Indicator | Source | Frequency of reporting | Current direction |
|---|---|---|---|
| Soil health indicators (e.g. nutrient levels) | State of the Environment Report | 5 years | 2015 report showed increasing fertiliser and soil compaction (declining soil quality) but insignificant change in soil pollution.<br>New report due 2020. |
| Number of approved developments that incorporate hua rākau, hua whenua, native trees and green spaces | To be developed | - | Unknown |
| Extent of terrestrial, freshwater and marine environments formally (as a percentage of total area) | Statistics NZ / MfE Environmental Indicators<br>Not captured regionally | 3 years? (national trends) | Trends not recently reported |

## Whakaoratangi i te Puhinui
## Puhinui Stream regeneration

This programme aims to regenerate Manukau's blue (water) and green (land) networks by working together to restore the Puhinui Stream.

Manukau is an area of relatively high climate risk and the Puhinui Stream is the last remaining natural asset in the area and an important link to the Manukau's cultural and ecological heritage.

A pilot project to restore the stream and connect the green spaces and neighbourhoods along its banks has the potential to be a model for climate resilience and ecological, social, cultural and economic regeneration.

A healthy Puhinui Stream would address climate-related stormwater risks and connect ecosystems, neighbourhoods and whānau from Tōtara Park to the Manukau Harbour.

When the mauri of the stream is once again flourishing, it would provide climate resilience, biodiversity, economic opportunities and a sense of pride for local communities. Mana whenua are key partners in leading and realising this vision.

Building on the existing Puhinui Regeneration project led by Panuku Development Auckland, a group including Kāinga Ora, the University of Auckland, and the Auckland Council Group, are collaborating to ensure that lessons learnt in this pilot can develop other climate-ready solutions that can be introduced across Auckland's growth and regeneration areas.

This project has been developed to:

- use growth as a lever to deliver improved climate resilience, with better environmental, social, cultural and economic outcomes
- understand and overcome the barriers to implementing blue-green networks in Auckland
- move away from a capital cost-based analysis for assessing development options, to measuring whole-of-life costs and benefits across environmental, social, economic, and Te Ao Māori value systems
- improve Aucklanders' connection to and kaitiakitanga over their local natural environment.

# Taiao hanga
# Built environment

## E pā ana ki te whakaarotau i ngā take taiao hanga
## About the built environment priority

**Our goal:** A low carbon, resilient built environment that promotes healthy, low impact lifestyles

E tama, tangata i akona i te whare, te tūranga ki te marae tau ana

Home-based teachings shapes one well for public delivery

### Why this is a priority

How and where Auckland grows and how our existing and future built environment performs and functions, are critical factors in determining the success of our climate goals.

Our built environment includes the buildings where we live, work and learn, the infrastructure systems that enable the region to function, and the urban spaces that shape our city.

The decisions we make when planning and designing our built environment determine to what extent we lock in future emissions and our exposure to climate risks.

To move to a low carbon and resilient region, climate change and hazard risks need to be integral to the planning system that shapes Auckland.

Integrating land-use and transport planning is vital to reduce the need for private vehicle travel and to ensure housing and employment growth areas are connected to efficient, low carbon transport systems.

Around 1.66 million people currently live in Auckland; by 2050 this number could grow by another 720,000 people to reach 2.4 million.

To accommodate this growth Auckland's built environment will change significantly. This could mean 313,000 new homes, along with new infrastructure, commercial buildings and community facilities.

### Performance of buildings

Operational energy use in residential and commercial buildings accounts for over 10 per cent of Auckland's total emissions.

The performance of new and existing buildings needs to significantly improve to support a low carbon, climate resilient future.

The energy performance of Auckland's buildings is generally low, due to the Building Code setting relatively low energy efficiency standards. The performance of buildings is strongly linked to our health and wellbeing outcomes.

Cold, damp homes contribute towards high levels of respiratory illness, such as asthma and rheumatic fever. At the other end of the scale, the number of hot days is expected to increase, with overheating in poorly performing buildings set to become a more significant health issue.

Almost one quarter (23 per cent) of Auckland's buildings are exposed to flood hazards. With climate change set to increase the severity and frequency of flooding, it is essential that we plan, manage and retrofit our built environment to be resilient to impacts of climate change and other natural hazards.

## Management and design of infrastructure and buildings

Climate change must be a key consideration in the management of existing infrastructure and the planning and design of new infrastructure systems. Infrastructure can lock in long-term climate impacts and influence people's lifestyles and choices for many decades.

Understanding the climate and natural hazard risks relevant to infrastructure systems, and how we use and maintain them, is fundamental to enhancing resilience and reducing long-term costs.

We need to consider the lifecycle impacts of buildings and infrastructure from design to deconstruction and support a circular economy that re-uses resources and diverts construction waste from landfill.

Construction and demolition waste currently account for 50 per cent of Auckland's total waste stream and this figure is projected to grow.

The embodied emissions of construction materials need to be addressed through:

- re-using materials
- reducing construction and demolition waste
- using construction materials with low embodied emissions, such as structural timber.

## Creating low carbon, climate resilient places

Creating places that support low carbon lifestyles and enable people to be resilient to the impacts of climate change is an essential component of delivering a sustainable built environment.

Places provide additional opportunities for climate action that go beyond those provided by buildings and infrastructure.

Neighbourhoods or precincts can provide an appropriate scale to deliver climate action that can be replicated and rapidly scaled up. For example, delivering a zero emissions area in the city centre will reduce emissions and improve air quality. It will also encourage a rapid transition to low/zero emission vehicles and transport modes.

Zero emissions area in the city centre, will be delivered as part of the mayor's commitment to the C40 Green and Healthy Streets (initially known as Fossil Fuel Free Streets) declaration.

Our public spaces, from urban spaces and streets to local and regional parks, can support the transition to a low carbon, climate resilient region.

Optimising the use of public spaces delivers multi-functional benefits including:

- connected communities
- enhanced water management
- reduction of the urban heat island effect to enhance resilience, food growing and energy generation.

## Our priority action areas

Our action areas to deliver this priority are guided by the values and principles in Te Ora ō Tāmaki Makaurau Wellbeing Framework.

- our approach to planning and growth
- planning and designing infrastructure
- managing existing infrastructure
- alternative water supply options
- sustainable design and construction
- retrofitting buildings
- minimising construction and demolition waste
- optimising public spaces
- establishing low carbon resilient precincts
- Te Puāwaitanga ō te Tātai and built environment.

### Tā mātou rautaki mō te whakamahere me te whakawhanake

### Our approach to planning and growth

#### Action area B1: Ensure our approach to planning and growth aligns with low carbon, resilient outcomes

- review provisions in the Auckland Unitary Plan (AUP) from a climate and natural hazards perspective and use this to inform the statutory review of the AUP and future plan changes
- ensure growth modelling assesses the impacts of different growth scenarios on climate change mitigation and adaptation
- review and update growth modelling criteria in line with the latest climate evidence, knowledge and projections
- collaborate to ensure climate change mitigation and adaptation is a priority in national planning legislation
- maintain and uphold a quality compact urban form approach as outlined in the Auckland Development Strategy. Review its implementation to ensure that opportunities for low carbon, resilient development are being realised
- develop masterplans that demonstrate and promote the opportunity for zero carbon, transit-oriented developments that build climate resilience
- develop Auckland Council requirements and guidance for development with known natural hazard risks and formalise the approach to consenting and vesting of at-risk assets
- investigate mechanisms to improve consenting for projects that reduce and manage natural hazards and develop a natural hazard management toolbox for regulatory staff.

### Te whakamahere me te hoahoa anga

### Planning and designing infrastructure

#### Action area B2: ensure new infrastructure is planned and designed to minimise climate risks and lifecycle emissions

- assess climate change impacts for all new developments and infrastructure, starting at the business case stage, to identify to what degree a proposal supports or conflicts with our climate goals over its lifecycle
- embed a Dynamic Adaptive Policy Pathways (DAPP) approach to support decisions being made at the right time

- assess and support pathways to decrease construction of new infrastructure in known hazard zones
- ensure that long term resilience and natural hazard planning are embedded in new infrastructure developments
- deliver stormwater solutions and water sensitive urban design to enable resilient development and build community resilience
- reduce infrastructure carbon for water and wastewater assets and build their resilience in line with the latest climate projections.

## Te whakahaere anga o nāianei
## Managing existing infrastructure

### Action area B3: Ensure the management of existing infrastructure increases climate resilience and reduces emissions

- address natural hazard and climate risk in asset management plans, applying natural hazards risk criteria and methods such as Dynamic Adaptive Policy Pathways (DAPP)
- address climate change issues relating to Auckland's closed landfills, including exposure to climate risks and greenhouse gas (GHG) emissions
- understand where critical infrastructure may be vulnerable to the impacts of climate change and identify interdependencies (NHRMAP)
- improve the understanding of economic impacts of natural hazards on Auckland Council assets (NHRMAP)
- transition to a zero emissions Ports of Auckland by 2040.

## Ngā kōwhiringa arotau mō ngā puna wai
## Alternative water supply options

### Action area B4: Identify and deliver alternative water supply options to address population growth and climate change while protecting and enhancing te Mauri o te Wai

- investigate alternative water sources that consider the impacts of climate change while ensuring the protection and enhancement of te Mauri o te Wai
- investigate energy and emissions requirements for possible new water supply options (including desalination and wastewater reuse) to inform decision making for new sources
- monitor and model climate impacts on the water system to understand the resilience of the network
- identify low-lying water and wastewater assets that are within projected sea level rise over the next 100 years.

## Te hoahoa toitū me te hanganga
## Sustainable design and construction

### Action area B5: Accelerate the uptake of sustainable design and construction for new buildings

- advocate for central government to progressively update the Building Code on a regular basis with all new buildings required to operate at net zero carbon by 2030
- remove barriers to sustainable design and construction, including council processes and enable other mechanisms such as incentivisation and upskilling

- document, share and promote processes and lessons learned on delivery of net zero energy buildings, such as Te Kōpua a net positive energy, zero carbon building project in Henderson, to inspire and enable easier and faster uptake of sustainable buildings
- Promote and incentivise the certification of new apartment properties to performance standards that meet the requirements of the Healthy Homes Act (e.g. Passive House)
- deliver on Auckland Council's Sustainable Asset Standard and use third party green building and sustainable infrastructure rating tools to measure and reduce the environmental impact of our assets.

## Te whakamōhou whare tawhito
## Retrofitting buildings

### Action area B6: Deliver and support retrofit programmes to transition to low carbon, resilient, healthy buildings

- deliver a residential retrofit programme to improve the health and efficiency of Auckland's residential buildings, including the installation of insulation, double glazing, efficient heating and lighting, and renewable energy generation
- establish a commercial building retrofit programme to improve the performance and resilience of Auckland's commercial buildings and promote and enable fuel switching from natural gas to electricity
- establish a programme for installing climate resilience measures at a building and area scale, to address climate risks
- support uptake of productive roofs in Auckland - showcase opportunities through pilots on public assets, address current barriers to uptake and investigate incentives
- investigate the role of productive roofs (e.g. biodiversity enhancement, energy generation, stormwater management, rainwater harvesting and food growing).

## Te whakaheke i te para turakitanga, hanganga hoki
## Minimising construction and demolition waste

### Action area B7: Develop and support initiatives to minimise construction and demolition waste

- update the Building Code to consider waste and climate impacts for full lifecycle of buildings (including deconstruction) when consents are lodged
- continue research into the role of reused and recycled construction materials and ensure Auckland Council contracts are maximising opportunities to recover useful materials
- continue to roll out the "Building out Waste" tools guidelines to educate the wider construction industry, and support and integrate community and social enterprises into construction and demolition waste initiatives
- develop a deconstruction hub that provides infrastructure for industry to exchange key materials and share best practice expertise

- embed circular economic principles to address construction and demolition waste (i.e. Waste Management and Minimisation Plan)
- use demonstration projects to drive demand for recovered materials.

## Te whakamarohi i ngā wāhi tūmatanui
## Optimising public spaces

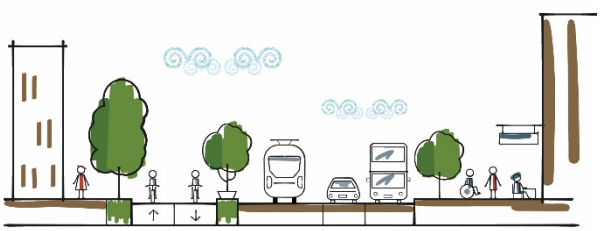
### Action area B8: Ensure public spaces support a low carbon, climate resilient Auckland and optimise multi-functional benefits

- embed climate change mitigation and adaptation measures into all park plans for the region
- ensure public spaces meet the growing demands of a growing population and urban intensification by optimising spaces for multiple functions such as recreation, water management and biodiversity enhancement
- prioritise the use of green infrastructure for multiple benefits with a low carbon footprint and include lifecycle analysis in business cases
- install temporary assets to confirm community needs before any permanent infrastructure is built
- explore initiatives to reduce travel needs and adapt locations and scheduling for more local events such as sporting events
- use underutilised land for opportunities such as energy generation and carbon sequestration.

## Te whakatū wāhi manahau e iti ana te tukunga o te waro
## Establishing low carbon resilient precincts

### Action area B9: Establish and quickly scale low carbon, resilient precincts across Auckland

- create climate positive districts at suitable locations across the region
- identify and optimise opportunities for delivering low carbon, climate resilient neighbourhoods through Panuku's development projects, such as the Ōpanuku Precinct in Henderson and the Unlock Takapuna programme
- deliver a zero emissions area in the city centre and apply lessons learnt to other urban centres.



## Te Puāwaitangi o te Tātai me te taiao hanga
## Te Puāwaitanga ō te Tātai and built environment

### Alignment to Te Puāwaitanga ō te Tātai

Where and how we build impacts our environment and can either be detrimental or enabling to our connection to the whenua and moana. Kaitiakitanga can be enabled through the ability to protect significant land or preventing expansion into areas across the region which will reduce the ability to protect and maintain mana whenua whakapapa connections.

Mana whenua play a significant role in sustaining the region and the region's identity. Our built environment needs to reflect this role, we need to design and plan a city that reflects a dual knowledge system and has embedded mātauranga Māori practices in its design.

Specific Ngā Mahi a Te Ora / Wellbeing Activities that relate to the Built Environment Priority area include:

- restore, rejuvenate and replenish our repō (wetlands) (e.g. using whole of catchment system for decision-making including land use change)
- restore and rejuvenate our moana (seas and harbours)
- restore, rejuvenate and replenish our puna wai (freshwater springs)
- restore, rejuvenate and replenish our mahinga kai (food production)
- develop regional network of Māori cultural, arts and learning centres focused on specific bodies of knowledge and practice, anchored in place and nature
- prepare and educate Māori communities, businesses and landowners for change
- use our dual knowledge systems to determine what it could look like for Tāmaki Makaurau
- invest in opportunities for innovation and green technology (e.g. how we think about waste, energy, land use and transport)
- enable whānau to prosper, be resilient and strong as we transition away from carbon dependence.

## Ngā tūtoha taiao hanga
## Built environment indicators

| Indicator | Source | Frequency of reporting | Current direction |
|---|---|---|---|
| Percentage of annual dwelling consents within 1,000m of a train or busway station (rapid transit network stations) | Auckland Monthly Housing Update (RIMU) | 6 months | Increasing |
| Percentage of major development and infrastructure proposals that complete a climate change impact assessment, starting at the business case stage | Not currently monitored | - | Unknown |
| Quantity and value of infrastructure exposed to climate risks | Climate Change Risk Assessment | CCRA – TBC | Increasing (anticipated) |
| Percentage of residential and commercial buildings retrofitted to a high standard of energy efficiency | Not currently monitored | - | Unknown |
| Percentage of new buildings built to a sustainable design standard per annum | LIM data – Auckland Council | Annual | Unknown |
| Number of buildings located in a hazard zone | Auckland Emergency Management | Annual | Unknown |
| Percentage of buildings exposed to flood hazards | Climate Change Risk Assessment | CCRA – TBC | Increasing (anticipated) |
| Number of buildings consented in flood plains and flood prone areas per annum | Regulatory Services | Annual | Unknown |

| Indicator | Source | Frequency of reporting | Current direction |
|---|---|---|---|
| Number of buildings consented in flood plains and flood prone areas per annum | Regulatory Services | Annual | Unknown |
| Tonnes of construction and demolition waste per year and percentage sent to landfill | Waste Solutions | Annual | Increasing |
| Number of low carbon precincts delivered | Not currently monitored | | Unknown |
| Average consumption of drinking water per day per resident (in litres) | Watercare | Annual | Increasing |

# Ikiiki
# Transport

## E pā ana ki te whakaarotau i ngā take ikiiki
## About the transport priority

**Our goal:** A low carbon, safe transport system that delivers social, economic and health benefits for all

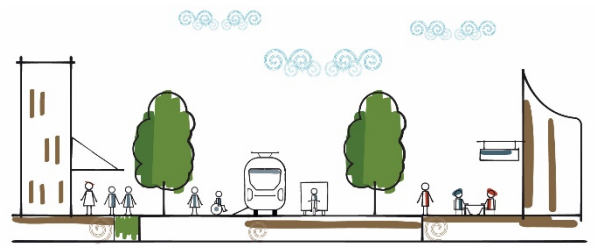
### Why this is a priority

Transport-related emissions accounted for about 44 per cent of Auckland's total emissions in 2016. About 86 per cent of these are related to travel by road. Between 2007 and 2017, on-road transport emissions increased by about 9 per cent. We need to make fundamental shifts to how we power our personal travel, how we transport freight and how much we travel.

Reducing emissions and building resilient transport systems also delivers wider benefits such as:

- improved public health
- better water quality
- equity and social justice
- longer-term economic resilience.

We will all need to make big changes to achieve our goal of reducing our emissions by 50 per cent by 2030. This priority focuses on how we can do this while making sure that Auckland grows as a great, inclusive place to live.



### Changes we need to make

Our overall emissions profile relates to the carbon-intensity of the energy we use to power our vehicles, the lifecycle of those vehicles and the consequences of operating them, including wear-and-tear of infrastructure assets.

While there are many potential pathways to our goal, we need to make significant changes to:

- how and where we live
- how we conduct and power our personal travel
- how we transport our freight
- how much we travel
- how we grow as a region.

How we travel and how much we travel inter-regionally matters as well, with domestic flights accounting for about five per cent of our transport emissions.

We also need to be smarter in placing and protecting new assets to ensure they are resilient and be innovative in how we maintain our infrastructure, to lower embodied emissions.

Land use and growth are addressed under our Built Environment priority.

## Light vehicle travel

The highest priority is reducing emissions generated by light passenger vehicles and commercial vehicles, given these generate about 80 per cent of on-road emissions.

Between 2009 and 2019, the amount and type of private travel we each undertook remained relatively stable. Meanwhile, we welcomed about 220,000 new Aucklanders with travel demands of their own.

Another trend that contributes to emissions is that many of our short trips are undertaken by private vehicles, while the number of people per vehicle has decreased over time. A large proportion of these trips could be by walking or cycling.

Slow uptake of fuel-efficient vehicles has also been affected by a lack of regulation influencing decision making and a high purchase price of electric vehicles.

## Heavy vehicle travel

Heavy vehicle movements have increased substantially over recent years. This generates a disproportionately high share of emissions per kilometres travelled because of the engine sizes and loads they carry.  Heavy vehicles account for about 20 per cent of on-road emissions.

About 95 per cent of Auckland's intraregional freight movements and the great majority of interregional movements are by road.

## Our priority action areas

Our actions to deliver this priority area are guided by the values and principles in Te Ora ō Tāmaki Makaurau Wellbeing Framework.

- change our travel options
- improve public transport
- use of bicycles and micromobility devices
- improve walking infrastructure
- shift to low or zero emissions vehicles
- make heavy freight more efficient
- manage risks to transport network
- Te Puāwaitanga ō te Tātai and transport.

### Te panoni i ā tātou kōwhiringa ikiiki

### Change our travel options

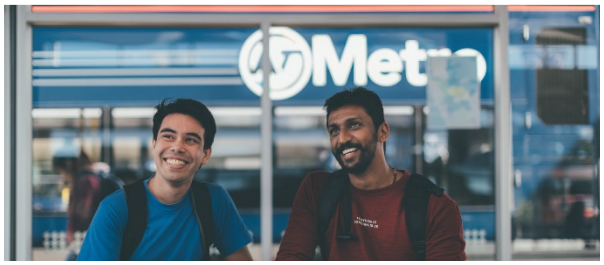
### Action area T1: Changing the way we all travel

- encourage the use of public transport, walking and micro-mobility devices, rather than driving
- shorten private vehicle trips, and fulfil several travel needs at once including for business purposes
- choose lower emissions vehicles when purchasing, sharing, or leasing
- reduce private vehicle travel and encourage lower emissions travel options by introducing pricing and parking measures.

## Te whakatika i te ikiiki tūmatanui
## Improve public transport

### Action area T2: Make travelling by public transport more appealing than using personal vehicles

- make travel by public transport faster, more frequent and reliable over a wider network
- adjust public transport prices to support low-income Aucklanders and increase inter-peak ridership
- prioritise investment along congested corridors and expand Auckland's Rapid Transit Network.



## Te eke pahikara me ngā taputapu ikiiki moroiti
## Use of bicycles and micro-mobility devices

### Action area T3: Increase access to bicycles, micro-mobility devices and the safe, connected and dedicated infrastructure that supports their use

- accelerate investment in dedicated cycleways that can be used by other micro-mobility devices and improve access to public transport hubs, education facilities and other key destinations
- improve bicycle and micro-mobility parking and other end-of-trip facilities
- improve access to communal and personal transport devices for low-income Aucklanders.

## Te whakatika i te anga hikoi
## Improve walking infrastructure

### Action area T4: Improve safety, connectivity and amenity of walking infrastructure

- accelerate investment in high-quality, safe and connected pathways
- improve road crossings, where pedestrians are disadvantaged because of high exposure to traffic, long waits at signals or significant distances between controlled crossing points
- prioritise improvements to walking infrastructure at major destinations including public transport hubs and educational facilities.

## Te neke ki ngā waka tuku hauhā iti, kore tuku hauhā rānei
## Shift to low or zero emissions vehicles

### Action area T5: Accelerate the transition of our passenger and light vehicle and public transport fleets to low or zero emissions vehicles

- implement policies and regulations that facilitate more rapid uptake of low emissions vehicles
- invest in electric vehicle recharging capacity and incentivise uptake of electric vehicles through targeted parking and network priority
- reduce emissions from our public transport fleet, beginning with procurement of only electric buses from 2025.

## Te whakatika ake i te kawe utanga taumaha
## Make heavy freight more efficient

### Action area T6: Make heavy freight systems more efficient and low carbon

- implement policies that facilitate more rapid uptake of lower emissions vehicles
- consolidate loads, mitigate empty runs, swap freight transit from heavy vehicles to rail and coastal shipping, and facilitate small vehicle last mile deliveries from freight hubs.


## Te whakahaere i ngā tūraru ki te whatunga ikiiki
## Manage risks to transport network

### Action area T7: Enhance the resilience of our transport network

- assess the current susceptibility of our transport network assets (and the services using it) to hazards, and update this assessment for potential future hazard conditions
- work with NZTA and KiwiRail to understand similar susceptibility conditions for our state highways and rail network
- use these analyses to reduce long-term cost and ensure resilience of future asset design and construction.

## Te Puāwaitanga o te Tātai me te ikiiki
## Te Puāwaitanga ō te Tātai and transport

### Alignment to Te Puāwaitanga ō te Tātai

The principles of kaitiakitanga and taurite are particularly relevant to the actions within this priority area.

Transitioning to a low emissions and climate resilient transport future requires that we practice kaitiakitanga (guardianship), exercising our duty to care for the environment we live in and protect it for future generations.

Supporting affordable fares and low-cost transport options such as walking and cycling enables ōritetanga (equity). Equitable access for whānau and communities to jobs, education and other opportunities leads to an enhanced quality of life for all.

Specific Transport Priority actions that facilitate Te Puawaitanga ō te Tātai include:

- encourage a shift to public transport use, walking and micro-mobility devices, rather than driving
- adjust public transport prices to support low-income Aucklanders and increase inter-peak ridership
- improve access to communal and personal transport devices for low-income Aucklanders
- improve road crossings, where pedestrians are disadvantaged because of high exposure to traffic, long waits at signals or significant distances between controlled crossing points.

## Ngā tūtohu ikiiki
## Transport indicators

| Indicator | Source | Frequency of reporting | Current direction |
|---|---|---|---|
| Petrol and diesel sales for land transport, per annum | Auckland Transport | Annual | Relatively stable (shorter-term decrease) |
| Percentage and number of internal combustion engine (ICE) light and heavy vehicles in fleet | Ministry of Transport | Monthly | Increasing total number |
| Percentage and number of electric vehicles and hybrid light and heavy vehicles in fleet | Ministry of Transport | Monthly | Increasing total number and share of all vehicles |
| Average fuel consumption per kilometre of ICE and hybrid light and heavy vehicles in fleet | Ministry of Transport | Annual | Decreasing based on official values for new fleet entries |
| Average vehicle kilometres travelled per ICE light and heavy vehicles in fleet | Ministry of Transport | Annual | Relatively stable |
| Average vehicle kilometres travelled per electric vehicles and hybrid light and heavy vehicles in fleet | Ministry of Transport | Annual | Increasing (limited dataset) |
| Freight tonne kilometres moved by rail, coastal shipping and road | Ministry of Transport | Annual | Increasing (anticipated) |
| Public transport boardings total and per capita | Auckland Transport | Weekly | Increasing [2] |

| Indicator | Source | Frequency of reporting | Current direction |
|---|---|---|---|
| Cycle counts at selected sites | Auckland Transport | Monthly | Increasing |
| Cycling mode share | National Household Travel Survey | Periodic | Unclear |
| Walking mode share | National Household Travel Survey | Periodic | Unclear |

Notes

[1] Further work required to regionalise some vehicle and trip data.

[2] Trend prior to COVID-19. Presently, ridership is recovering.

# Ōhanga
# Economy

## E pā ana ki te whakaarotau i ngā take ōhanga
## About the economy priority

**Our goal:** A resilient, low carbon economy, guided by our kaitiaki values, that supports Aucklanders to thrive

Kia mate ururoa, kei mate wheke

Fight like a shark, do not give in like an octopus

### Why this is a priority

Disruptions such as climate change, technological change and global pandemics have highlighted vulnerabilities in our regional and global economy and challenged the way we view our economic systems.

These disruptions and delivery of our climate goals have demonstrated the need for a more resilient economy that is regenerative, distributive, local and enables Aucklanders to thrive.

Businesses must plan for increasing climate and non-climate related disruption.

Identifying potential risks and hazards at both business and industry sector level is key to building resilience.

Developing and implementing interventions, which include the transition away from carbon intensive sectors and practices, can deliver long-term growth, skills, job creation and sustainability.

### A regenerative economy

A regenerative economy underpinned by the ethic of kaitiakitanga ensures that natural resources are extracted at a rate that they can be replenished.

Embedding these principles in our economy is increasingly important as we better understand the finite nature of our natural resources and the implications of exceeding our planetary boundaries.

According to research commissioned by the Sustainable Business Network in partnership with Auckland Tourism, Events and Economic Development (ATEED), Auckland's economy could reduce emissions by 2700 ktCO2e by 2030 across the food, transport and logistics, and construction sectors[4].

[4] https://www.circulareconomy.org.nz/aucklands-circular-economy-opportunity

Up to $8.8 billion in additional economic activity could be freed up through innovative business models taking a circular economy approach.

Pursuing low carbon, resilient process and product innovations can create new forms of value, prompt new markets and support sustainable growth by reducing reliance on finite resources.

A distributive approach focuses on enabling all Aucklanders to thrive by:

- providing equal access to economic opportunities
- supporting Aucklanders into quality jobs with long-term security
- embracing alternative ownership models, such as co-operations and employee-owned companies.

## Lessons learned from disruption

If we embrace disruptive innovation and new technologies, climate innovation in cities globally can target an additional 1.3 GtCO2e of GHG reduction by 2030[5]. This could lead to an emergence of new sectors that can provide secure and quality jobs to our growing region, leading to better social outcomes.

While the global economy was tested by COVID-19, we have seen society embracing the principles of sharing and distribution, and an increasing desire to buy local.

Exposed global supply chains have accelerated the need to look inwards and invest in local suppliers, and reinforce economic structures that are vital to a more resilient, climate-proof economy.

How and where we work was also tested during the pandemic, balancing different ways of working and communicating in our own specific contexts at home and at work.

We may not need to or want to work remotely every day, but those who can do this two or three days a week could help lower congestion, reduce our transport emissions and create more pleasant urban environments.

## Our priority action areas

Our actions to deliver this priority are guided by the values and principles in Te Ora ō Tāmaki Makaurau Wellbeing Framework.

- resilient, regenerative and distributive economy
- innovation, technology, and solutions
- decarbonise Auckland's business sector
- prepare for a zero carbon economy
- reduce emissions and risk in supply chains
- zero waste, circular economy.

### He ōhanga manahau, whakahōu, me te tohatoha hoki
### Resilient, regenerative and distributive economy

### Action area E1: Accelerate Auckland's transformation to a resilient, regenerative and distributive economy

- investigate new economic tools and frameworks, such as the City Doughnut tool, to inform Auckland's economic transition
- accelerate business capability and pathways to resilient and regenerative business models
- assess climate change risks to Auckland's economy and develop targeted programmes to support the most affected sectors

[5] https://laincubator.org/wp-content/uploads/32205-Cleantech-cities-document_V11.4.pdf

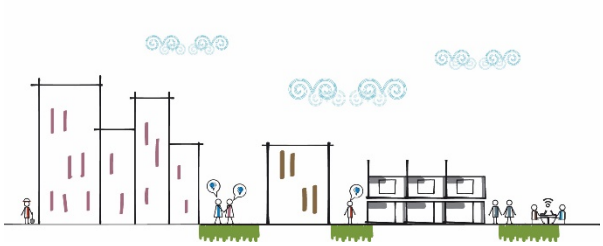
- redirect capital towards sustainability outcomes, improve how we value social and environmental impacts and build awareness and capacity in the financial sector more broadly
- define regenerative economy for Auckland in collaboration with mana whenua, iwi, business and community and in alignment with Te Ora O Tāmaki Makaurau.

Find out how we are moving toward a more resilient, regenerative and distributive economy.

## Te auaha, hangarau me ngā rongoā
## Innovation, technology and solutions

### Action area E2: Accelerate the uptake of innovation that supports the delivery of a resilient, climate-proof and regenerative economy

- partner and collaborate with central government, business, academia and Māori to enable adoption of technology and solutions that accelerate the decarbonisation of Auckland
- provide a climate innovation hub that enables Aucklanders to introduce climate compatible solutions to the market.



## Te whakakore i te whakamahinga o te waro i te rāngai pakihi o Tāmaki Makaurau
## Decarbonise Auckland's business sector

### Action area E3: Accelerate the decarbonisation of Auckland's business sector

- decarbonise operations, supply chain and products and services
- enable alternative and remote ways of working for Aucklanders
- where applicable, businesses need to disclose climate-related financial risks.

## Te whakarite mō tētahi ōhanga warokore
## Prepare for a zero carbon economy

### Action area E4: Ensure Aucklanders are prepared for the transition to a zero carbon economy

- provide employees with the necessary training needed to support the delivery of a low carbon economy.
- collaborate with business, community, academia and Māori to develop a regional just transition plan for Auckland.
- build low carbon and climate-resilient skills into the New Zealand's education system.

## Te whakaheke iho i ngā tukunga me ngā tūraru i ngā whatunga putunga
## Reduce emissions and risk in supply chains

### Action area E5: Leverage public sector and large business procurement to deliver climate outcomes for Auckland

- work with large businesses and suppliers to reduce emissions and climate risk throughout supply chains
- encourage the adoption of innovation, green technology and circular solutions, and support suppliers as they transition to a lower carbon economy.

## Te parakore me te ōhanga takataka
## Zero waste, circular economy

### Action area E6: Manage our resources to deliver a zero waste, circular economy

- implement the Auckland Waste Management and Minimisation Plan, including roll out of an urban household kerbside food scraps collection and establishing the Resource Recovery Network across Auckland
- undertake research and feasibility studies to inform investigations into on onshore processing solutions for plastics, and paper / cardboard from kerbside collections.

## Te Puāwaitanga o te Tātai me te ōhanga
## Te Puāwaitanga ō te Tātai and economy

### Alignment to Te Puāwaitanga ō te Tātai

The economy actions have been developed in line with kaitiaki values.

Tōnuitanga is particularly relevant to the economy priority as a resilient, low carbon economy that incorporates circular and regenerative principles will support Māori whānau and Māori business ecosystems. Enabling Tōnuitanga will progress the economic shift to a more regenerative, distributive, and thriving economy.

Specific Ngā Mahi a Te Ora / Wellbeing Activities that relate to the Economy Priority area include:

- establish a mana whenua climate office/ think tank
- intergenerational education programmes
- sustainability report (supports the environment, wellbeing of individuals and communities and improved economy
- use our dual knowledge systems to determine what it could look like for Tāmaki Makaurau
- invest in opportunities for innovation and green technology (e.g. how we think about waste, energy, land use and transport)
- enable whānau to prosper, be resilient and strong as we transition away from carbon dependence
- education and training programmes for a regenerative economy
- rangatahi creating innovative pathways for sustainable behaviour change
- prepare and educate Māori communities, businesses and landowners for change.

## Ngā tūtohu ōhanga
## Economy indicators

| Indicator | Source | Frequency of reporting | Current direction |
|---|---|---|---|
| Percentage change in total solid waste generation per annum | Waste Solutions | Annual | Increasing |
| Percentage change in domestic kerbside refuse per capita per annum | Waste Solutions | Quarterly | Decreasing |
| Business innovation in Auckland ($NZ) | ATEED | Annual | Static |
| Number of Auckland businesses disclosing their climate risks and/or greenhouse gas emissions in their annual plan | Not currently monitored | - | Unknown |
| Value of sustainable finance instruments pursued by Auckland businesses ($NZ) | Not currently monitored | - | Unknown |
| Number of jobs created for the green economy (or percentage of employment in the green economy) | The number of jobs per industry is monitored by council but the number of green jobs isn't currently monitored | - | Unknown |
| Percentage change in the average wage in Auckland | ATEED | Annual | Increase |
| Number of businesses adopting regenerative business models | Not currently monitored | | Unknown |
| Percentage of Auckland Council Group supplier contracts with carbon reduction KPI's | Not currently monitored but can be by Auckland Council Group | Annual | Unknown |

| Indicator | Source | Frequency of reporting | Current direction |
|---|---|---|---|
| Environmental impact and social cost of economic production and consumption | Not currently monitored | - | Increasing |
| Percentage change in tCO2e per million $NZ GDP | Auckland's GHG inventory | Annual | Decreasing |

## He ōhanga whakahōu
# A regenerative economy

### What is a Regenerative Economy?

Auckland's current economy relies heavily on extracting resources to make and use products which are then thrown away at the end of their life. This is often called the 'linear economy' and means that our limited supplies of metals, fuels, water, soil and land are under pressure from over demand.

It also means that there is a continued accumulation of waste such as plastics in landfills and our oceans. Both the continued use of finite resources and the ongoing generation of waste is resulting in the degradation of our natural environmental and putting increasing pressure on our planetary boundaries.

This linear economy is also carbon intensive with 45 per cent of global emissions coming from the way we produce goods, grow food and manage our resources. In addition to emissions, there is an increased risk to availability, supply and costs for these resources, resulting from global competition and disruptions to supply chains from severe weather events [6].

To address these issues a regenerative economy which is underpinned by renewable energy is needed. A regenerative economy is focused on ensuring that the degraded environments and natural resources that we are reliant on are rebuilt through our economic activities.

A key principle of a regenerative economy is that the Earth's natural resources are extracted no faster than they can regenerate and be replenished. When resources are used, a regenerative economy ensures that they are used in ways that give back to nature and harnesses the many sources of value through reuse and renewal.

Embedding 'circularity' is another core requirement of a regenerative economy and means that there is less of a need to extract further resources and waste is minimised. This approach can reduce emissions and enable carbon to be returned to the environment, removing it from Earth's atmosphere.

Shifting Auckland's economic model to one that restores and regenerates our natural systems and closes the gap on inequity will require collaborative effort from business, government, community and Māori.

## Te neke ki tētahi ōhanga manahau, whakahōu, me te tohatoha hoki
# Moving toward a more resilient, regenerative and distributive economy

As highlighted in our Economy, our current economic model and the pursuit of growth at the expense of our natural environment and societal wellbeing is being increasingly challenged around the world.

To deliver our climate goals there is a need for a more resilient economy that is regenerative, distributive, and enables Aucklanders to thrive.

6 https://www.ellenmacarthurfoundation.org/publications/completing-the-picture-climate-change

## Sustainable Finance Forum (SFF)

The Aotearoa Circle Sustainable Finance Roadmap is a partnership of public and private sector leaders, committed to sustainable prosperity for Aotearoa New Zealand.

The Sustainable Finance Forum (SFF) is the first project launched by The Aotearoa Circle. It recognises the critical role of finance to achieve and accelerate the transition to a sustainable economy, and the need for a financial system that is fit for that purpose.

The aim of the project is to produce a 'Roadmap for Action' on how to shift New Zealand to a sustainable financial system – from one which focuses primarily on (often short term) financial wealth creation, to one that supports long-term social, environmental, and economic wellbeing.

The Interim Report from the SFF identified several key areas of focus, grouped into three themes:

- changing the mindset
- aligning the financial system
- mobilising capital.

The ongoing work of the SFF to shift the New Zealand finance system will play a key role in supporting the delivery of this climate action plan. As a founding partner of the Aotearoa Circle and a member of the SFF technical working group, Auckland Council will be supporting and enabling this transition.

# Ngā hapori me te tahatai
# Communities and coast

## E pā ana ki ngā hapori me te whakaarotau i ngā take tahatai
## About the communities and coast priority

**Our goal:** Communities and individuals are prepared for our changing climate and coastline, and carbon footprints of Aucklanders have reduced

He auahi kei uta e taea te karo, he au kei te moana e kore e taea

You may dodge smoke on land, but you cannot dodge current at sea

### Why this is a priority

Climate change will affect everyone differently and our ability to adapt depends on local impacts and individual circumstances.

If we don't take action to reduce our carbon footprint and become more resilient now, then climate change will likely have more significant impacts on our lives, our health, our homes and our livelihoods.

### Our people

Some people are disproportionately affected for example, through poverty and insecure housing or health conditions.

Intergenerational equity, as well as cultural and socio-economic equity, is critical to a fair transition. As a society, we are only as safe as our most vulnerable.

Preparing for the impacts of climate change and reducing emissions requires major system changes. Individual, rangatahi and community action is vital in influencing our everyday choices and driving the changes we need.

We all play a role, rethinking how we live, how we travel, the energy we use, what we buy and how we eat.

We know from our surveys that Aucklanders identified the lack of awareness of climate change and what can be done as the second-most important climate change issue facing their local area.

Our formal education sector and community groups play an important role in engaging and connecting rangatahi / youth with the natural environment and providing education for sustainability to foster kaitakitanga and enable climate action.

## Our coast

Risks also emerge when people are in areas more exposed to the impacts of climate change, for example flooding, sea level rise or heat.

Our coasts are changing as a result of natural and human processes, including the impacts of climate change.

Addressing these impacts must be collaborative, working across levels of government, with mana whenua and affected communities.

We need to manage our changing coastline together through careful planning, working with iwi and communities to make the right decisions for their areas.

## Our approach to adapting to climate change

The approach to adaptation needs to be able to change with the needs of the community and as we see the implications of climate change increase.

Dynamic adaptation policy pathways (DAPP) takes this approach to make sure the decisions being made are planned with the community over time.

We need local skills, knowledge and energy to build community resilience to the impacts of climate change. Our resilience has often been tested, for example through pandemics, and we can learn from our experiences to ensure no one is left behind.

## Our priority action areas

Our actions to deliver this priority are guided by the values and principles in Te Ora ō Tāmaki Makaurau Wellbeing Framework.

- resilience of our people and places
- our changing coastline
- have your say and get involved
- supporting community initiatives
- climate-related migration
- Te Puāwaitanga ō te Tātai communities and coast.

### Te manahau o te iwi me ngā wāhi
### Resilience of our people and places

#### Action area C1: Work together to strengthen the resilience of our communities, people and places

- establish a prioritised programme of support for communities and individuals who are most impacted
- engage and educate communities and industries to be aware of current and future climate risks and consequences of hazards
- identify how mana whenua, communities and their places can be more resilient.

### Ō tātou tahatai me tana panoni haere
### Our changing coastline

#### Action area C2: Address the effects of climate change on our coastline

- establish long-term management approach for our changing coastline, and work with mana whenua and communities to create and deliver coastal management plans

- undertake a regional coastal erosion study and a coastal hazard vulnerability assessment and work with communities to discuss options and prepare them for the future
- support iwi and hapū to account for climate change impacts from sea level rise
- incorporate protection, managed retreat and restoration of indigenous coastal ecosystems into planning for sea level change
- develop a tsunami hazard model that takes sea level rise impacts into account
- review provisions in the Auckland Unitary Plan (AUP) from a coast and natural hazards perspective and use this to inform the statutory review of the AUP and future plan changes.

## Tukuna ō whakaaro, whai wāhi mai
## Have your say and get involved

### Action area C3: Enable and empower all Aucklanders to have a say in climate decisions and to act

- communicate and engage with Aucklanders to improve understanding of the implications of climate change
- improve and tailor resources for Aucklanders of different ages and ethnicities to take action at a local level
- enhance whanaungatanga connections with mana whenua and mataawaka
- form an intergenerational, rangatahi-led collective, as a channel between the council and stakeholders, to support climate action.

## Te tautoko i ngā kaupapa ā-hapori
## Supporting community initiatives

### Action area C4: Remove barriers and support community initiatives that reduce emissions and build resilience in a fair way

- support community-led action, enabling community and rangatahi activators
- deliver a climate action fund and establish community spaces (hubs) for support, learning and resilience
- provide communication and tools to support sustainable lifestyles through behaviour change
- provide low carbon living demonstration sites, guidance and advice to reduce consumer emissions
- enable mana whenua and mataawaka to reduce emissions and build resilience
- grow capacity and capability of schools' staff, students and educators to reduce emissions, increase resilience and enable future leaders.

## Ngā hekenga e whakaawetia ana e te āhuarangi
## Climate-related migration

### Action area C5: Plan for climate-related migration.

- assess potential impacts of climate change scenarios on Auckland's population, and establish targeted programmes for affected communities and individuals to support climate migrants and the current needs of our growing population.

## Te Puāwaitanga o te Tātai me ngā hapori me te tahatai
## Te Puāwaitanga ō te Tātai communities and coast

### Alignment to Te Puāwaitanga ō te Tātai

The actions in this priority area are cross-cutting as communities are on the frontline of all major challenges facing Tāmaki Makaurau.

From inequality to pandemics, unemployment to homelessness, criminal violence to poor health, poverty to systematic exclusion, communities are the theatres where these problems play out and hence where they can best be addressed.

This speaks true for climate change and climate induced migration as well; this multiplicity of challenges covered under this priority area justifies its linkage to six of the principles under Te Puāwaitanga ō te Tātai namely; manaakitanga, rangatiratanga, mātauranga, ōritetanga, tōnuitanga and kaitiakitanga. Economically and culturally strong, healthy and socially cohesive communities are a necessary prerequisite for a climate resilient Tāmaki Makaurau.

The specific Ngā Mahi a Te Ora / Wellbeing Activities that relate to the Community & Coast Priority area include:

- co-design kaitiakitanga and stewardship framework between mana whenua and the council.
- restore and rejuvenate our moana (seas and harbours), our repō (wetlands) our puna wai (freshwater springs) and our mahinga kai (food production)
- establish Rangatahi role in governance and monitoring. (build capacity to participate in decision-making)
- intergenerational education programmes
- measure the state of Māori wellbeing of Tāmaki Makaurau
- use our dual knowledge systems to determine what it could look like for Tāmaki Makaurau
- enable whānau to prosper, be resilient and strong as we transition away from carbon dependence.

## Ngā tūtohu o ngā hapori me te tahatai
## Communities and coast indicators

| Indicator | Source | Frequency of reporting | Current direction |
|---|---|---|---|
| Percentage of Aucklanders that are aware of and concerned about climate change | Public Perceptions Survey | TBC | Unknown |
| Percentage of Aucklanders that are willing to change their lifestyle to ensure we meet our climate commitments | Public Perceptions Survey | TBC | Unknown |
| Number of Aucklanders engaged in living a low carbon lifestyle | Education and Community Climate Action | Annual | Increasing |
| Percentage of Aucklanders that feel connected to their local communities and empowered to take action together | Auckland Emergency Management | Annual | Unknown |
| Number of Coastal Compartment Management Plans delivered | Coastal Management | Annual | Increasing |
| Number of Community Climate Action Plans delivered | Education and Community Climate Action | Annual | Increasing |
| Number of households, schools and organisations adopting and utilising climate-resilient strategies | Not currently monitored | Every 5 years from 2023 (suggested) | Unknown |
| Number of schools engaged in sustainability education | Education and Community Climate Action | Annual | Increasing |

# Ngā kai
# Food

## E pā ana ki te whakaarotau i ngā take kai
## About the food priority

**Our goal:** A low carbon, resilient, local food system that provides all Aucklanders with access to fresh and healthy food

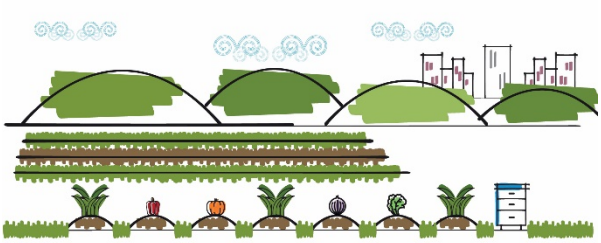
He kai kei aku ringa

There is plenty with my hands

### Why this is a priority

In our region we benefit from a temperate climate and high proportion of arable land that enables year-round food production.

However, recent events have demonstrated the importance of food security, with imports, exports and domestic supply chains directly impacted by the COVID-19 pandemic and prices fluctuating significantly.



### Food consumption emissions

Our food system makes up 18 per cent of our consumption emissions in Auckland. Consumption emissions come from food production, transport, processing and disposal to landfill.

According to the World Resources Institute, globally, food loss and waste generates more than four times annual greenhouse gas emissions than aviation. This is comparable to emissions from road transport.

### Climate change affects food production

Climate change will affect food production with:

- longer periods of drought
- more intense storms and flooding
- increasing number of pests and diseases.

This is already happening around the world, affecting availability and affordability of imports.

A low carbon, climate resilient local food system is based on a regenerative, circular economic model.

This approach:

- minimises or avoids synthetic fertilisers and pesticides
- eliminates food waste from landfills
- makes the most of surplus food to feed people, plants and animals.

As identified by our rangatahi, we need to reconnect people of all ages to where our sustenance comes from – how it grows and how we can be more resilient when we understand this.

## Importance of local food production

Local, sustainable food production can secure our food supply and reduce emissions. We need to restore, rejuvenate and replenish mahinga kai – our soils and ecological systems that support the production and gathering of food.

Our ability to meet future demand faces many pressures. In addition to climate impacts, we are seeing rapid population growth and a loss of productive soils from unsustainable farming methods and land development.

## Preserving productive soil

Only one per cent of Auckland's soils are considered Class 1 (elite) and suitable for vegetable production. These are mostly in the Pukekohe hub, which is under pressure from urban development.

Soils play a critical role in meeting our emissions targets as carbon is stored in soils. The more soil we lose, the less chance we have of meeting our emissions targets.

# Our priority action areas

Our actions to deliver this priority are guided by the values and principles in Te Ora ō Tāmaki Makaurau Wellbeing Framework.

- supporting sustainable food
- protecting and regenerating productive soil
- reducing food wastage
- encouraging local and seasonal food
- developing strategic food policy
- Te Puāwaitanga ō te Tātai and food.

Te tautoko i ngā kai toitū

## Supporting sustainable food

### Action area F1: Support primary industries and small businesses to increase food security, reduce emissions and build economic and climate resilience

- understand the impacts of climate change on food production in the region
- identify and share practices, technologies and business opportunities to support the primary sector in environmental and economic sustainability
- support development of a sustainable food economy, working with industry partners to conduct research, implement pilots, promote examples of best practice and support start-ups.

Te tiaki me te whakaora i ngā one whakatupu kai

## Protecting and regenerating productive soil

### Action area F2: Protect our productive soils and move toward regenerative practices to increase food security and carbon sequestration

- advocate for and implement regulation that protects Auckland's productive soils for growing food and supports a change to more regenerative growing of food
- advocate for the proposed National Policy Statement for Highly Productive Land

- local government collaborate with community groups and industry to promote regenerative food growing, demonstrate and promote best practice and provide education and mentoring opportunities.

## Te whakaheke iho i te moumou kai
## Reducing food wastage

### Action area F3: Prevent and reduce waste and maximise the value of surplus food

- deliver education and behaviour change programmes to prevent food waste.
- support redistribution of food through food rescue initiatives.
- encourage home and community composting where possible, including local composting initiatives.
- collect remaining food waste with a kerbside collection of food scraps in urban areas of Auckland.
- lead by example in council facilities and drive zero waste events
- advocate for government policies and funding to drive waste reduction.

## Te whakatenatena i ngā kai ā-rohe, ā-kaupeka hoki
## Encouraging local and seasonal food

### Action area F4: Increase supply and demand for local, seasonal and low carbon food

- work with communities, food growers and retailers to ensure that all Aucklanders have access to fresh, affordable, and low carbon food and that this is an easy first choice for consumers.
- support people to grow their own food, improve access to low carbon food growers or retailers, deliver behaviour change programmes and shift procurement policy to prioritise sustainably produced, low carbon food.

## Te whakawhanake kaupapa here rautaki mō ngā kai
## Developing strategic food policy

### Action area F5: Provide strategic direction and governance for Auckland's food system

- develop a food charter for Auckland, establish a Food Policy Council and advocate to government to develop a national food resilience policy.

## Te Puāwaitanga o te Tātai me ngā kai
## Te Puāwaitanga ō te Tātai and food

### Alignment to Te Puāwaitanga ō te Tātai

A low carbon, resilient and equitable food system embodies values of manaakitanga, kaitakitanga, whanaungatanga, rangatiratanga, mātauranga, ōritetanga and tōnuitanga.

Of particular relevance are manaakitanga, kaitakitanga and tōnuitanga. This priority seeks to increase access to healthy, sustainable food and provide communities with the knowledge to become more self-sufficient, improving mental and physical wellbeing and autonomy. Whānau and communities growing their own food in a more regenerative way will restore, maintain, and protect mana whenua whakapapa connections to kaitiaki (people), whenua (place), and ātua (primal ancestors). Growth in sustainable food production and manufacture provides increased training and employment opportunities in a low carbon industry that will adapt with climate change.

Specific Ngā Mahi a Te Ora / Wellbeing Activities that relate to the Food Priority area include:

- enable Oranga Ma Te Marae/ Wellbeing through the marae
- restore, rejuvenate and replenish our repō (wetlands) (e.g. using whole of catchment system for decision-making including land use change)
- restore, rejuvenate and replenish our puna wai (freshwater springs)
- restore, rejuvenate and replenish our mahinga kai (food production)
- prepare and educate Māori communities, businesses and landowners for change
- intergenerational education programmes
- enable whānau to prosper, be resilient and strong as we transition away from carbon dependence

## Ngā tūtohu kai
# Food indicators

| Indicator | Source | Frequency of reporting | Current direction |
|---|---|---|---|
| Percentage of domestic food waste as proportion of total domestic waste going to landfill | Solid Waste Analysis Protocol | Annual | Decreasing |
| Tonnes of domestic food waste going to landfill | Solid Waste Analysis Protocol | 3-yearly | Increasing |
| Percentage of commercial food waste as proportion of total commercial waste going to landfill | Solid Waste Analysis Protocol | Annual - from the time National Policy Statement for Highly Productive Land (NPS-HPL is defined for Auckland | Decreasing |
| Tonnes of commercial food waste going to landfill | Solid Waste Analysis Protocol | 2-yearly | Increasing |
| Percentage of urban Aucklanders within one kilometre of a source of fresh seasonal produce | Not currently monitored | - | Unknown |
| Percentage of Highly Productive Land protected | Plans and Places | | Decreasing |
| Percentage change in domestic plant-based diet consumption | People's perceptions survey | Annual | Increasing |
| Soil health indicators (e.g. nutrient levels) | State of the Environment Report | Annual | Decreasing |

| Indicator | Source | Frequency of reporting | Current direction |
|---|---|---|---|
| Number of jobs relating to a sustainable food economy | Not currently monitored | Annual | Increasing |
| Number of marae and Māori led programmes connecting people with mātauranga Māori to grow food | Not currently monitored | Annual | Increasing |
| Percentage of Auckland Council land being managed with regenerative practices | Community Facilities - Farm Business & Operations | Annual | Static |
| Number of approved developments that incorporate hua rakau, hua whenua, native trees and green spaces | IMSB measure | 3-yearly | Unknown |
| Number of green spaces, mahinga kai, Maara kai and hua whenua incorporated in urban design projects | IMSB measure | Annual - from the time NPS-HPL is defined for Auckland | Unknown |

## Ā tātou pūnaha kai

# Our food system

Our food system is based on a linear take-make-waste model where soil nutrients and natural resources are often depleted during food production and processing (take-make) and nutrient rich food resources are discarded in landfills (waste).

## Growing and distributing food

Our food production is dependent on fossil fuel from the production of inorganic fertilisers through to the processing and distribution of food.

Food travels great distances, and many communities experience unhealthy food environments with good access to poor food and poor access to good food.

## Quality of soil

Low soil carbon and soil nutrient loss occurs particularly in Auckland's intensive food growing areas. This has led to elevated levels of nutrients in ground and surface water.

Some farmers are moving toward regenerative farming practices that promote healthy soils that are more resilient to weather events, sequester carbon, minimise nutrient leaching, and increase biodiversity, food nutrition and crop yield.

## Food waste produces emissions

Food waste produces emissions when landfilled, but also represents unnecessary upstream emissions and resource consumption that occurs during production, processing, and distribution of that food.

While some food waste is prevented, redistributed or composted, much of it still ends up in landfill.

Aucklanders send 100,000 tonnes of food waste to landfill each year in household kerbside collection, while nationally cafés and restaurants are responsible for 24,000 tonnes and supermarkets for 14,000 tonnes annually.

# Te Puāwaitanga ō te Tātai

## E pā ana ki te whakaarotau i Te Puāwaitanga o te Tātai

## About the Te Puāwaitanga ō te Tātai priority

**Our goal:** Intergenerational whakapapa relationships of taiao (nature), whenua (land) and tangata (people) are flourishing. The potential and value of Māori is fully realised. Māori communities are resilient, self-sustaining and prosperous.

Ko te hau o te whenua, ko te hau o te tangata — The essence of the land, the vitality of the people

### Why this is a priority

Māori, the indigenous people of Aotearoa New Zealand have lived in Tāmaki Makaurau for over 1000 years. Te Tiriti o Waitangi recognises the rangatiratanga of Auckland's mana whenua and their inseparable bond between Tāmaki Makaurau the people and Tāmaki Makaurau the place.

Tāmaki Makaurau embraces its uniqueness sourced in the cosmological traditions and guardianship of mana whenua. The establishment of Auckland is founded on Te Tiriti o Waitangi and is shaped by its Māori history and presence. Today, the population of Māori in Tāmaki Makaurau is diverse and dynamic. Māori comprise nearly 12 per cent of Auckland's population, and number around 160,000 people. Over half are under 25 years and nearly a third under 15 years.

Our tūpuna (ancestors) have provided rich legacies of knowledge and practices that nurture whakapapa (genealogy) and reaffirm Māori ways of collective action. These can guide our responses today. Learning from these intergenerational relationships and practices allows us to plan for what our unique places and communities will face over the next few generations and beyond, not just what they need today.

Mana whenua play a significant role in sustaining the region and the region's identity. The responsibilities and obligations as inherent kaitiaki (caretakers) to manaaki (show generosity to) those communities that reside within their tribal domains must be upheld.

Mataawaka make a significant contribution to the wellbeing of the region and add to the economic, cultural and social richness.

The strengths and contributions Māori bring to Auckland will advance cultural, social, economic and environmental wellbeing for all Aucklanders.

## Our priority action areas

### Manaakitanga

Actively manaaki (care for) and protect whānau and communities in a way that enhances mana and wellbeing, especially during periods of change or stress. Ensure tamariki (children), rangatahi (youth) and pakeke (elderly) are valued and cared for.

### Ngā Mahi a te Ora / Wellbeing Activities:

1. Develop marae community resilience plans.
2. Enable Oranga Mai te Marae / Well-being through the marae.

## Kaitiakitanga

Restore, maintain and protect mana whenua whakapapa connections to kaitiaki (people), whenua (place), and Atua (primal ancestors). Enable active kaitiakitanga (guardianship) of whakapapa connections in current management and planning practices, but also future innovations and processes of change.

### Ngā Mahi a te Ora / Wellbeing Activities:

1. Establish a mana whenua climate office / think tank.
2. Co-design kaitiakitanga and stewardship framework between mana whenua and the council.
3. Restore, rejuvenate and replenish our repo (wetlands) (e.g. using whole of catchment system for decision-making including land use change).
4. Restore and rejuvenate our moana (seas and harbours).
5. Restore, rejuvenate and replenish our puna wai (freshwater springs).
6. Restore, rejuvenate and replenish our mahinga kai (food production).

## Whanaungatanga

Strengthen whakapapa-centred relationships across Te Moana-nui-ā-Kiwa (Pacific Ocean) and our tangata pasifika whanaunga (Pasifika relatives).

### Ngā Mahi a te Ora / Wellbeing Activities:

1. Develop regional network of Māori cultural, arts and learning centres focused on specific bodies of knowledge and practice, anchored in place and nature.
2. Grow and connect rangatahi networks, voice behaviour change.
3. Foster tangata whenua (Māori) and tangata pasifika (Pacific peoples) relationships as tangata moana (people of Te Moana-nui-a-Kiwa).

## Rangatiratanga

Actively protect Māori rights and interests in accordance with Te Tiriti o Waitangi / Treaty of Waitangi. Empower rangatahi to be facilitators of whakaaro (ideas) from te ao Māori (Māori world) perspectives. Increase Māori participation and representation in public and private sector governance.

### Ngā Mahi a Te Ora / Wellbeing Activities:

1. Establish mana whenua supported rangatahi leadership forum / platform.
2. Establish Rangatahi role in governance and monitoring. (build capacity to participate in decision-making).

## Mātauranga

Develop a mātauranga Māori framework to safeguard taonga knowledge and achieve a balance between western science and indigenous narratives of our changing climate.

### Ngā Mahi a te Ora / Wellbeing Activities:

1. Prepare and educate Māori communities, businesses and landowners for change.
2. Establish an online Māori knowledge and information portal
3. Intergenerational education programmes.

## Taurite

From a Te Ao Māori perspective, we need to consider equity and fairness from the perspective of nature, place and people. Recognising the rights and interests of nature, place and people from a whole living systems perspective is critical. Mana whenua have used the term Taurite, that speaks to the reciprocal obligations and responsibilities of restoring and maintaining balance and harmony of those symbiotic-whakapapa relationships between, nature, people and place, including past, present and future generations.

### Ngā Mahi a te Ora / Wellbeing Activities:

1. Address issues of equity and equality for Māori and in particular tamariki (children), rangatahi (youth) and whānau hauā (whānau with disability).
2. Actively reduce Māori disparities.
3. Acknowledge, confront and address institutional/ systemic racism.
4. Address the inequality of the capability and capacity of mana whenua to practically express their kaitiakitanga obligations and responsibilities across Tāmaki Makaurau.
5. Ensure Māori communities effectively respond and participate in council decision-making processes.

## Tōnuitanga

Enable sustainable circular Māori economic development and grow and Māori business ecosystems. Lift Māori whānau from poverty.

### Ngā Mahi a te Ora / Wellbeing Activities:

1. Use our dual knowledge systems to determine what it could look like for Tāmaki Makaurau.
2. Invest in opportunities for innovation and green technology (e.g. how we think about waste, energy, land use and transport).
3. Enable whānau to prosper, be resilient and strong as we transition away from carbon dependence.
4. Education and training programmes for a regenerative economy.
5. Rangatahi creating innovative pathways for sustainable behaviour change.

# Te ngao me te ahumahi
# Energy and industry

## E pā ana ki te whakaarotau i ngā take ngao, take ahumahi hoki
## About the energy and industry priority

**Our goal:** A clean energy system that supports and provides for a resilient, low carbon Auckland

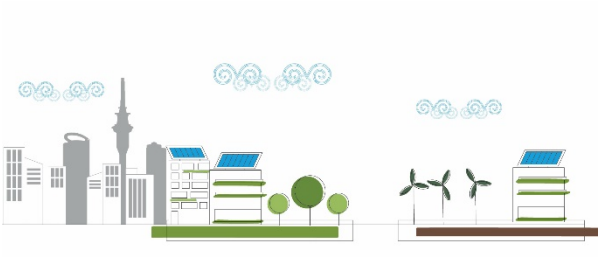
He toa taua he toa pāhekeheke. He toa mahi kai he toa mau tonu

A brave in battle is occasional, a brave at work is for all times

### Why this is a priority

Energy provides the electricity in our homes, the fuels in our transport system and the heat to manufacture products we use every day.

In 2016, stationary energy produced 26.6 per cent of Auckland's total emissions, and industrial processes produced 20.2 per cent.



### Addressing supply and demand

There are two aspects of the energy system that need to be addressed - demand and supply. It is important to first optimise processes and ensure they are as efficient as possible. This reduces the energy demand but has limited ability to reduce emissions.

Addressing supply includes actions such as fuel switching (e.g. from coal to biomass), which can deliver significant emissions reductions but can be expensive and requires commercially available technology. Moving away from fossil fuels can also reduce the volatility of price and supply from overseas sources.

Auckland has an advantage that approximately 84 per cent of New Zealand's electricity supply is generated from renewable sources[7]. However, energy is not just electricity. In fact, 66 per cent of Auckland's energy emissions are from primary fuel combustion within the region, from fuels such as natural gas, coal and liquid petroleum gas (LPG)[8].

### Auckland's industry and emissions

The Auckland region has a large amount of industry, from primary metal manufacturers to food processors. Most industrial processes and commercial buildings use process heat, which is energy in the form of steam, hot water or hot gases, and are often produced through the combustion of natural gas.

[7] https://www.c2es.org/content/international-emissions/

[8] https://knowledgeauckland.org.nz/media/1057/tr2019-002-aucklands-greenhouse-gas-inventory-to-2016.pdf

Industrial processing plants also emit non-energy related greenhouse gases. In Auckland, these emissions are generated from the production of steel, from iron sand and from scrap metal and the use of soda ash and limestone in glass making [9].

In addition to energy demand and supply, there are emissions associated with industrial product use. These emissions are mainly from the use of hydrofluorocarbons (HFCs), which are common refrigerants in our cooling systems, such as air conditioning units and refrigerators. HFCs are powerful greenhouse gases, with global warming potentials 1430 – 4000 times higher than $CO_2$. Cooling units can leak these refrigerants, and even a small volume has impacts. It is important that the refrigerants are safely disposed of at the end of a cooling unit's lifespan.

## Decarbonised, decentralised energy generation

It is important that as we electrify our transport fleet and industrial processes, that the electricity supply to meet this demand is not generated from fossil fuels. Currently emissions from the electricity grid contribute to 7.6 per cent of Auckland's total emissions and this will only increase with higher electricity demand.

It is important that the grid is decarbonised, there is an increase in the uptake of decentralised, resilient energy generation within the Auckland region and demand is reduced.

Decentralised energy systems can improve the resilience of Auckland's network and reduce reliance on the centralised grid, which could be impacted by a natural hazard and increased storm events. It also enables communities to share and generate their own electricity and could help reduce energy poverty.

There are multiple co-benefits in moving towards a decarbonised energy system. Electrification of transport vehicles and process heat will improve Auckland's air quality. The distributed energy generation model can increase community participation in the energy system and reduce energy poverty.

Transport related emissions are addressed in Transport and the resilience of the energy network and infrastructure is covered in the Built Environment.

## Our priority action areas

Our actions to deliver this priority are guided by the values and principles in Te Ora ō Tāmaki Makaurau Wellbeing Framework.

- reduce process heat and industrial emissions
- support low carbon fuels
- reduce electricity grid emissions
- reduce hydrofluorocarbon refrigerants emissions
- decentralise renewable energy solutions
- support energy demand management technologies.

[9] Process Heat Emissions & Energy Use in the Auckland Region, Martin Jenkins, March 2018.

## Te whakaheke iho i te wera tukanga me ngā tukunga ahumahi hoki
## Reduce process heat and industrial emissions

### Action area EN1: Reduce process heat and industrial process emissions in the Auckland region

- collaborate and partner with central government and industry to decarbonise process heat
- support and advise on available low carbon technologies for low to medium process heat and enable access to available funding opportunities
- advocate for investment into research, development and implementation of high temperature process heat solutions
- address barriers in Auckland Council's processes to the uptake of low carbon technologies
- lead by example by decarbonising process heat on Auckland Council's and CCO's assets by phasing out natural gas boilers.

## Te tautoko i ngā kora waro iti
## Support low carbon fuels

### Action area EN2: Investigate and support the role of alternative, low carbon fuels in Auckland

- support and build on opportunities to decarbonise heavy vehicles and process heat, learning from the Ports of Auckland's first green hydrogen fuel production plant
- advocate for central government to develop standards for hydrogen production and storage facilities and ensure these are reflected in the Auckland Unitary Plan (AUP)
- determine Auckland's role in the generation, storage and export of low carbon fuels.

## Te whakaheke iho i ngā tukunga ā-hiko
## Reduce electricity grid emissions

### Action area EN3: Reduce emissions from the electricity grid

- advocate to central government to implement renewable energy infrastructure to increase proportion of renewable electricity supply in the grid
- support the installation of renewable energy generation in the Auckland region.

## Te whakaheke iho i ngā tukunga whakamātao hydrofluorocarbon
## Reduce hydrofluorocarbon refrigerants emissions

### Action area EN4: Reduce emissions from industrial product use, specifically hydrofluorocarbon (HFC) refrigerants

- advocate for alignment with the requirements of the Kigali Amendment to the Montreal Protocol
- advocate for product stewardship for HFCs in New Zealand, and partner with refrigerant and air conditioning manufacturers in the Auckland region to identify and promote the safe use of low global warming potential refrigerants
- educate and raise awareness of the GWP impacts of refrigerants and the products that contain them
- advocate for mandatory emissions labelling for products that contain refrigerants, to increase transparency.

## Ngā rongoā ki te āta neke ki te pūngao whakahōu
## Decentralise renewable energy solutions

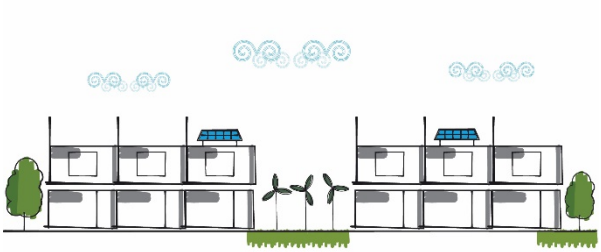
### Action area EN5: Develop, deliver and support local and regional decentralised, renewable energy solutions

- use Auckland Council's and CCO's property to test, trial and showcase innovative energy generation and support market growth through public procurement
- remove barriers in council processes and support businesses and community groups with the uptake of renewable energy solutions
- support community-led initiatives to implement sustainable energy solutions
- provide an online community power hub to enable access to required skills and expertise
- develop energy sector partnerships to deliver regional energy efficiency opportunities at scale
- assess and remove barriers in Auckland Council procedures to the uptake of decentralised renewable energy solutions.

## Te tautoko i te tono ngao me ngā hangarau whakahaere tono
## Support energy demand management technologies

### Action area EN6: Support energy demand management technologies, tools and techniques to address Auckland's peak energy use.

- use and support smart technologies to decrease peak energy usage and investigate incentives to change behaviours
- optimise building management systems and use other initiatives on Auckland Council's and CCO's facilities to reduce energy consumption
- address energy poverty by providing targeted support for high energy household users in low socio-economic circumstances
- deliver community energy efficiency and generation schemes thought energy sector partnerships.



## Te Puāwaitanga o te Tātai me te ngao me te ahumahi

## Te Puāwaitanga ō te Tātai and energy and industry

### Alignment to Te Puāwaitanga ō te Tātai

Kaitiakitanga, manaakitanga and tōnuitanga are particularly relevant to the actions within this priority area.

The decarbonisation of process heat and industrial emissions aligns with tōnuitanga, in the transition towards a resilient and low carbon economy. This transition will provide opportunities for Māori businesses in areas such as electricity generation and production of sustainable fuels, as well as exploring possible innovative technology solutions. Iwi could support the region to find potential natural resources to support the transition.

Manaakitanga is also enhanced through the focus on decentralised renewable energy, addressing energy poverty in Tāmaki Makaurau to enable healthy prosperous communities. This could enable communities to be self-sufficient regarding their energy needs.

It is essential that kaitiakitanga is upheld for the decarbonisation of the electricity supply to Tāmaki Makaurau, as some forms of renewable electricity generation can be detrimental to this role. Renewable energy should utilise but have a positive (or neutral) effect on natural resources.

Specific Ngā Mahi a Te Ora/ Wellbeing Activities that relate to the Energy and Industry Priority area include:

- enable Oranga Ma Te Marae/ Wellbeing through the marae
- prepare and educate Māori communities, businesses and landowners for change
- use our dual knowledge systems to determine what it could look like for Tāmaki Makaurau
- invest in opportunities for innovation and green technology (e.g. how we think about waste, energy, land use and transport)
- enable whānau to prosper, be resilient and strong as we transition away from carbon dependence.

## Ngā tūtohu ngao me te ahumahi
## Energy and industry indicators

| Indicator | Source | Frequency of reporting | Current direction |
|---|---|---|---|
| Percentage change in emissions from electricity consumption | Auckland's GHG inventory | Annually | Decreasing |
| Percentage change in emissions from stationary fuel combustion (e.g. process heat) | Auckland's GHG inventory | Annually | Decreasing |
| Percentage change in emissions from industrial processes | Auckland's GHG inventory | Annually | Increasing |
| Percentage change in emissions from industrial product use | Auckland's GHG inventory | Annually | Increasing |
| Percentage of grid electricity generated from renewable sources | MBIE | Annually | Increasing |
| Installed generation capacity of local and regional decentralised renewable energy solutions | Electricity Authority | 3 – 4 years | Increasing |
| Percentage change in total stationary energy use | Auckland's GHG inventory | Annually | |
| Percentage change in total electricity use | MBIE | Annually | |
| Percentage change in peak electricity use | Electricity Authority | Monthly | |

# Te whakatutuki i Te Tāruke-ā-Tāwhiri: Tā Tāmaki Makaurau Mahere Āhuarangi
# Implementing Te Tāruke-ā-Tāwhiri: Auckland's Climate Plan

The context in which the plan and our climate commitments need to be delivered is dynamic.

Technology is evolving. System interdependencies and environmental tipping points are becoming clearer.

Major shocks such as the COVID-19 pandemic and increasingly frequent extreme weather events, have highlighted:

- key risks that need to be addressed
- potential opportunities that can be realised.

While the overarching objectives and key priorities within Te Tāruke-ā-Tāwhiri have been developed to set a long-term pathway; flexibility and adaptability is critical to its successful implementation year-to-year.

We will regularly update this implementation section so that any changes to context, advances in knowledge, and lessons learned through implementation can be reviewed and integrated within the plan.

## Te mahi ngātahi
## Taking action together

To meet our climate goals, we need to act together.

We will deliver on this plan and our regional climate commitments through individual action, collective action, and partnerships.

We need the Auckland Council group to:

- ensure our regional systems support and drive the transition
- advocate for change
- work in partnership across sectors
- support communities and civil society in progressing climate action
- demonstrate leadership within its own operations and activities
- partner with mana whenua to ensure mātauranga Māori underpins our climate response.

We need central government to:

- set the national level context and put in place regulatory and policy drivers, to shape a just transition to a carbon neutral and climate resilient future
- invest in key areas
- provide national guidance to support the regulation and policy requirements.

We need mana whenua to:

- guide and support the ongoing development and implementation of this plan
- continue to support and advocate for the wellbeing of Tāmaki Makaurau, its whole living systems, whenua, wai, marae and whānau.

We need local boards to:

- work with communities to understand their priorities and deliver climate action
- lead initiatives that build community resilience and reduce emissions in their communities
- advocate for local facilities to have low carbon footprints
- advocate for climate resilience and emissions reduction
- foster strong local partnerships with mana whenua and Māori communities.

We need businesses to:

- reduce emissions and prepare for the impacts of natural hazards and climate change
- lead innovation and partnering in adapting to climate change
- reduce emissions and find ways to transition to low carbon, regenerative business practices
- help staff transition to low carbon lifestyles
- influence up and down value chains.

We need individuals and communities to:

- reduce emissions and prepare for the impacts of climate change
- support and drive the transition to net zero emissions
- work together to understand and prepare for the changes we face from climate change
- support each other
- speak up.

We need young people and rangatahi Māori to:

- lead the change
- reduce emissions and prepare for the impacts of climate change
- form an intergenerational collective and act as a channel between the council and stakeholders
- challenge and give their voices in decision making.

We need civil society and NGOs to:

- hold the partners to account
- support and deliver individual and community-led action.

We need research institutions and academia to:

- provide thought leadership and research
- fill gaps in our understanding
- provide impartial assessments of the impact of action
- innovate in the development of new technologies and approaches.

We need C40 Cities to:

- continue to provide international thought leadership and resources to ensure we all learn from each other in delivering climate action
- provide continued advice, support, and challenge as we implement our plan
- provide opportunities for Auckland to continue to inform and influence internationally.

# Te wāhi ki Te Kaunihera o Tāmaki Makaurau

## Role of Auckland Council

Auckland Council has a range of roles in delivery of the plan, some are areas of direct control whereas others require leadership, advocacy and influence.

### Advocacy

The Auckland Council group advocates to central government on a range of policies and issues to ensure the most benefit to Aucklanders. Many of these issues deal directly or indirectly with climate change.

The council's advocacy to government ensures that the policy settings, frameworks, and funding are aligned and give effect to our climate change needs.

Without strong alignment, the delivery of this plan and its ambitious targets will be difficult, if not impossible.

### Leadership

Auckland Council leads by example and influences change beyond its direct roles and responsibilities.

This is visible in the:

- buildings and facilities we operate
- materials and services we procure
- public spaces that we shape and build.

### Planning, funding and delivery

The Auckland Council group plays a major role in planning for and delivering transport, infrastructure, and urban regeneration.

The group also delivers programmes and projects for pest control, revegetation and supporting biodiversity.

Ensuring these are fit for purpose in a changing climate, as well as deliver and facilitate emissions reductions, is a focus of this plan. These are addressed in the priorities on natural and built environments, and transport.

### Regulation

Auckland Council plays a key role in regulation to ensure the health, safety and wellbeing of current and future Aucklanders.

Many regulatory functions relate directly or indirectly to climate change:

- coastal management
- pest management
- building control.

Regulation also needs to anticipate the implications of actions and manage the risks to ensure equity across the region.

### Partnership

The complexity of climate change requires action from all sectors. Partnerships are one way to bring sectors and actions together to make greater impact.

The Auckland Council group will need to continue to partner with a range of organisations and businesses to achieve our climate goals.

### Support and enable

Auckland Council provides targeted resources to support important community outcomes, including climate action.

Support from the council builds local talents and expertise to benefit communities across Auckland, for example through our community grant programmes and working with rangatahi.

## Te wāhi ki te Kāwanatanga ā-motu

## Role of central government

The government's main framework for action on climate change is the Climate Change Response Act 2002. It sets long-term, national targets for emissions reduction and a framework for improving climate resilience, with direct implications for Auckland and Auckland Council.

The Climate Change Response (Zero Carbon) Amendment Act 2019 (Zero Carbon Amendment Act) provides a framework for New Zealand to develop climate policies that contribute to global efforts to limit average temperature increase, and to allow for the preparation and adaptation to the effects of climate change.

The Zero Carbon Amendment Act set up new domestic greenhouse gas emissions targets, established a Climate Change Commission and requires government to development and implement policies for climate mitigation and adaptation.

The Ministry for the Environment is leading the coordination and development of the National Climate Change Risk Assessment and the National Adaptation Plan, in response to this Amendment Act.

Beyond these, there is other supporting and related legislation, policy and investment that have implications on climate actions in Auckland.

### Legislation and regulation

The New Zealand Emissions Trading Scheme is a market-based tool that puts a price on emissions to help incentivise emissions reduction. It is administered through the Climate Change Response Act 2002. It has been ineffective at reducing our emissions. Given new international obligations under the Paris Agreement, improvements have and will continue to be made to update the Scheme

The Resource Management Act 1991 (RMA) guides the sustainable management of resource use and environmental impacts of activities.[10]. While climate change is recognised as principle in the RMA, its current focus is adapting to the impacts of climate change, rather than emissions reduction. A package of resource management reforms is being considered and this may result in a greater emphasis on both climate mitigation and adaptation. It is hoped the reforms will build consistency with the Zero Carbon Amendment Act 2019

The Local Government Act 2002 sets out the general framework and powers under which local authorities must operate. Under this Act, Auckland Council must promote the social, economic, environmental and cultural wellbeing of communities in the present, and into the future. This includes climate related matters such as water provision, sanitation and infrastructure, transport, public facilities, financial investment etc.

The Building Act 2004 regulates building work; which includes building construction, building materials and altering, maintaining or demolishing buildings[11]. It works alongside other legislation for health, safety, consumer protection and land use. All building work must meet performance standards set out in the Building Code.

[10] https://www.mfe.govt.nz/node/16380

[11] https://www.aucklandcouncil.govt.nz/building-and-consents/Pages/building-legislation.aspx

The Building Act and the Building Code are important in supporting sustainable building – i.e. energy efficiency, waste reduction, building material etc. However, some standards in the Building Code can go against delivery of our climate goals. Council's long-standing position is that changes are needed in the Building Code to better progress climate mitigation and adaptation.

The Waste Minimisation Act 2008 encourages the reduction in the amount of waste we generate and dispose of in New Zealand as well as to reduce the environmental harm of waste.

## Policy

National Policy Statements are instruments of the Resource Management Act 1991 that set out broad policy direction on topics of national significance. National Policy Statements can guide and direct local authorities on matters of climate mitigation and adaptation. National Policy Statements currently in effect include [12]:

- National Policy Statement on Urban Development Capacity
- National Policy Statement for Freshwater Management
- National Policy Statement for Renewable Electricity Generation
- National Policy Statement for Electricity Transmission
- New Zealand's Coastal Policy Statement.

National Environmental Standards are regulations under the Resource Management Act 1991. These regulations prescribe technical and non-technical standards, methods or other requirements that local authorities must adhere to. National Environmental Standards currently in effect include:

- National Environmental Standards for Air Quality
- National Environmental Standards for Sources of Drinking Water
- National Environmental Standards for Telecommunication Facilities
- National Environmental Standards for Electricity Transmission Activities
- National Environmental Standards for Assessing and Managing Contaminated Soil to Protect Human Health
- National Environmental Standards for Plantation Forestry.

There are other national policies that relate to climate change matters that are set under other pieces of legislation. The National Policy Direction on Pest Management sets out requirements for developing pest management plans and programmes under the Biosecurity Act 1993.

A Government Policy Statement (GPS) on Land Transport [13] identifies funding priorities under the National Land Transport Fund over 10 years.

## Investment

The New Zealand Wellbeing Budget is the overarching investment framework for all programmes, services and infrastructure [14]. The current budget references climate change as a complex problem requiring new ways of thinking more broadly about budgets and integrated outcomes. The budget allocates funding for research on agricultural emissions and development of new energy technologies to support the low emissions transition, among other things.

The $100 million Green Investment Fund (GIF) was launched as part of Budget 2018 [15]. Independent from government, it operates as a company in order to be flexible and responsive to the market.

[12] https://www.mfe.govt.nz/rma/rma-legislative-tools/national-policy-statements
[13] https://www.transport.govt.nz/multi-modal/keystrategiesandplans/gpsonlandtransportfunding/

[14] https://treasury.govt.nz/publications/budgets/budget-2019
[15] https://treasury.govt.nz/information-and-services/commercial-portfolio-and-advice/new-zealand-green-investment-finance

The GIF aims to accelerate investment to reduce emissions.

The National Science Challenges (NSC) were launched in 2014 to tackle significant national issues [16]. Top scientists across disciplines and cross-sector collaborators compete for over $680 million in funding over the 10-year term of the NSC. Climate change is related to most challenges. Auckland Council has had direct involvement with the following national challenges:

- Our Land and Water
- Resilience of Nature's Challenges
- The Deep South National Science Challenge
- Biological heritage.

It is vitally important that central and local governments work together, and as Treaty partners with Māori, in order to progress climate mitigation and adaptation.

## Te wāhi ki ngā mana whenua

## Role of mana whenua

The role of mana whenua is anchored on the premise that Auckland's climate response sits within the wider context of the wellbeing of the whole living system of Tāmaki Makaurau – Te Ora ō Tāmaki Makaurau. The wellbeing of Tāmaki Makaurau is dependent on the regeneration of symbiotic-whakapapa relationships between nature, people and place and focuses on ecological, social, cultural and economic transformation that achieves balance and harmony.

The following principles underpin the role of mana whenua:

- whakapapa centred approach to understanding and enabling the transformation of well-being.
- mātauranga-māramatanga mana whenua forming the foundation to restoring balance with our ātua tupuna/ primal ancestors.
- kaitiakitanga – practical expression of our obligations and responsibilities of the kaitiakitanga of Tāmaki Makaurau.
- manaakitanga – according mana and value to the people of Tāmaki Makaurau, and in particular our wider Māori communities.
- whakamana Te Tiriti ō Waitangi – working in partnership with Council and the Crown to protect the whole living system of Tāmaki Makaurau and to enable the participation of mana whenua and Māori communities in the leadership and decision-making in relation to Auckland's climate commitments.

### Lead

- each mana whenua iwi of Tāmaki Makaurau holds its own independent mana and authority and are developing their own respective climate plans and action programmes
- Mana Whenua Kaitiaki Forum will continue to navigate and influence a regional approach to climate response.

### Partner

- each mana whenua iwi will engage and partner with council, the Crown, Community and the business sector as part of Auckland's climate response.
- Mana Whenua Kaitiaki Forum will work with council and the Crown to monitor and evaluate the state of wellbeing of Tāmaki Makaurau.

### Influence

- mana whenua will work and both a local, regional, national and international level to navigate and influence indigenous response to

[16] https://www.mbie.govt.nz/science-and-technology/science-and-innovation/funding-information-and-opportunities/investment-funds/national-science-challenges/

the regeneration and transformation of ecological, social, cultural and wellbeing.

## Te wāhi ki te ao Pakihi
## Role of business

Delivering on Auckland's climate commitments will require the involvement of all businesses.

Many businesses are already making the move towards a more efficient and sustainable way of working.

It is critical that all businesses – small, medium and large – transition to lower carbon, more climate resilient operating models.


### Climate Leaders Coalition

Over 115 New Zealand businesses have signed up to New Zealand's Climate Leaders Coalition, with members committing to:

- contribute towards carbon neutrality by 2050
- disclose their climate risks
- support their suppliers and people to reduce their emissions.

Movements like this are gaining momentum across New Zealand, with an increasing number of businesses choosing to respond to climate change as a long-term business investment.

As new technologies emerge and economic shifts occur, more than ever, businesses will need to ensure they are prepared for a zero-carbon future.

### More than economy

Although the economy provides a focus for business action on climate, it is critical that businesses also recognise their role across the other climate priority areas, including:

- transport: through organisational fleets, staff travel and freight movements
- built environment: as owners and tenants of commercial, industrial and retail property
- food: both as producers and consumers within the food system
- energy and industry: considering industrial emissions, process heat and broader energy use.

There are also several broad areas where all businesses can take action to support the plan's delivery:

- measuring and reducing operational carbon emissions
- managing climate risks
- embedding regenerative and distributive approaches
- enabling staff.

### Measuring and reducing operational carbon emissions

Unless businesses take action, we cannot meet our climate goals.

Businesses can support by measuring their greenhouse gas (GHG) emissions and setting reduction targets that support our goal of a 50 per cent reduction in emissions by 2030 and net zero emissions by 2050.

Businesses should consider direct emissions as well as supply chain emissions.

Check out EECA's tool to learn more about Auckland's climate mitigation goals.

### Managing climate risks

Business should begin to understand their own climate risks to effectively prepare for the transition to a zero-carbon, climate resilient future.

Businesses need to put the right tools, processes, and governance in place to effectively mitigate

climate risk, as well as consider future climate scenarios in supply chain, operational and financial planning.

Check out the 1.5°C playbook and the TCFD Framework for more information on climate risk preparedness for businesses.

In developing this plan, we commissioned NIWA to produce climate projections for the Auckland Region to identify potential risks. Businesses can also use this to identify their climate risks.

### Embedding regenerative and distributive approaches

Our current economic model creates waste, inequity and puts a strain on our natural resources.

To address our climate challenges, we need to move away from today's dominant economic model to one that is regenerative, distributive and thriving.

Businesses can accelerate this shift by embedding circular and regenerative approaches. By creating products and services that are circular by design and maximising the lifecycle of materials, businesses can benefit from a reduction in resource and cost.

Check out how your business can access the opportunities arising from a regenerative approach or see Economy for more information.

### Enabling staff

There are many ways businesses can support their employees in the transition to zero-carbon lifestyles:

- flexible working options
- family-friendly policies
- access to training.

Businesses will be well served by engaging their workforce as they plan for a zero-carbon future. Working with their workforce helps ensure a just transition.

A just transition recognises the need to create decent work and quality jobs while taking measures to mitigate and adapt to climate change. Early action on a just transition can minimise negative impacts and maximise opportunities.

Check out B-Team's Just Transition Guide for Business and ATEED's future ready Auckland for more information.

## Te wāhi ki ngā tāngata takitahi
## Role of individuals

Together Aucklanders' daily decisions and actions along with new policy, infrastructure, products, services and technology can help move us towards a more sustainable future.

Taking personal action to decrease emissions, as well as making your whānau more resilient to climate impacts will increase wellbeing and mean a better future for all.

Our actions also signal to other Aucklanders, decision makers and businesses that we take climate change seriously and we all need to invest in mitigating and preparing for climate change.

### Carbon footprint

The average Aucklander must reduce their carbon footprint for Auckland to meet its emission targets. This means we all need to act now.

We must change how each of us lives and the choices we all make, including:

- how we travel
- the energy we use
- what we buy
- the waste we create
- how we eat.

Rethinking our lifestyles now by using low carbon services, infrastructure and products that are already available will help us transition to low carbon lifestyles. Find out what you can do.

The sooner we transition to a carbon neutral Auckland, the easier it is and the more equitable it will be.

## Prepare for change

Aucklanders also need to get ready for adverse climate impacts, such as more storms, flooding, and heatwaves.

Transitioning to a carbon neutral Auckland can buffer against these adverse climate impacts and make us resilient.

Our Community and Coast has the actions we will collectively undertake to help Aucklanders reduce their carbon footprint and become more resilient.

# Te wāhi ki ngā hapori
# Role of communities

Together Aucklanders' collective actions along with new policy, infrastructure, services and technology can move us towards a sustainable future.

This means we need to work together to strengthen and support community-based initiatives that reduce emissions and build community resilience in a fair way. Community agencies, groups, neighbours, schools, marae, local boards and workplaces can all drive individual and systemic changes we need to achieve a resilient, low carbon future for all.

## Good examples of the active role communities can play

- organising local meetings, workshops, marches
- creating local climate action and resilience plans
- starting local projects to reduce emissions and strengthen community connection.

The Community and coast priority of this plan outlines the actions we will collectively undertake to help Aucklanders reduce their carbon footprint and prepare for the changes we face into the future.

Auckland Council, communities, schools and workplaces are already starting to take climate action. From local community-led initiatives, local environment and recycling centres, to self-help home audit tools and community grants, there is momentum we can build upon.

See our climate action and resilience initiatives and find out what you can do:

## Building resilience in our communities:

- Environment Centres – EcoMatters and Kaipatiki
- Emergency preparedness in diverse languages (Samoan, Tongan, Hindi, Chinese)
- Watercare water for life

## School programmes

- Enviroschools
- Experiential Learning Centres

## Reducing household emissions:

- Live Lightly – tips to save money, live well and care for the planet
- FutureFit – find out your impact on the planet and choose actions to reduce it
- Retrofit your Home
- Eco Design Advisory Service
- Home Energy Audit toolkits
- Homefit

## Local Board Climate Action Plans:

- Waitematā
- Whau
- Puketāpapa

## Waste reduction:

- Community recycling centres
- Compost Collective
- Para Kore ki Tāmaki

## Hei mahi māu

# What you can do

How you can reduce greenhouse gas emissions and prepare for climate change

Our actions directly contribute to reducing Auckland's carbon emissions. You can personally make a difference even though climate change can sometimes feel overwhelming.

By changing individual habits, taking small steps and some not so small, at home and in our community, Aucklanders' collective actions help reduce can reduce carbon emissions, build resilience, and support healthier lifestyles

Several communities and local groups are beginning to develop their own plans in response to climate change. Check with your local board to see if there is a climate action plan and/or climate resilience plan for your community.

See below for everyday actions Aucklanders can take to reduce emissions and be prepared for the impacts of climate change.

## Reduce the impacts of climate change

Together Aucklanders' daily decisions and actions can move us towards a sustainable future. By taking personal action we can decrease our consumer emissions that contribute to climate change and lessen our impact on the planet.

Find out your own carbon footprint and get customised tips to reduce it at FutureFit.

We have researched and narrowed down the many everyday choices Aucklanders face. We offer a range of easy and more challenging things you can do at home to make positive change with a significant impact.

**EAT:** Reduce food waste, eat more plant-based meals, and eat locally and seasonally

**SHOP:** Think before you buy to make your buying power count.

**MOVE:** Use your car less and reduce the impact of your flights.

**POWER:** Insulate your home and use hot water and appliances efficiently.

**GROW:** Plant and garden at home and in your community.

**TALK:** Start a conversation about your lifestyle choices and how you are taking climate action with your whānau, friends, neighbours, and local politicians and get involved in local events, marches, petitions, and workshops.

It is not about being perfect – it is about being healthier, making savings and playing your part to make our shared effort count.

For more information, resources, and stories of change, see Live Lightly.

## Be prepared for the impact of climate change

We need to be prepared for local impacts that we know are likely to happen in our area, as well as being resilient to our changing climate and how that might affect our lifestyle over the next 20 years.

Making sure we know how our local climate changing and how it may affect us and our homes in the near future is important. We must check and plan for how things like flooding, hotter days, erosion, as well as water and power shortages will affect us.

Being prepared will mean we are less vulnerable to health issues, sickness, or property damage in the future. It is important that we look out for the wellbeing of our families and homes.

## Related links

Check for flood risks before you buy or build

Natural hazards

Auckland Emergency Management

# Ngā tūranga me ngā pātuitanga
# Roles and partnerships

As facilitator of the plan, any changes to the plan's overarching focus, direction and targets will require endorsement by the relevant Auckland Council committee.

Multiple parties need to be involved in the governance of and have accountability for, the implementation and actions within the plan. This is critical to ensure that our response to the changing nature of our climate challenge is flexible and adaptable.

This includes representatives from rangatahi, mana whenua, mataawaka, small and large businesses, health professionals, NGOs, community groups, central government, council and the council-controlled organisations (CCOs).

Partnerships have been established through collaborative development of the plan. We will be working with leaders across the region to establish the best way to review and progress the plan over the coming year.

Each priority will need many partners.

## Natural environment

The Department of Conservation (DOC) and Auckland Council signed a memorandum of understanding in 2011, an agreement to work together to manage Auckland's open spaces, natural heritage and wild places.

This agreement takes into consideration that Aucklanders and visitors to the region do not distinguish between land managed by the council or DOC.

To inform, prepare and guide its response to climate change impacts, DOC has developed a Climate Change Adaptation Action Plan, due for release in 2020.

## Built environment

Auckland Council and council-controlled organisations (CCOs) needs to work with iwi and central government.

The private sector needs to play a significant role in planning, designing, constructing and operating infrastructure, buildings and places that support a low carbon, climate resilient future.

Individual choices relating to how we invest in, operate and retrofit buildings have an important role to play.

## Transport

The Auckland Transport Alignment Project (ATAP), which is being updated in 2020, reflects the joint transport investment priorities – including climate change –of Auckland Council and central government.

The draft Government Policy Statement (GPS) on Land Transport for 2021 includes climate change as a strategic priority. The Regional Land Transport Plan for Auckland (2021-2031), which will set out the region's land transport objectives, policies, and measures for the next ten years, is being developed to be consistent with ATAP and the GPS.

## Economy

Local and central government, business, academia, community and Māori must work together to restore and regenerate the degraded systems and environments that our economy relies on.

The choices we make as individuals and communities will define how our future economy is shaped.

## Communities and coast

Auckland Council, iwi, central government agencies, community groups and organisations, schools and early childhood educators, infrastructure providers, businesses, social agencies, not for profit organisations, district health boards, Crown-owned research institutes and universities will all need to be involved in the delivery of these key actions.

## Food

Transition to a low carbon, resilient local food system will require all individuals and sectors of Auckland to play their part.

Individuals can influence change through their food choices from eating more plant-based meals to choosing foods that are locally and sustainably produced and making use of a backyard compost bin or worm farm.

Communities can get involved in community garden and compost projects and advocate for fruit trees in public spaces.

Businesses can divert their food scraps from landfill, influence their supply chains and promote healthy, local food choices in the workplace.

Food retailers can identify opportunities to reduce waste through reviewing labelling and promotions.

Auckland Council will need to lead by example and work across stakeholders to influence supply chains, empower communities and support business.

Central government has a role in establishing policies and setting the direction for a resilient food system.

## Energy and industry

Delivering this priority will need active participation from industry and central government.

Industry, businesses, the public sector and Auckland's communities should work together in partnership to address the challenges of decarbonising the energy sector and support the transition.

# Te mahere whakatutuki
# Implementation plan

This is an overview of the actions within the plan, roles and timelines. It is our pathway to meet our climate goals and on-going discussions are underway with partners in the region to support the delivery of this plan.

We will review this information regularly to reflect new evidence, learning, policy and technologies. This is particularly important in the short term post-COVID-19 global pandemic, which has a direct impact on timing, funding and delivery of actions.

The council's role in the delivery of the plan has three elements:

- **direct control:** lead by example, deliver services, deliver infrastructure and facilities
- **lever:** plan, monitor, review, regulate, research
- **advocate:** Advocate, inform, influence.

The cost of Auckland Council's contribution to deliver on the region's climate commitments will be considered within its long-term plan, which will be consulted on in 2021.

## Immediate areas of focus

The impact of COVID-19 has meant that there will be less money available in the short term and this will directly impact on the delivery of climate actions.

Prioritisation in delivery of the plan focusses on five key areas, in the immediate term, to keep us on track to meet our climate goals:

- maximise and support the system shifts we are already seeing from the COVID-19 pandemic, with a focus on Te Ora ō Tāmaki Makaurau, the wellbeing of Tāmaki Makaurau
- ensure we maintain and accelerate action in areas where any short-term delay would result in exceeding of our carbon budget
- avoid decisions that lock us in to high emissions and low climate resilience, and ensure the right policy and strategy levers are in place to support good decision making
- focus on the resilience of our communities and our businesses, underpinned by a healthy natural environment
- establish partnerships to co-deliver our climate goals.

It is important to clarify that, to meet our climate goals, all actions will need to be delivered in the medium-term.

## Te aukati i te huringa o te āhuarangi me te Mate Korona
## Climate action and COVID-19

Although COVID-19 has caused significant disruption across businesses, communities and economies, it is important to recognise that the risks and impacts of climate change have not gone away.

We cannot return to business as usual and the pathway towards a 3.5 degree Celsius rise.

Clearly the impacts and implications of COVID-19, particularly on the most vulnerable, have been stark and we must take action to support all Aucklanders in an equitable recovery.

What has also been demonstrated is how, when united in a common goal, we can deliver major system changes across the region, the country and globally.

How the post-COVID recovery is shaped and driven will either accelerate our climate action response or make the task of preparing for climate change even more difficult. Find out more about our COVID-19 areas of focus.

## Mate Korona / Covid-19

Mate Korona or COVID-19 has presented an opportunity to re-imagine, re-frame and re-set the current system. The Māori led response across Tāmaki Makaurau for whānau activated by Māori sector organisations, marae and mana whenua have highlighted a number of lessons that could be applied as we respond and resolve issues generated from the past, meet the needs of our current generations, while we navigate a future of uncertainty, change and significant impact for future generations.

Key Learnings of Mate Korona to date;

- Māori whānau and communities are resilient, as we have been for over a thousand years of living in Tāmaki Makauaru
- our values of manaakitanga, kaitiakitanga, rangatiratanga, whanaungatanga and kotahitanga have been the glue of our resilience and care of others
- Mate Korona brought into sharper focus broader issues that continue to impact on whānau – lack of equity, poverty, over representation of Māori in socio-economic disparity are symptomatic of a system that continues to fail Māori
- the success of a Māori-led response, through Māori organisations, marae and mana whenua supported through a collaborative partnership with Council's Te Pou Whakarae emergency management response, has modelled an example of what the 'new normal' could be with Council and Māori working together as partners
- our whānau bubbles, have kept our people safe and resilient during Mate Korona, and can play a key role in the ecological, cultural, social and economic regeneration of Māori wellbeing.

Our implementation plan sets out initial thinking on when actions should be delivered but this will be kept under regular review as we address the implications of COVID-19.

It is important to be clear however, to meet our climate goals, all actions will need to be delivered in the medium-term.

## Collaboration between key partners is vital for the delivery of the plan

The collaborative approach to developing the plan provides the foundation for co-delivery and also clarifies responsibilities.

Further discussion with key partners will be needed, over the coming months, to ensure the changes we are seeing as a result of COVID-19 are appropriately considered.

## Implementation Summary Table

It is not possible to model all actions for potential emissions reduction through CURB, but indicative targets are incorporated here where available. It is important to note that enabling actions, although not modelled, will directly impact our ability in delivering emissions reductions and building resilience and so are a key component of meeting our climate goals. More information on our decarbonisation pathway and assumptions is available in the *Decarbonisation Pathway* section of the plan.

Key risks to the Auckland region have been identified and the potential impact of actions to address once or more of these risks is highlighted below. More information is available in the *Auckland's Climate Risks* section of the plan.

**KEY** (degree to which action will reduce greenhouse gas emissions and address climate risks):

*major potential*

*moderate potential*

*enabling or accelerating effect*

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| **Natural Environment** | | | | | | | | | | | | | | | | |
| Action N1:<br>Build the resilience of Auckland's indigenous biodiversity, habitats, and ecosystems to the impacts of climate change | Increase our understanding of potential climate change risks to Auckland's indigenous ecosystems and species; and ensure that these are integrated into planning and policy considerations. | Auckland Council | Lever | Academia<br>Central Government | | Plant 80% of 19,350 hectares of new forest (15,480 hectares) | Plant 100% of 19,350 hectares of new forest<br><br>Canopy cover at 30 per cent across Auckland's urban area, and at least 15 per cent in every local board area | | | X | | | Extent of terrestrial, freshwater and marine environments formally protected (as a percentage of total area)<br><br>Per cent decrease in the area infested by invasive species<br><br>Per cent increase in Auckland's land area under invasive species management programmes<br><br>Number of hectares under community pest control | | | L |
| | Increase our commitment to control key pests and weeds that are expected to benefit from climate change, across the full range of Auckland's indigenous ecosystems. | Auckland Council | Direct Control | Mana Whenua / Māori<br>Central Government (DoC / MPI)<br>Community<br>Private Landowners<br>Land Managers<br>Voluntary Sector | | | | | X | X | x | | | | | H |
| | Expand habitat protection, restoration and enhancement programmes to increase the viability, geographical extent and connectivity of indigenous terrestrial, freshwater and marine ecosystems. | Auckland Council | Direct Control | Mana Whenua / Māori<br>Central Government (DoC / MPI)<br>Private Landowners<br>Community<br>Voluntary Sector<br>Land Managers | | | | | x | X | x | | | | | H |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| | Expand habitat restoration within the Kaipara Harbour, Hauraki Gulf and Manukau Harbour. | Auckland Council | Lever | Central Government (DoC / MPI)<br>Community<br>Voluntary Sector | | | | | X | X | | | Percentage of threatened plants and animals under active management | | | H |
| | Develop approaches that support resilience and recovery of indigenous biodiversity from climate change effects (e.g. drought,storms) and increase public understanding of the importance of pre-emptive action. | Auckland Council | Direct Control<br>Advocate | Central Government (DoC)<br>Community<br>Voluntary Sector | | | | | | X | | X | Percentage of priority native habitats under active management | | | M |
| | Increase opportunities for community-led monitoring programmes and connection to our natural environment. | Voluntary sector | Lever | Community<br>Voluntary Sector<br>Auckland Council | | | | | X | X | | X | Percentage of marine area protected and restored<br><br>Tree canopy cover, regionally and by Local Board area<br><br>Marae and community-based nurseries | | | M |
| | Promote, progress and fund current and emerging initiatives, programmes and groups actively committed to the restoration, sustainability and protection of interaction between tangata (people) and whenua (land) systems within their communities. | | | | | | | | | | | | | | | |
| | Undertake and support research to improve understanding of the multiple benefits of trees in the Auckland region, incorporating mātauranga Māori and indicators of mauri. | Academia | Lever | Mana Whenua / Māori<br>Community<br>Auckland Council | | | | | X | X | | X | Tree canopy cover, regionally and by Local Board area | | | M |
| | Increase indigenous tree plantings in road corridors, parks and open spaces. | Auckland Council | Lever<br>Influence | Private Landowners<br>Land Managers | | | | | X | X | X | | Marae and community-based nurseries | | | M |
| | Use research and technology, in partnership with iwi and communities, to identify priority areas for future planting that achieves multiple outcomes. | Academia | Lever | Mana Whenua / Māori<br>Community<br>Auckland Council | | | | | X | X | | X | Public perceptions of environmental protection and awareness | | | L |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| **Action N2:**<br>**Grow and protect our rural and urban ngahere/forest to maximise carbon capture and build resilience** | Provide support, guidance and advice for landowners to undertake ecological restoration and tree planting on private land and establish mechanisms to track these. | Auckland Council | Lever | Mana Whenua / Māori<br>Community<br>Voluntary Sector | | | | | X | X | X | X | increase in number of nature-based solutions owned and maintained by community<br><br>Number of approved developments that incorporate hua rakau, hua whenua, native trees and green spaces | | | M |
| | Build the capacity and capability of existing marae and community nurseries and conservation / planting groups through assistance, advice, and training programmes. | Auckland Council | Direct Control | | | | | | X | X | | | | | | M |
| | Protect important trees through improved planning regulations and ensure publicly managed trees are not removed without clear justification. | Auckland Council | Lever<br>Direct Control | Auckland Transport<br>Panuku | | | | | X | X | | | | | | L |
| **Action N3:**<br>**Integrate connected, nature-based solutions in development planning** | Increase uptake of nature-based solutions within council family projects and develop further supporting tools for decision making where these are not currently available. | Auckland Council | Lever | Private Landowners / Developers<br>Panuku<br>Mana Whenua / Māori | | | | | | X | | | Public perceptions of environmental protection and awareness<br><br>increase in number of nature-based solutions owned and maintained by community<br><br>Number of approved developments that incorporate hua rākau, hua whenua, native trees and green spaces | | | L |
| | Provide new and promote existing regulatory, planning and educational tools to support nature-based solutions and maintain habitat corridors on private land and developments. | Auckland Council | Direct Control | | | | | | | X | | | | | | L |
| | Incorporate protection, managed retreat and restoration of indigenous coastal ecosystems into planning for sea level change. | Auckland Council | Direct Control | | | | | | X | X | X | X | | | | L |
| | Establish a monitoring framework to show the benefits of nature-based solutions projects. | Auckland Council | Lever | Panuku<br>Mana Whenua / Māori | | | | | X | X | X | X | | | | L |
| | Empower and partner with community groups and the public to encourage community-led projects. | Auckland Council | Lever<br>Influence | Community<br>Voluntary Sector | | | | | X | X | | | | | | M |
| | Enhance, extend and connect Auckland's blue-green networks to protect and enhance ecosystem function and species viability. | Auckland Council | Direct Control<br>Lever | Mana Whenua / Māori<br>Panuku | | | | | X | X | X | X | | | | H |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| | | | | Central Government (Kainga Ora)<br>Community<br>Voluntary Sector<br>Private Landowners | | | | | | | | | | | | |
| Action N4:<br>Maximise carbon capture potential of terrestrial and marine ecosystems | Support research and pilot projects that measure the biological sequestration of carbon in terrestrial, freshwater and marine ecosystems. | Academia | Lever | Auckland Council | | | | | | X | | | Carbon sequestered by trees/vegetation, soils and marine ecosystems<br>Investment in sequestrations schemes by sector | | | M |
| | Improve understanding of soil sequestration potential of different land management practices. | Academia | Lever | Rural Landowners<br>Land Managers | | | | | | X | X | | | | | M |
| | Identify opportunities for businesses and individuals to contribute to sequestration schemes in the region that support their emissions reduction goals and wider social and environmental outcomes. | Auckland Council | Lever | Business | | | | | X | X | X | | | | | L |
| Action N5:<br>Ensure land use practices deliver healthy, resilient soils, waterways and ecosystems | Support rural Aucklanders to manage land in ways that grow resilience to climate change and enhance and support biodiversity and waterway health. | Rural landowners | Lever<br>Influence | Auckland Council<br>Land Managers | | | | | X | X | X | X | Marine and freshwater quality indicators (e.g. nutrients, sediment, temperature) from SOE reporting<br>Air quality indicators (e.g. particulate matter)<br>Soil health indicators (e.g. nutrient levels) | | | H |
| | Establish land management actions that will create 'green infrastructure' to benefit farmers, land managers and the wider region (e.g. planting trees, riparian fencing and planting, restoring or creating wetlands). | Auckland Council | Lever | Rural Landowners<br>Land Managers | | | | | X | X | X | | | | | M |
| | Trial soil quality enrichment practices to enhance plant growth and carbon sequestration | Auckland Council | Lever | Rural Landowners<br>Land Managers | | | | | | X | | | | | | L |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| **Built Environment** | | | | | | | | | | | | | | | | |
| Action B1:<br><br>Ensure our approach to planning and growth aligns with low carbon, resilient outcomes | Review provisions in the Auckland Unitary Plan (AUP) from a climate and natural hazards perspective and use this to inform the statutory review of the AUP and future plan changes. | Auckland Council | Lever | Planning & Development Sector | | All new residential and commercial buildings to operate at net zero emissions<br><br>Retrofit 50% of existing residential and commercial buildings to a high standard of energy efficiency<br><br>40% of new dwellings are in transit-oriented developments<br><br>Replace 75% of gas heaters in existing residential and commercial buildings with electric heat pumps<br><br>Replace 50% of gas water heaters in | All new residential and commercial buildings to operate at net zero emissions<br><br>Retrofit 100% of existing residential and commercial buildings to a high standard of energy efficiency<br><br>65% of new dwellings are in transit-oriented developments<br><br>Replace 100% of gas heaters in existing residential and commercial buildings with electric heat pumps<br><br>Replace 100% of gas water heaters in | | | X | | | Percentage of annual dwelling consents within 1,000m of a train or busway station (rapid transit network stations)<br><br>Number of buildings consented in flood plains and flood prone areas per annum | | | L |
| | Ensure growth modelling assesses the impacts of different growth scenarios on climate change mitigation and adaptation. | Auckland Council | Lever | Central Government<br>Academia | | | | | | X | | | | | | L |
| | Review and update the growth modelling criteria in line with the latest climate evidence, knowledge and projections. | Auckland Council | Lever | Central Government<br>Academia | | | | | | X | | | | | | L |
| | Maintain and uphold a quality compact urban form as outlined in the Auckland Development Strategy. Review its implementation to ensure that opportunities for low carbon, resilient development are being realised. | Auckland Council | Lever | Mana Whenua<br>Planning & Development Sector | | | | | X | X | X | | | | | L |
| | Develop masterplans that demonstrate and promote the opportunity for zero carbon, transit-oriented development that build climate resilience. | Auckland Council | Lever | Mana Whenua<br>Planning & Development Sector | | | | | X | X | X | X | | | | L |
| | Develop Auckland Council requirements and guidance for development with known natural hazard risks and formalise the approach to consenting and vesting of at-risk assets. | Auckland Council | Direct Control | | | | | | X | X | X | | | | | L |
| | Investigate mechanisms to improve consenting for projects that reduce and manage natural hazards and develop a natural hazard management toolbox for regulatory staff | Auckland Council | Lever | | | | | | X | X | | | | | | L |
| | Collaborate to ensure climate change mitigation and adaptation is a priority in national planning legislation. | Central Government | Advocate | Auckland Council<br>Planning & Development Sector | | | | | | X | | | | | | L |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| Action B2: Ensure new infrastructure is planned and designed to minimise climate risks and lifecycle emissions | Assess climate change impacts for all new developments and infrastructure, starting at the business case stage, to identify to what degree a proposal supports or conflicts with our climate goals over its lifecycle. | Auckland Council | Lever | Planning & Development Sector | | existing residential and commercial buildings with electric heat pump water heaters<br><br>Wood waste reduced by 30% and 30% of the remaining waste incinerated to produce energy<br><br>50% of electricity currently imported by wastewater treatment plants is met by internal generation | existing residential and commercial buildings with electric heat pump water heaters<br><br>Wood waste reduced by 50% and 100% of the remaining waste incinerated to produce energy<br><br>100% of electricity currently imported by wastewater treatment plants is met by internal generation | | | | | | Percentage of major development and infrastructure proposals that complete a climate change impact assessment, starting at the business case stage<br><br>Number of buildings consented in flood plains and flood prone areas per annum<br><br>New Infrastructure consented in known hazard zones<br><br>The number of flooding events that occur and the associated number of habitable floors affected per 1000 properties connect to Auckland Council's stormwater network | | | L |
| | Embed a Dynamic Adaptive Policy Pathways approach to support decisions being made at the right time | Auckland Council | Direct Control | Lifelines Group | | | | | | | | | | | | L |
| | Assess and support pathways to decrease construction of new infrastructure in known hazard zones | Auckland Council | Direct Control | Planning & Development Sector | | | | | | | X | | | | | L |
| | Ensure that long term resilience and natural hazard planning are embedded in new infrastructure developments. | Auckland Council | Direct Control | Planning & Development Sector | | | | | | | X | | | | | L |
| | Deliver stormwater solutions and water sensitive urban design to enable resilient development and build community resilience. | Auckland Council | Direct Control | Planning & Development Sector | | | | | X | X | X | X | | | | H |
| | Reduce infrastructure carbon for water and wastewater assets and build their resilience in line with the latest climate projections | Watercare | Direct Control | Planning & Development Sector | | | | | X | | | | | | | H |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| Action B3: Ensure the management of existing infrastructure increases climate resilience and reduces emissions | Address natural hazard and climate risks in asset management plans, applying natural hazards risks criteria and methods, such as Dynamic Adaptive Policy Pathways. | Auckland Council | Direct Control | | | | | | | | | | Quantity and value of infrastructure exposed to climate risks<br>Port of Auckland emissions<br>Closed landfill emissions | | | L |
| | Improve understanding of the economic impacts of natural hazards on Auckland Council assets. | Auckland Council | Direct Control | | | | | | | | X | | | | | L |
| | Understand where critical infrastructure may be vulnerable to the impacts of climate change and identify interdependencies | Auckland Lifelines Group | Direct Control | | | | | | | | X | | | | | L |
| | Address climate change issues relating to Auckland's closed landfills, including exposure to climate risks and GHG emissions. | Auckland Council | Direct Control | | | | | | | X | | | | | | M |
| | Transition to a zero emissions Ports of Auckland by 2040 | Ports of Auckland | Lever | Shipping & Freight Sector | | | | | | | | | | | | H |
| Action B4: Identify and deliver alternative water supply options to address population growth and climate change while protecting and enhancing te Mauri o te Wai | Investigate alternative water sources that consider the impacts of climate change while ensuring the protection and enhancement of te Mauri o te Wai. | Watercare | Direct Control | | | | | | X | X | | | Water sources for the region<br>Emissions related to water supply<br>The average consumption of drinking water per day per resident (litres) | | | H |
| | Investigate energy and emissions requirements for possible new water supply options (including desalination and wastewater reuse) to inform decision making for new sources. | Watercare | Lever | | | | | | | | | | | | | L |
| | Monitor and model climate impacts on the water system to understand the resilience of the network. | Watercare | Direct Control | | | | | | | | | | | | | L |
| | Identify low-lying water and wastewater assets that are within projected sea level rise over the next 100 years. | Watercare | Direct Control | | | | | | | | | | | | | L |
| | Advocate for central government to progressively update the Building Code on a regular basis with all new buildings required to operate at net zero carbon by 2030. | Central Government | Advocate | Property & Construction Sector / New Zealand Green Building Council | | | | | | | | | Percentage of new buildings built to a sustainable design standard per annum | | | L |
| | Remove barriers to sustainable design and construction, including council processes and | Property & Construction Sector / New | Lever | Auckland Council | | | | | X | X | X | | | | | L |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| Action B5:<br>Accelerate the uptake of sustainable design and construction for new buildings | enable other mechanisms, such as incentivisation and upskilling. | Zealand Green Building Council | | | | | | | | | | | Number of buildings located in a hazard zone<br>Percentage of buildings exposed to flood hazards<br>The number of flooding events that occur and the associated number of habitable floors affected per 1000 properties connect to Auckland Council's stormwater network | | | |
| | Document, share and promote processes and lessons learned on delivery of net zero energy buildings, such as a net positive energy, zero carbon building project in Henderson, to inspire and enable easier and faster uptake of sustainable buildings. | Property & Construction Sector / New Zealand Green Building Council | Lever | Auckland Council<br>Te Kōpua Marae | | | | | X | X | | X | | | | L |
| | Promote and incentivise the certification of new apartment properties to performance standards that meet the requirements of the Healthy Homes Act (e.g. Passive House). | Property & Construction Sector / New Zealand Green Building Council | Lever | Auckland Council<br>Panuku Development Ltd | | | | | X | X | X | | | | | L |
| | Deliver on Auckland Council's Sustainable Asset Standard and use third party green building and sustainable infrastructure rating tools to measure and reduce council asset's environmental impact. | Auckland Council | Direct Control | Property & Construction Sector | | | | | X | X | X | | | | | H |
| Action B6:<br>Deliver and support retrofit programmes to transition to low-carbon, resilient, healthy buildings | Deliver a residential retrofit programme to improve the health and efficiency of Auckland's residential buildings, including the installation of insulation, double glazing, efficient heating and lighting, and renewable energy generation. | Central Government | Advocate | Homeowners | | | | | X | X | X | | Percentage of residential and commercial buildings retrofitted to a high standard of energy efficiency<br>Percentage of residential and commercial buildings retrofitted to increase resilience | | | H |
| | Establish a commercial building retrofit programme, to improve the performance and resilience of Auckland's commercial building sector and promote and enable fuel switching from natural gas to electricity. | Central Government | Advocate | Property & Construction Sector / New Zealand Green Building Council<br>Businesses | | | | | | X | X | | | | | H |
| | Establish a programme for installing climate resilience measures at a building and area scale to address climate risks. | Auckland Council | Lever<br>Direct Control (over Auckland Council owned assets) | Property & Construction Sector / New Zealand Green Building Council | | | | | X | X | X | | | | | H |
| | Support uptake of productive roofs in Auckland. Showcase opportunities through pilots on public assets, address current barriers to uptake and investigate incentivisation mechanisms | Auckland Council | Lever | Property & Construction Sector / New Zealand Green Building Council | | | | | X | X | | X | | | | L |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| | | | | Central Government | | | | | | | | | | | | |
| Action B7: Develop and support initiatives to minimise construction and demolition waste | Update the Building Code to consider waste and climate impacts, for full lifecycle (including deconstruction) when consents are lodged. | Central Government | Advocate | Construction Sector / New Zealand Green Building Council | | | | | | X | X | | Tonnes of construction and demolition waste per year and percentage sent to landfill | | | L |
| | Continue to roll out the "Building out Waste" tools and guidelines to educate the wider construction industry, and support and integrate community and social enterprises into construction and demolition initiatives. | Auckland Council | Lever | Community Social Enterprises | | | | | X | X | X | | | | | L |
| | Develop a deconstruction hub that provides infrastructure for industry to exchange key materials and share best practice expertise. | Auckland Council | Direct Control Lever | Construction Sector | | | | | | X | X | | | | | M |
| | Embed circular economic principles to address construction and demolition waste. | Construction Sector | Lever | Academia Central Government Auckland Council | | | | | X | X | X | | | | | L |
| | Continue research into the role of reused and recycled construction materials and ensure Auckland Council contracts are maximising opportunities to recover useful materials. | Construction Sector | Lever | Academia Central Government Auckland Council | | | | | X | X | X | | | | | L |
| | Use demonstration projects to drive demand for recovered materials. | Construction Sector | Lever | Academia Central Government Auckland Council | | | | | X | X | X | | | | | L |
| | Embed climate change mitigation and adaptation measures in all park plans for the region. | Auckland Council | Direct Control | Central Government (DoC) | | | | | | X | | | | | | L |
| | Ensure public spaces meet the growing demands of a growing population and urban intensification by optimising spaces for multiple functions such as recreation, water management and biodiversity enhancement. | Auckland Council | Direct Control | Central Government | | | | | X | | | | | M, L | | H |
| | Prioritise the use of green infrastructure to provide multiple benefits with a low carbon footprint and include lifecycle analysis requirements in business cases. | Auckland Council | Direct Control | Central Government | | | | | X | X | X | X | | S, M, L | | L |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| **Action B8:**<br>**Ensure public spaces support a low carbon, climate resilient Auckland and optimise multi-functional benefits** | Explore initiatives to reduce travel need and adapt locations and scheduling for more local events such as sporting events. | Auckland Council | Lever | Community and Sporting Groups<br>Sports and Events Sector | | | | | X | | | | | | | L |
| | Use underutilised land for opportunities such as energy generation and carbon sequestration. | Auckland Council | Direct Control | | | | | | X | X | X | | | | | M |
| **Action B9:**<br>**Establish and rapidly scale low carbon, resilient precincts across Auckland** | Create climate positive districts and suitable locations across the region | Auckland Council<br>Panuku Development Auckland Ltd | Lever<br>Direct Control | Property & Construction Sector<br>NZ Green Building Council<br>Business<br>Community | | | | | X | X | | | | | | H |
| | Identify and optimise opportunities for delivering low carbon, resilient precincts, such as the Opanuku Precinct in Henderson and the Unlock Takapuna programme. | Auckland Council<br>Panuku Development Auckland Ltd | Lever<br>Direct Control | Property & Construction Sector<br>NZ Green Building Council<br>Business<br>Community | | | | | X | X | | | Number of low carbon precincts delivered | | | H |
| | Deliver a zero emissions area in the City Centre and apply learnings to other urban centres. | Auckland Transport | Direct Control | City Centre Stakeholders | | | | | X | X | | | | | | H |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| **Transport** | | | | | | | | | | | | | | | | |
| Action T1: Changing the way we all travel | Encourage the use of public transport, walking and micro-mobility devices, rather than driving. | Community<br>Business | Lever<br>Influence | Auckland Council<br>Auckland Transport<br>Central Government (NZTA, MoT, MfE, MBIE)<br>Other government sector and Not-For-Profit Partners | | Vehicle kilometres travelled by private vehicles reduced by 12% as a result of avoided motorised vehicle travel, through actions such as remote working and reduced trip lengths<br><br>Public transport mode share to increase from 7.8% to 24.5%<br><br>Cycling mode share to increase from 0.9% to 7%<br><br>Walking mode share to increase from 4.1% to 6%<br><br>100% of Auckland's bus fleet to be zero emission | Vehicle kilometres travelled by private vehicles reduced by 12% as a result of avoided motorised vehicle travel, through actions such as remote working and reduced trip lengths<br><br>Public transport mode share to increase from 7.8% to 35%<br><br>Cycling mode share to increase from 0.9% to 9%<br><br>Walking mode share to increase from 4.1% to 6%<br><br>100% of Auckland's bus fleet to be zero emission<br><br>80% of passenger and | | X | X | X | | All transport indicators | | | M |
| | Shorten private vehicle trips, and fulfil several travel needs at once including for business purposes. | Community<br>Business | Lever<br>Influence | Auckland Council<br>Auckland Transport<br>Central Government (NZTA, MoT, MfE, MBIE)<br>Other government sector and Not-For-Profit Partners | | | | | X | X | X | | | | | M |
| | Choose lower emissions vehicles when purchasing, sharing or leasing. | Community<br>Business | Lever<br>Influence | Auckland Council<br>Auckland Transport<br>Central Government (NZTA, MoT, MfE, MBIE)<br>Other government sector and Not-For-Profit Partners | | | | | X | X | X | | | | | M |
| | Reduce private vehicle travel and encourage lower emissions travel options by introducing pricing and parking measures. | Auckland Council<br>Auckland Transport<br>Central Government (MoT) | Lever<br>Influence<br>Direct Control | Central Government (NZTA, Treasury, MfE, MBIE)<br>Business | | | | | | x | x | | | | | H |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| | | | | Other government sector and Not-For-Profit Partners | | 40% of passenger and light commercial vehicles to be electric or zero emission<br><br>40% of road freight to be electric or zero emission<br><br>18% increase in fuel efficiency of the light vehicle fleet (internal combustion engine)<br><br>15% increase in fuel efficiency of the freight vehicle fleet (internal combustion engine)<br><br>8% of road freight to shift to rail | light commercial vehicles to be electric or zero emission<br><br>80% of road freight to be electric or zero emission<br><br>25% increase in fuel efficiency of the light vehicle fleet (internal combustion engine)<br><br>25% increase in the fuel efficiency of the freight vehicle fleet (internal combustion engine)<br><br>20% of road freight to shift to rail | | | | | | | | |
| **Action T2:**<br><br>**Make travelling by public transport more appealing than using personal vehicles** | Make travel by public transport faster, more frequent and reliable over a wider network. | Auckland Council<br>Auckland Transport<br>Central Government (NZTA) | Direct Control<br>Lever | | | | | | x | x | x | | Public transport boardings total and per capita | | | H |
| | Adjust public transport prices to support low income Aucklanders and increase inter-peak ridership | Auckland Council<br>Auckland Transport<br>Central Government (NZTA) | Direct Control<br>Lever | | | | | | x | | x | x | | | | M |
| | Prioritise investment along congested corridors and expand Auckland's Rapid Transit Network | Auckland Council<br>Auckland Transport<br>Central Government (NZTA) | Direct Control<br>Lever | | | | | | x | x | X | | | | | H |
| **Action T3:**<br><br>**Increase access to bicycles, micro-mobility devices and the safe, connected, and dedicated infrastructure that supports their use** | Accelerate investment in dedicated cycleways that can be used by other micro-mobility devices and improve access to public transport hubs, education facilities and other key destinations. | Auckland Council<br>Auckland Transport<br>Central Government (NZTA) | Direct Control<br>Lever | | | | | | X | X | X | | Cycle counts at selected sites.<br><br>Cycling mode share | | | M |
| | Improve bicycle and micro-mobility parking and other end-of-trip facilities. | Auckland Council<br>Auckland Transport | Direct Control<br>Lever | Central Government (NZTA) | | | | | X | X | X | | | | | L |
| | Improve access to communal and personal transport devices for low-income Aucklanders. | Auckland Council<br>Auckland Transport | Direct Control<br>Lever | Central Government<br>Community | | | | | X | X | X | X | | | | L |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| Action T4: Improve safety, connectivity, and amenity of walking infrastructure | Accelerate investment in high-quality, safe, and connected pathways. | Auckland Council<br>Auckland Transport | Direct Control<br>Lever | Central Government (NZTA) | | | | | x | x | x | x | Walking mode share | | | M |
| | Improve road crossings, where pedestrians are disadvantaged because of high exposure to traffic, long waits at signals or significant distances between controlled crossing points. | Auckland Council<br>Auckland Transport | Direct Control<br>Lever | Central Government (NZTA) | | | | | x | x | x | x | | | | L |
| | Prioritise improvements to walking infrastructure at major destinations including public transport hubs and educational facilities | Auckland Council<br>Auckland Transport | Direct Control<br>Lever | Central Government (NZTA) | | | | | x | x | x | x | | | | M |
| Action T5: Accelerate the transition of our passenger and light commercial fleet to low emissions vehicles | Implement policies and regulations that facilitate faster uptake of lower emissions vehicles. | Central Government (MoT) | Influence | Central Government (MfE, Treasury)<br>Auckland Council<br>Auckland Transport | | | | | | x | x | | Percentage and number of electric vehicles and hybrid light and heavy vehicles in fleet | | | M |
| | Invest in electric vehicle recharging capacity and incentivise uptake of electric vehicles through targeted parking and network priority. | Auckland Council<br>Auckland Transport | Direct Control<br>Lever | Central Government (NZTA)<br>Industry | | | | | | x | x | | | | | L |
| | Reduce emissions from our public transport fleet, including procurement of only electric buses from 2025 | Auckland Council<br>Auckland Transport | Direct Control<br>Lever | Vector<br>Bus Operators<br>Central Government (NZTA) | | | | | | x | | | | | | M |
| Action T6: Make heavy freight systems more efficient and low carbon | Implement policies that facilitate faster uptake of low emissions vehicles. | Central Government (MoT) | Influence | Central Government (MfE, Treasury)<br>Auckland Council<br>Auckland Transport | | | | | | x | x | | Average fuel consumption/km of heavy vehicles in fleet<br><br>Average vehicle kilometres travelled per heavy vehicle in fleet<br><br>Freight tonne kilometres moved | | | M |
| | Consolidate loads, mitigating empty runs, swap freight transit from heavy vehicles to rail and coastal shipping, and facilitate small-vehicle last mile deliveries from freight hubs | Central Government (NZTA)<br>KiwiRail<br>Industry | Lever<br>Influence | Auckland Council<br>Auckland Transport<br>Central Government (NZTA, MoT)<br>Ports of Auckland Ltd | | | | | | x | x | | | | | H |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| | | | | | | | | | | | | | by rail, coastal shipping and road | | | |
| Action T7: Enhance the resilience of our transport network | Assess the current and potential susceptibility of our transport network assets (and the services using it) to hazards, and update this assessment for potential future hazard conditions | Auckland Transport<br>Central Government (NZTA)<br>Kiwirail | Direct control | Auckland Council<br>Mana Whenua / Māori | | | | ▨ | x | | x | x | Quantity and value of transport infrastructure exposed to climate risks | ➡ | | L |
| | Work with NZTA and KiwiRail to understand similar susceptibility conditions for our state highways and rail network | Auckland Transport<br>Central Government (NZTA)<br>Kiwirail | Advocate | Auckland Council<br>Mana Whenua / Māori | | | | ▨ | x | | x | x | | ➡ | | L |
| | Use these analyses to reduce long-term cost and ensure resilience of future asset design and constructions | Auckland Transport<br>Central Government (NZTA)<br>Kiwirail | Direct control (for Auckland Council assets and infrastructure) | Auckland Council<br>Mana Whenua / Māori | | | | ■ | x | | x | x | | | ➡ | H |
| **Economy** | | | | | | | | | | | | | | | | |
| Action E1: Accelerate Auckland's transformation to a resilient, regenerative, and distributive economy | Investigate new economic tools and frameworks, such as the City Doughnut tool, to inform Auckland's economic transition. | Auckland Council | Lever | ATEED<br>Central Government | ▨ | | | ▨ | X | X | X | X | Number of businesses adopting regenerative business models<br><br>Environmental impact and social cost of economic production and consumption e.g. genuine progress indicator<br><br>Number of jobs created for the green economy (or percentage of employment in | ➡ | | L |
| | Accelerate business capability and pathways to resilient and regenerative business models. | Central Government | Lever | Business<br>ATEED<br>Mana Whenua / Māori<br>Central Government | ▨ | | | ■ | X | X | X | X | | | ➡ | M |
| | Assess climate change risks to Auckland's economy and develop targeted programmes to support the most affected sectors | ATEED | Lever | Business<br>Mana Whenua / Māori<br>Central Government | ▨ | | | ■ | X | X | X | X | | ■ | ➡ | L |
| | Redirect capital towards sustainability outcomes, improve how we value social and environmental impacts and build awareness | Finance Sector, through the Aotearoa Circle | Lever | Auckland Council<br>Business | ▨ | | | ▨ | X | X | X | | | | ➡ | L |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| | and capacity in the financial sector more broadly. | Sustainable Finance Forum | | Central Government<br>Academia | | | | | | | | | the green economy) | | | |
| | Define regenerative economy for Auckland in collaboration with mana whenua, iwi, business and community and in alignment with Te Ora O Tāmaki Makaurau. | Mana Whenua & Auckland Council | Lever | Business<br>Community<br>Mana Whenua / Māori<br>Central Government | | | | | X | X | X | X | Percentage change in the average wage in Auckland<br>Value of sustainable finance instruments pursued by Auckland businesses ($NZ) | | | L |
| Action E2:<br>Accelerate the uptake of innovation that supports the delivery of a resilient, climate proof and regenerative economy | Partner and collaborate with central government, business, academia and Māori to enable adoption of technology and solutions that accelerate the decarbonisation of Auckland. | ATEED | Direct Control | Central Government<br>Business<br>Academia<br>Mana Whenua / Māori<br>Non-Governmental Organisations | | | | | X | X | X | X | Investment in climate innovation by Auckland businesses ($NZ) | | | H |
| | Provide a climate innovation hub that enables Aucklanders to introduce climate compatible solutions to the market. | ATEED | Direct Control | Central Government<br>Business<br>Academia<br>Mana Whenua / Māori<br>Non-Governmental Organisations | | | | | X | X | X | X | | | | H |
| Action E3:<br>Accelerate the decarbonisation of Auckland's business sector | Decarbonise operations, supply chain and products and services. | Business | Lever | Auckland Council<br>Central Government | | | | | X | X | X | | Percentage change in tCO2e per million $NZ GDP | | | L |
| | Enable alternative and remote ways of working for Aucklanders. | Business | Lever | Auckland Council | | | | | X | X | X | | | | | L |
| | Where applicable, disclose on climate-related financial risks. | Business | Lever | Auckland Council<br>Central Government | | | | | | | X | | Number of Auckland businesses disclosing their climate risks | | | L |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| | | | | | | | | | | | | | and/or greenhouse gas emissions in their annual plan | | | |
| **Action E4:**<br>**Ensure Aucklanders are prepared for the transition to a zero-carbon economy** | Collaborate with business, community, academia and Māori to develop a regional just transition plan for Auckland. | ATEED | Direct Control | Business<br>Academia<br>Community<br>Mana Whenua / Māori<br>Central Government | | | | | X | X | X | | Percentage of people working remotely<br><br>Number of jobs created for the green economy (or percentage of employment in the green economy) | | | L |
| | Build low-carbon and climate-resilient skills into New Zealand's education system. | Central Government | Lever | | | | | | X | X | | X | | | | L |
| | Provide employees with the necessary training needed to support the delivery of a low-carbon economy. | Business | Direct Control (for own employees) | Academia<br>Auckland Council | | | | | X | X | X | | | | | L |
| **Action E5:**<br>**Leverage public sector and large business procurement to deliver climate outcomes for Auckland** | Work with large businesses and suppliers to reduce emissions and climate risk throughout supply chains. | Business | Lever | Auckland Council | | | | | X | X | X | | Percentage of Auckland Council Group supplier contracts with carbon reduction KPI's | | | L |
| | Encourage the adoption of innovation, green technology and circular solutions, and support suppliers as they transition to a lower carbon economy. | Business | Lever | Auckland Council | | | | | X | X | X | | | | | M |
| **Action E6:**<br>**Manage our resources to deliver a zero waste, circular economy** | Implement the Auckland Waste Management and Minimisation Plan including roll out of an urban household kerbside food scraps collection and establishing the Resource Recovery Network across Auckland. | Auckland Council | Lever<br>Direct Control | Community<br>Business<br>Mana Whenua / Māori<br>Business | | | | | X | X | X | | Percentage change in total solid waste generation per annum | | | H |
| | Undertake research and feasibility studies to inform investigations into onshore processing solutions for plastics and paper/cardboard from kerbside collections. | Central Government | Advocate | Business | | | | | | X | X | | Percentage change in domestic kerbside refuse per capita per annum | | | L |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| **Communities and Coast** | | | | | | | | | | | | | | | | |
| Action C1:<br>Work together to strengthen the resilience of our communities, people and places | Establish a prioritised programme of support for communities and individuals who are most impacted | Auckland Council | Direct Control | Central Government<br>Community<br>Schools and Early Childhood Educators<br>Social Agencies<br>Not-for-Profit Organisations<br>District Health Boards | | | | | X | X | X | X | Percentage of Aucklanders that feel connected to their local communities and empowered to take action together<br><br>Number of households identified as disproportionately impacted by climate change | | | M |
| | Engage and educate communities and industries to be aware of current and future climate risks and consequences of hazards. | Auckland Council | Direct Control | | | | | | X | X | X | X | | | | L |
| | Identify how mana whenua communities and their places can be more resilient. | Auckland Council | Direct Control | Auckland Council<br>Academia<br>Central Government | | | | | X | X | X | X | | | | L |
| Action C2:<br>Address the implications of climate change on our coastline | Establish long-term management approaches for our changing coastline, working with mana whenua communities in delivery of Coastal Management Plans. | Auckland Council | Direct Control | Mana Whenua / Māori<br>Central Government<br>Community<br>Infrastructure Providers<br>Business | | | | | X | X | X | X | Number of Coastal Compartment Management Plans delivered | | | H |
| | Undertake a regional coastal erosion study and a coastal hazard vulnerability assessment and work with communities to discuss options and prepare them for the future. | Auckland Council | Direct Control | Mana Whenua / Māori<br>Central Government<br>Community<br>Infrastructure Providers | | | | | X | X | X | X | | | | M |
| | Support iwi and hapu to account for climate change impacts from sea level rise. | Auckland Council (Ngā Mātārae) | Lever | Mana Whenua / Māori<br>Auckland Council | | | | | X | X | X | X | | | | M |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| | Develop a tsunami hazard model that takes account of sea level rise impacts | Auckland Council | Direct Control | | | | | | X | X | X | X | | | | L |
| | Incorporate protection, managed retreat and restoration of indigenous coastal ecosystems into planning for sea level change. | Auckland Council | Direct Control | Mana Whenua / Māori | | | | | X | X | X | X | | | | L |
| | Review provisions in the Auckland Unitary Plan (AUP) | Auckland Council | Direct Control | | | | | | X | X | X | X | | | | L |
| Action C3: Engage in a way that enables and empowers all Aucklanders to have a say in climate decisions and to act | Communicate and engage with Aucklanders to improve understanding of the implications of climate change. | Auckland Council | Direct Control | Central Government<br>Business | | | | | X | X | X | X | Percentage of Aucklanders that are aware of and concerned about climate change<br><br>Percentage of Aucklanders that are willing to change their lifestyle to ensure we meet our climate commitments | | | L |
| | Improve and tailor resources for Aucklanders to take action at a local level | Auckland Council | Direct Control | Mana Whenua / Māori<br>Community | | | | | X | X | X | X | | | | L |
| | Form an intergenerational collective, that is rangatahi-led, to act as a channel between council and stakeholders to support climate action. | Auckland Council | Lever | Te Ohu Mana Rangatahi<br>Auckland Council | | | | | X | X | X | X | | | | L |
| | Enhance whanaungatanga connections with mana whenua and mataawaka | Mana whenua / Māori | | | | | | | X | X | X | X | | | | L |
| Action C4: Remove barriers and support community-based initiatives that reduce emissions and build resilience in a fair way | Support community-led action, enabling community and rangatahi activators | Auckland Council | Direct Control | Community<br>Mana Whenua / Māori<br>Schools and Early Childhood Educators | | | | | X | X | X | X | Number of Aucklanders engaged in living a low carbon lifestyle<br><br>Number of Community Climate Action Plans delivered | | | M |
| | Deliver a climate action fund and establish community spaces (hubs) for support, learning and resilience. | Auckland Council | Direct Control | Community<br>Mana Whenua / Māori<br>Schools and Early Childhood Educators | | | | | X | X | X | X | | | | M |
| | Provide communications and tools to support sustainable lifestyles through behaviour change. | Auckland Council | Direct Control | Community | | | | | | | | | | | | L |
| | Provide low carbon living demonstration sites, guidance and advisory services to enable a reduction in consumer emissions. | Auckland Council | Direct Control | Central Government<br>Community | | | | | | | | | | | | M |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| | | | | Schools and Early Childhood Educators<br>Social Agencies<br>Not-for-Profit Organisations | | | | | | | | | | | | |
| | Enable mana whenua and mataawaka to reduce emissions and build resilience. | Auckland Council | Direct Control | Mana Whenua / Māori | | | | | | | | | | | | M |
| | Grow capacity and capability of schools, staff and students to reduce emissions, increase resilience and enable future leaders. | Auckland Council | Direct Control | Not-for-Profit Organisations<br>Schools and Early Childhood Educators | | | | | X | X | X | X | | | | L |
| | Promote, progress and fund current and emerging initiatives, programmes and groups who are actively committed to the restoration, sustainability and protection of interaction between tangata (people) and whenua (land) systems within their communities. | Auckland Council | Lever | Rangatahi<br>Community | | | | | X | X | | | | | | M |
| Action C5:<br>Plan for climate-related migration | Assess potential impacts of climate change scenarios on Auckland's population and establish targeted programmes for affected communities and individuals to support climate migrants and the current needs of our growing population. | Auckland Council | Direct Control | Mana Whenua / Māori<br>Community | | | | | X | X | X | X | Climate-related migration | | | M |
| **Food** | | | | | | | | | | | | | | | | |
| | Understand the impacts of climate change on food production in the region. | Auckland Council | Lever | Primary Industries Sector<br>Mana Whenua / Māori | | Food waste reduced by 30% and 30% of the remaining waste diverted to anaerobic | Food waste reduced by 50% and 100% of the remaining waste diverted to anaerobic | | | | X | | Number of landowners adopting regenerative practices | | | L |
| | Identify and share practices, technologies and business opportunities for environmental and economic sustainability in the primary sector. | Primary Industries Sector | Lever | Auckland Council | | | | | | X | X | | Food CCRA completed | | | M |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| **Action F1:**<br>**Support primary industries and small businesses to increase food security, reduce emissions and build economic and climate resilience** | Support development of a sustainable food economy through research, pilot studies and promotion of best practice and start-up innovation. | ATEED<br>Auckland Council<br>Panuku | Lever | Primary Industries Sector<br>Business | | digestion and composting<br><br>10% reduction in methane emissions from livestock<br><br>30% reduction in GHG emissions sources on land e.g. from fertiliser use and liming | digestion and composting<br><br>47% reduction in methane emissions from livestock<br><br>80% reduction in GHG emissions sources on land e.g. from fertiliser use and liming | | X | X | X | | Jobs relating to a sustainable food economy | | | L |
| **Action F2:**<br>**Protect our productive soils and move toward regenerative practices to increase food security and carbon sequestration** | Advocate for and implement regulation that protects Auckland's productive soils for growing food and supports a change to more regenerative food growing practices. | Auckland Council<br>Central Government (MPI) | Direct Control<br>Lever | Mana Whenua / Māori<br>Primary Industries Sector | | Our food system makes up 18% of our consumption emissions in Auckland. Our modelling however can only address production emissions and so targets cannot be identified in the same way. | | | | X | X | | Percentage of productive soils protected | | | L |
| | Local government collaborate with community groups and industry to promote regenerative food growing, demonstrate and promote best practice and provide education and mentoring opportunities. | Auckland Council | Direct Control<br>Lever | Mana Whenua / Māori<br>Primary Industries Sector, including urban farmers<br>Non-Governmental Organisations | | | | | | X | X | | | | | M |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| Action F3: Prevent and reduce waste and maximise the value of surplus food | Deliver education and behaviour change programmes to prevent food waste. and redistribution of edible food. | Auckland Council | Lever | Food & Beverage Sector, including food rescue organisations<br>Mana Whenua / Māori<br>Primary Industries Sector, including urban farmers | | For more information on consumption emissions visit the Reducing our Emissions section of the plan. | | | | | | | | | | |
| | Support redistribution of food through food rescue initiatives. | Auckland Council | Lever | Food & Beverage Sector, including food rescue organisations<br>Mana Whenua / Māori<br>Primary Industries Sector, including urban farmers | | | | | X | X | X | | Percentage of food waste going to landfill | | | M |
| | Encourage home and community composting where possible, including local composting initiatives. | Waste Management Sector<br>Food & Beverage sector | Direct Control<br>Lever | Auckland Council<br>Mana Whenua / Māori | | | | | X | X | X | | | | | H |
| | Collect remaining food waste with a kerbside collection of food scraps in urban areas of Auckland. | Auckland Council | Lever<br>Direct Control | Community<br>Business<br>Mana Whenua / Māori<br>Business | | | | | X | X | X | | | | | H |
| | Reduce food wastage at Auckland Council and Council Controlled Organisations assets and ensure Auckland Council run events are zero waste. | Auckland Council | Direct Control<br>Lever<br>Advocate | Waste Management Sector | | | | | X | X | X | | | | | L |
| | Advocate for national policies and funding mechanisms that drive food waste reduction. | Central Government | Advocate | Waste Management Sector | | | | | X | X | X | X | | | | |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| Action F4:<br><br>Increase supply and demand for local, seasonal and low carbon food | Work with communities, food growers and retailers to ensure that all Aucklanders have access to fresh, affordable, and low carbon food and that this is an easy first choice for consumers. | Food & Beverage Sector | Lever | Auckland Council<br>Community | | | | | X | X | | | Percentage of Aucklanders within 1km of a source of fresh seasonal produce<br><br>Number of people connecting with mātauranga Māori to grow food | | | L |
| | Support people to grow their own food, improving access to low carbon food growers or retailers, delivering behaviour change programmes and shifting procurement policy to prioritise sustainably produced, low carbon food. | Auckland Council,<br>Panuku | Direct control, lever | Health Sector<br>Primary Industries Sector, including urban farmers<br>Food & Beverage Sector<br>Non-Governmental Organisations | | | | | X | X | X | X | Percentage of Aucklanders within 1km of a source of fresh seasonal produce<br><br>Number of people connecting with mātauranga Māori to grow food | | | M |
| | Support, endorse and resource food sovereignty in accordance with our indigenous measurement tool:<br>'Ka noho' - wairua and ngākau: Assist rangatahi to reconnect with mātauranga Māori to nurture skills and awareness around what it means to be self-sufficient.<br>'Teina' - hinengaro: Enable educational programmes focused on reviving ancient Māori food practices as a way to help rangatahi and their whānau understand self-sovereignty beginning with food sovereignty.<br>'Te tangata' - tinana: Promote, progress and fund current and emerging initiatives, programmes and groups who are actively committed to the restoration, sustainability and protection of food sovereignty systems within their communities. | Auckland Council | Lever | Mana Whenua / Māori<br>Rangatahi | | | | | X | X | X | X | Food Policy Council established | | | L |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| **Action F5:**<br>**Provide strategic direction and governance for Auckland's food system** | Develop a food charter for Auckland, establish a Food Policy Council and advocate to government to establish a national food resilience policy. | Auckland Council | Advocate | Food System Actors<br>Central Government | | | | | X | X | X | X | | | | L |
| **Te Puāwaitanga ō te Tātai: Actions are in further development both within the priority area and across the plan** | | | | | | | | | | | | | | | | |
| **Energy & Industry** | | | | | | | | | | | | | | | | |
| **Action EN1:**<br>**Reduce process heat and industrial process emissions in the Auckland region** | Collaborate and partner with central government and industry to decarbonise process heat | Central Government | Advocate | Business | | 23% reduction in GHG emissions from industrial processes as a result of efficiency gains, innovation and introducing biochar into the steel making process<br><br>22% of process heat switched from gas to electricity by 2030<br><br>42% reduction in | 82% reduction in GHG emissions from industrial processes as a result of efficiency gains, innovation and the use of hydrogen and biochar in the steel making process<br><br>50% of process heat switched from gas to electricity by 2030<br><br>50% reduction in process heat | | | X | X | | Percentage change in emissions from industrial processes<br><br>Percentage change in emissions from stationary fuel combustion (e.g. process heat) | | | H |
| | Support and advise on available low carbon technologies for low to medium process heat; and enable access to available funding opportunities. | Central Government | Advocate | Business | | | | | | X | X | | | | | L |
| | Advocate for investment into research, development and implementation of high temperature process heat solutions. | Academia | Lever | Central Government | | | | | | X | X | | | | | M |
| | Address barriers in Auckland Council processes to the uptake of low carbon technologies. | Auckland Council | Levers | | | | | | | X | X | | | | | L |
| | Lead by example by decarbonising process heat on Auckland Council's and CCO's assets by phasing out natural gas boilers. | Auckland Council | Direct control | | | | | | | X | X | | | | | H |
| | Support and build on opportunities to decarbonise heavy vehicles and process heat through the Ports of Auckland's first green hydrogen fuel production plant. | Ports of Auckland | Lever | Central Government<br>Business | | | | | | X | | | | | | L |
| | Advocate for central government to develop standards for hydrogen production and storage facilities and ensure these are reflected in the Auckland Unitary Plan (AUP). | Central Government | Advocate | Energy Sector | | | | | | X | X | | | | | L |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| **Action EN2:**<br>**Investigate and support the role of alternative, low carbon fuels in Auckland** | Determine Auckland's role in the generation, storage and export of low carbon fuels. | Auckland Council | Lever | Energy Sector | | process heat emissions as a result of waste heat recovery, high temperature heat pumps, best practice technology and switching from gas to biofuels.<br><br>94% of grid electricity is renewable - all coal and half of gas-fired power generation replaced with renewable electricity generation<br><br>20% of residential and commercial buildings installed with solar PV | emissions as a result of waste heat recovery, high temperature heat pumps, best practice technology and switching from gas to biofuels.<br><br>100% of grid electricity is renewable<br><br>50% of residential and commercial buildings installed with solar PV | | | X | X | | | | | L |
| **Action EN3:**<br>**Reduce emissions from the electricity grid** | Advocate to central government to implement renewable energy infrastructure to increase the proportion of renewable electricity supply in the grid. | Central Government | Lever | Energy Sector | | | | | | X | X | | Percentage of grid electricity generated from renewable sources | | | H |
| | Support the installation of renewable energy generation in the Auckland region. | Auckland Council | Lever | Central Government | | | | | | X | X | | | | | L |
| **Action EN4:**<br>**Reduce emissions from industrial product use, specifically the use of hydrofluorocarbon (HFC) refrigerants** | Align with the requirements of the Kigali Amendment to the Montreal Protocol | Central Government | Advocate | | | | | | | X | | | Percentage change in emissions from industrial product use | | | L |
| | Advocate for product stewardship for HFCs in in New Zealand, and partner with refrigerant and air conditioning manufacturers in the Auckland region to identify and promote the safe use of low Global Warming Potential (GWP) refrigerants. | Central Government<br>Auckland Council | Advocate<br>Lever | Business, specifically refrigerant and air conditioning manufacturers. | | | | | | X | X | | | | | L |
| | Educate and raise awareness of the GWP impacts of refrigerants and the products that contain them | Auckland Council<br>Business, specifically refrigerant and air conditioning manufacturers. | Lever | Business | | | | | | X | X | | | | | L |
| | Advocate for mandatory emissions labelling for products that contain refrigerants, to increase transparency. | Central Government | Advocate | Business | | | | | | X | X | | | | | L |
| | Use Auckland Council's and CCO's property to test, trial and showcase innovative energy generation and support market growth through public procurement. | Auckland Council | Direct Control | | | | | | | X | X | | Installed generation capacity of local and regional decentralised renewable energy solutions | | | H |
| | Remove barriers in council processes and support businesses and community groups | Auckland Council | Lever | Business | | | | | | X | X | | | | | M |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| | with the uptake of renewable energy solutions. | | | | | | | | | | | | | | | |
| Action EN5: Develop, deliver and support local and regional decentralised renewable energy solutions | Support community-led initiatives to implement sustainable energy solutions. | Auckland Council | Lever | Community<br>Energy sector<br>Central Government | | | | | X | X | | X | | | | M |
| | Provide an online community power hub to enable access to required skills and expertise. | Auckland Council | Lever | Community<br>Energy sector<br>Central Government | | | | | | X | X | | X | | | |
| | Develop energy sector partnerships to deliver regional energy efficiency opportunities at scale. | Auckland Council | Lever | Community<br>Energy sector<br>Central Government | | | | | | X | X | | X | | | |
| | Assess and remove barriers in Auckland Council procedures to the uptake of decentralised renewable energy solutions. | Auckland Council | Direct control | | | | | | | X | X | | X | | | |
| Action EN6: Support energy demand management technologies, tools, and techniques to address Auckland's peak energy use | Use and support smart technologies to decrease peak energy usage and investigate incentives to change behaviours. | Energy Sector | Lever | Central Government | | | | | X | X | X | | Percentage change in emissions from electricity consumption<br>Percentage change in total stationary energy use<br>Percentage change in total electricity use<br>Percentage change in peak electricity use | | | L |
| | Address energy poverty by providing targeted support for high energy household users in low socio-economic circumstances. | Auckland Council | Lever | Central Government<br>Energy Sector | | | | | | | | | | | | |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| | Deliver community energy efficiency and generation schemes through energy sector partnerships. | Energy Sector | Lever | | | | | | X | X | X | | | | | L |
| | Optimise building management systems and use other initiatives on Auckland Council's and CCO's facilities to reduce energy consumption. | Auckland Council | Direct Control | | | | | | | X | X | | | | | H |
| **Cross-Cutting** | | | | | | | | | | | | | | | | |
| Uphold Te Tiriti o Waitangi and treaty partnerships in decision making | Identify approaches, such as co-governance and on-going assessments of climate decision making, to ensure that treaty roles are upheld. | Auckland Council | Partnership | Independent Māori Statutory Board<br>Mana Whenua Kaitiaki Forum | | | | | X | X | X | X | | | | L |
| Secure long-term commitment and leadership from across mana whenua and public, private and voluntary sectors | Establish a leadership programme and governance with representation across sectors. Ensure that rangatahi are supported to be part of decision making. | Auckland Council | Partnership | Business<br>Mana Whenua Kaitiaki Forum<br>Rangatahi<br>Central Government<br>Community<br>District Health Boards | | | | | X | X | X | X | | | | L |
| Regularly review and update climate change evidence to inform decisions | Establish an on-going climate research programme, addressing gaps in knowledge and building awareness of decision makers.<br>Establish new systems to more accurately measure costs and implications of on-going severe weather events. | Auckland Council | Partnership | Academia<br>Schools<br>Business<br>Central Government | | | | | X | X | X | X | | | | M |

| Action | Sub-action | Lead | Role of Council | Partners | GHG reduction | Indicative target aligned to decarbonisation pathway (where modelled) | | Address climate risks | Additional Benefits | | | | Indicators | When does this need to be delivered? | | Resource Need |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 2030 | 2050 | | Social | Environmental | Economic | Cultural | | Years 1-3 | Years 3-10 (by 2030) | |
| Be transparent and provide data and information to enable citizen science, innovation and research and enabling people to be informed | Share climate-related data and information in an accessible way and identify research challenges and opportunities to address. | Auckland Council | Partnership | Academia<br>Central Government (MBIE)<br>National Science Challenges | | | | | X | X | X | X | | | | L |
| Support, endorse and resource the establishment of a rangatahi roopu that enables us to put the rangatahi indigenous framework into action | Form an intergenerational collective, that is rangatahi-led, to act as a channel between council and stakeholders. | Auckland Council | Partnership | Rangatahi | | | | | X | X | X | X | | | | L |

## Ngā wāhi hei āta titiro mō te Mate Korona
# COVID-19 areas of focus

### The economic circuit breaker
COVID-19 has caused widespread disruption to our economy. However, this economic circuit breaker also provides an opportunity to stimulate the transition to a more resilient economy, one that is more regenerative, distributive and low-emissions.

Embedding principles such as equity, a just transition and focussing on retraining and upskilling individuals will help build economic resilience to the climate-impacted future that we face.

### Different ways of working
COVID-19 has highlighted the opportunity of remote working and tested systems to support a new way of working.

Many Aucklanders may not need to, or want to, stay at home every day of the week after the lockdown., But if people can work remotely and stay local more often, this will help to lower congestion, reduce transport emissions and create better places for living.

### Building of community resilience
COVID-19 has shown us the importance of strong social networks in times of crisis and transition.

We can learn from our collective experiences to ensure Aucklanders are more resilient to the next shocks that hit our communities and our economy.

Understanding the support networks, mechanisms and interventions that have been most successful in preparing and supporting our communities will build greater community resilience to these shocks.

COVID-19 has highlighted inequalities in the standard of Auckland's built environment. Aucklanders' access to a healthy, thriving, natural environment is a critical driver of our personal and community wellbeing.

## Te pūtea me te tuku pūtea ki te aukati i te huringa o te āhuarangi
# Funding and financing climate action
The successful delivery of our climate goals depends on ensuring finance flows are consistent with the plan's low-emission, climate-resilient priorities.

### Ensuring the money is used to support the objectives of the climate plan
The challenge is not simply finding new capital but funneling existing capital into climate positive and sustainable outcomes.

For Auckland Council, this means ensuring that the primary funding mechanisms and approaches outlined within our long-term plans and annual plans are aligned with the action areas set out within the climate action plan. Find out more about Auckland Council's funding and financing.

### We need a range of funding and financing approaches
We need to ensure financial capital is directed towards meeting our climate ambitions requires action across the whole finance sector, from funders and investors through to regulators and financial intermediaries.

Work to shift the finance system in Aotearoa New Zealand is currently underway through the Aotearoa Circle Sustainable Finance Forum.

The cross-sector nature of the climate plan means that a broad range of funding and financing instruments are available and will need to be used.

Innovation in these areas will be critical to delivering our climate objectives.

Greening of existing instruments, such as sustainability-linked loans and green bonds, will need to be delivered.

Concepts, such as blended finance where private and public capital are combined to broaden funding risks and leverage different financial sources, will need to be integrated within funding and financing options.

### Voluntary ecosystem marketplace

One new instrument we will be exploring through the delivery of the plan is the potential for a voluntary ecosystem marketplace to generate funding for natural climate solutions.

People and businesses want to feel like they are contributing to climate mitigation. They are increasingly investing in natural climate solutions through voluntary carbon markets, to achieve net GHG reductions they can't otherwise eliminate until they can transition to new technologies.

To help with this, we envisage an accessible mechanism for the average person and small business to contribute to climate-positive projects. We will take appropriate steps to investigate and develop a voluntary ecosystem marketplace for Auckland.

## Te pūtea me te tuku pūtea a Te Kaunihera o Tāmaki Makaurau
## Auckland Council's funding and financing

Auckland Council's 10-year budget (long-term plan) sets out the activities, services, and investments for the next decade. We publish a new 10-year budget every three years.

Ensuring that the investment priorities outlined in the 10-year budget, align with the actions that priorities set out within this plan, will be critical to the successful implementation of the plan.

### Funding climate activities

While it is acknowledged that any new investment set out within the 10-year budget needs to consider funding requirements for existing services such as parks, libraries and waste collection, it is important to recognise that each of these services will be impacted by climate change and will also have the potential to positively or negatively impact on our emissions reduction ambitions.

In addition to ensuring that Auckland Council focuses its investment in low carbon, climate resilient assets, activities and services, it is also important to consider where our funds are sourced from and using those mechanisms to support the transition to a more sustainable and climate-focused financial system.

Reprioritisation of existing spend will be as important as identifying funding streams for new climate-specific activities.

### How we fund our expenditure

We fund our expenditure from different sources depending on the nature of the cost.

Our best-known source of funding is general rates, charged to homes and businesses. However, more than half of our operating revenue comes from other sources:

- water charges
- public transport fares
- consenting fees
- central government subsidies
- contributions from developers.

We also borrow, when appropriate, for much of our investment in infrastructure roads, footpaths, pipes, and libraries. These are long life assets and by using borrowings, we spread the cost over the generations that use them.

## Embedding sustainability into funding

We have already started to embed sustainability considerations into these funding streams. In 2017, we refreshed our Responsible Investment Policy and divested from investments associated with:

- the production of fossil fuels
- the manufacturing or development of controversial weapons
- the manufacturing of tobacco
- generating revenue from the operation of gambling.

Following this divestment from fossil fuels, we sought to embed environmental and climate outcomes in our borrowing activities through the development of a green bond programme aligned with the Climate Bond Initiative and Green Bond Principles. This led to the issue of two green bonds in 2018 and 2019 totalling NZ$350 million. Further green bond issuances are being planned to incorporate a wider range of green assets.

# Ngā tūtohu o te kaneke
# Indicators of progress

We will report on progress of actions contained within the plan annually. In addition, we have identified a series of indicators which we will use to measure success in delivery against our climate goals.

The trends in these indicators will be reported on in this section of the digital plan. Indicators will be reviewed, and further ones identified as we implement the plan.

## Ngā tūtohu whakatutuki orua
## Cross-cutting indicators

| Indicator | Source | Frequency of reporting | Current direction |
|---|---|---|---|
| Emissions by sector | Auckland's GHG inventory | Annual | Increasing |
| Net emissions per capita | Auckland's GHG inventory | Annual | Decreasing |
| Gross emissions per capita | Auckland's GHG inventory | Annual | Decreasing |
| Consumption based emissions | Not currently measured, proposed future indicator | | Unknown |
| Impacts and costs of severe weather events | New system needed | | Unknown |
| The New Zealand Health Survey (NZHS): Auckland data | Ministry of Health | Annual | Unknown |
| Index of Multiple Deprivation (IMD) | University of Auckland | | |
| National wellbeing Indicators (in development) | Statistics NZ | (in develop-ment) | Unknown |

# Glossary

| Term | Definition |
|---|---|
| adaptation | Actions taken to help communities and ecosystems cope with changing climate condition (United Nations Framework Convention on Climate Change).<br><br>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). |
| aka | Supple jack |
| anaerobic digestion | A biological process where microorganisms break down plant or animal waste, producing biogas as an end product. The main component of biogas is methane which can be combusted to generate heat, electricity or transportation fuels. |
| Aotearoa | North Island – now used as the Māori name for New Zealand |
| arable land | Land that can be used to grow crops |
| asset | An item of value owned by a person or company |
| Atua | Primal ancestors |
| biochar | A stable solid that is rich in carbon. It is produced by pyrolysis of biomass, in the absence of oxygen. |
| biodiversity | The variability among all living things, on land and in water, and the physical and ecological environments of which they are apart |
| biofuels | A fuel derived from living matter (e.g. biomass) |
| biological sequestration | The capture and storage of carbon from the atmosphere by living organisms, such as trees and soil microorganisms |
| blue-green economy | This concept ensures the maintenance of biodiversity and its values in relation to economic and social development |
| blue-green networks | An interconnected system of natural and semi-natural elements that are designed and managed to deliver a wide range of ecological, community and infrastructure services. The network includes green elements (e.g. parks, reserves, private gardens, street trees) and blue elements (e.g. watercourses, wetlands, stormwater channels) |
| canopy cover | The percentage of urban land covered by a layer of trees or vegetation (3m or taller) when viewed from above |

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| carbon budget | A tolerable quantity of greenhouse gas emissions that is emitted in total over a specified time. The budget needs to be in line with what is scientifically required to keep global warming within our target and thus climate change "tolerable." |
| carbon dependence | Reliance on products, processes or systems which use fossil fuels or emit greenhouse gases |
| carbon footprint | The amount of carbon dioxide released into the atmosphere by the activities of a people, organisations and communities |
| carbon intensive sectors | A sector that emits a high portion of Auckland's greenhouse gas emissions |
| carbon sequestration | The net removal, by natural or artificial processes, of carbon from the atmosphere, and storage in 'carbon sinks' (e.g. plants, oceans, soils) |
| carbon sinks | A natural or artificial reservoir that accumulates and stores some carbon-containing chemical compound for an indefinite period. The main natural carbon sinks are plants, the ocean and soil. |
| carbon-capturing ecosystems | Communities of plants, animals and other organisms that act as 'carbon sinks', removing and storing carbon from the atmosphere. |
| circular economic principles | Principles are:<br>• design out waste and pollution<br>• keep products and materials in use<br>• regenerate natural systems<br><br>Source: Ellen MacArthur Foundation<br>https://www.ellenmacarthurfoundation.org/circular-economy/concept |
| circular economy | A circular economy is characterised as one which is regenerative by design. It aims to retain as much value as possible of products, parts and materials. This should create a system that allows for the long life, optimal reuse, refurbishment, remanufacturing and recycling of products and materials. |
| circular solutions | A solution that ensures resources are continuously cycled in various forms, maximising the value of a product or service |
| circular water system | Based on the circular economy principles, a circular water system is where water is managed in loops and maintained at its highest possible intrinsic value |
| climate change | The long-term shift in global or regional climate patterns attributed directly or indirectly to human activity. GHG's emitted into the atmosphere through human activity alter the composition of the global atmosphere, causing rising global temperatures and changing weather patterns in addition to natural climate variability. |

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| climate emergency | A situation in which urgent action is required to reduce or halt climate change and avoid potentially irreversible environmental damage resulting from it |
| climate impacts | A marked effect or influence of climate change |
| climate migrant | Persons displaced in the context of disasters and climate change |
| climate positive | Activity that goes beyond achieved net zero carbon emissions by removing additional carbon dioxide from the atmosphere |
| climate positive districts | Districts or communities whose activity goes beyond achieving net zero carbon emissions by removing additional carbon dioxide from the atmosphere |
| 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 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 |
| climate-proof | The ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions |
| coastal and marine ecosystems | The natural environment, habitats and species located in open ocean areas, nearshore coastal areas, areas where freshwater and saltwater mix, and certain terrestrial ecosystems near the coast, such as sand dunes (UNEP) |
| coastal erosion | The loss of coastal lands due to the net removal of sediments or bedrock from the shoreline |
| coastal inundation | Flooding of normally dry, low-lying coastal land. This is primarily caused by severe weather events along the coasts, estuaries, and adjoining rivers |
| decarbonise | Reduce the amount of gaseous carbon compounds released in or as a result of (an environment or process) |
| decentralised energy | Energy generated off the main grid, including micro-renewables, heating and cooling |
| diversified energy supply | Energy that is generated off the main grid, including micro-renewables, heating and cooling. |
| ecological habitats | The type of natural environment in which a particular species of organism lives, where all essentials for its development and existence are present. |
| ecological restoration | The active intervention, management and improvement of modified or degraded habitats, ecosystems and landscapes |

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| economic systems | An economic system, or economic order, is a system of production, resource allocation and distribution of goods and services within a society or a given geographic area |
| ecosystem | A community of plants, animals and other organisms that function together as a unit along with their environment |
| electric vehicle | Transportation options that do not result in any harmful emissions (have a negative impact on the environment or human health) during vehicle operation. |
| electrification | The process of making something operate using electricity where it did not before, e.g. converting the current train tracks so that electric trains can operate on them |
| emissions | The production and discharge of something e.g. the production and discharge of greenhouse gases into the atmosphere |
| emissions modelling | An annual estimate of emission for a wide range of important pollutants, including air quality pollutants and greenhouse gases |
| energy poverty | When the household energy cost, to maintain minimum acceptable indoor temperatures, are excessive when compared with the overall household income |
| equitable | Actions and decisions that are fair and just |
| equity | The quality of being fair |
| exotic invasive species | Non-indigenous species whose introduction or spread threatens biodiversity, food security and/or human health and wellbeing |
| extreme weather events | Events that is rare at a particular place and time of year |
| fair transition | Transforming the economy to one that is more productive, sustainable and inclusive without leaving anyone behind |
| finance flows | A financial flow is an ongoing expenditure related to climate change mitigation or adaptation |
| food security | A situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life |
| four wellbeings | Social, economic, environmental and cultural well-being |
| freight hubs | Facilities where cargo is processed, stored and distributed, sometimes between different transport modes. Examples include seaports, airports, railway yards, truck terminals, or combinations of these. |

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| freight systems | The network of goods transported by truck, train, ship or plane |
| green assets | An asset that has environmental value |
| green bonds | Climate bonds are fixed-income financial instruments that have positive environmental and/or climate benefits |
| green infrastructure | Natural and engineered ecological systems, integrated with the built environment to provide a range of ecological, community and infrastructure services |
| green space | An area of undeveloped land, partly or completely covered with grass, trees or vegetation |
| green technology | Technology intended to mitigate or reverse the effects of human activity on the environment. |
| greenhouse gas (GHG) emissions | 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. |
| greening | To make something more environmentally friendly. |
| gross domestic product (GDP) | The monetary value of all goods and services produced within a nation's geographic borders over a specified period of time |
| gross emissions | The total discharges of greenhouse gases from human activity into the atmosphere (e.g. from energy, industrial processes, agriculture, and waste activities) and is usually expressed as CO2 equivalence per year |
| GWP impacts | Global Warming Potential is a comparison of the global warming impact of different greenhouse gases |
| habitat corridors | Space that facilitates movement of animals (or plants over time) between larger patches of distinct habitat |
| habitat protection | Management of threats to existing ecological areas. This includes, but is not limited to, legal protection. |
| hapū | A number of whānau sharing descent from a common ancestor; kinship group, sub-tribe |
| hazard risks | The potential occurrence and consequence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources |

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| hazard zones | Areas which are affected by or vulnerable to a particular hazard (e.g. flood plains) |
| healthy soils | Soils that contain an abundance of life (especially microorganisms) and the right balance of organic matter and nutrients, which contribute to a balanced ecosystem and supports healthy, vigorous plant growth |
| heavier precipitation | Instances during which the amount of rain or snow experienced in a location substantially exceeds what is normal |
| heavy vehicles | Vehicles which have a gross vehicle mass of more than 3500 kilograms, e.g. trucks, buses and vans |
| hui | Social gathering or meeting |
| hydrofluorocarbons | Organic compounds that contain hydrogen, fluorine and carbon. These compounds are powerful greenhouse gases. |
| indigenous biodiversity | Biodiversity is short for biological diversity. It describes the variability among living organisms, and the ecological complexes of which they are a part, including diversity within species, between species, and of ecosystems. Indigenous biodiversity includes individual birds, plants, fish, insects and other species that are specific and/or native to New Zealand. There are many examples, such as kiwi, tui, inanga (whitebait), weta, and ti kouka (cabbage tree). |
| indigenous coastal ecosystems | A biological system in the coastal environment comprising a community of living organisms and its associated non-living environment, interacting as an ecological unit that occur naturally in New Zealand, including self-introduced species, but not human-introduced ones |
| indigenous coastal ecosystems | A biological system in the coastal environment comprising a community of living organisms and its associated non-living environment, interacting as an ecological unit that occur naturally in New Zealand, including self-introduced species, but not human-introduced ones |
| indigenous ecosystems | A biological system comprising a community of living organisms and its associated non-living environment, interacting as an ecological unit that occur naturally in New Zealand, including self-introduced species, but not human-introduced ones. |
| industrial processes | A systemic series of mechanical, physical, electrical or chemical operations that produce or manufacture something |
| inequitable | Unfair or unjust |
| infrastructure | The structures, systems and facilities that support daily life such as water supply, roads and communications, including social infrastructure |

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| infrastructure assets | Stationary systems (or networks) that serve communities, where the system as a whole is intended to be maintained to a specified level of service. Examples include transportation networks, energy supply systems and water utilities |
| intergenerational | Relating to, involving, or affecting several generations |
| intergenerational equity | Ensuring that future generations are not unfairly disadvantaged (or burdened) with the impacts and costs of previous decision making |
| invasive species | An introduced species that is believed to spread and cause damage to the environment, human economy or human health |
| ira atua | Primordial genes |
| ira tangata | Human genes |
| iwi | A number of hapū (section of a tribe) related through a common ancestor |
| just transition | Place-based set of principles, processes, and practices used to secure workers' jobs and livelihoods when economies are shifting to sustainable production |
| kai | Sustenance such as food or water |
| kaimoana | Food from the sea |
| Kaitiaki | Trustee, custodian, guardian |
| kaitiakitanga | Guardianship, including stewardship; the processes and practices of looking after the environment |
| karauna | The Crown |
| kaunihera | Council |
| Kaupapa | Topic, subject or issue. |
| Kaupapa Māori | Māori approach or customary practice which incorporates the knowledge, skills, attitudes and values of Māori society. |
| Kia Ora te Tātai | Aspirational Outcome (from the Māori Outcomes Performance Measurement Framework) that refers to the interconnection of all things |
| Kigali Amendment to the Montreal Protocol | An international agreement to gradually reduce the consumption and production of hydrofluorocarbons |
| kōrero | Discussions (n), to talk (v) |
| last mile delivery | The movement of goods from a distribution centre to the customer’s doorstep (or very close) |

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| low carbon economy | An economy that is based on the need to reduce the release of carbon dioxide into the atmosphere. |
| low carbon food | Low carbon food refers to foods that produce less carbon emissions during production, processing, distribution, preparation and disposal. Includes foods produced using low carbon farming technologies and organic fertilisers, food that is locally produced and therefore has lower food miles, and food with intrinsically lower biological emissions such as plants. |
| low carbon footprint | When the total greenhouse gas emissions released into the atmosphere by the activities of a person, organisation and community are small |
| low carbon living | A lifestyle that aims to lower your carbon footprint through daily actions and habits |
| low emissions vehicles | Vehicles that emit relatively low emissions from the onboard source of power, e.g. internal combustion engine (ICE) vehicles that meet fuel efficiency standards and hybrid vehicles that can switch between a combustion engine and an electric motor. |
| low impact lifestyles | Having less impact on the environment and society by reducing an individual's carbon footprint |
| mahinga kai | Food-gathering place (rivers, bush, sea, gardens etc.) |
| mana | Authority, status, prestige |
| mana whenua | Hapū and iwi with ancestral relationships to certain areas in Tāmaki Makaurau where they exercise customary authority |
| manaaki | Generosity; support, provide hospitality and care of others |
| manaaki tangata | Act of caring for people |
| manaaki whenua | Act of caring for the land |
| manaakitanga | The process of showing respect, hospitality, generosity and care for others |
| marae | The enclosed space in front of a wharenui (meeting house) where people gather |
| marine ecosystems | Living organisms and non-living structures in the ocean environment, and their complex relationships to each other |
| marine species | Plants, animals and other organisms that live in the salt water of the sea/ocean |
| mass extinctions | The loss of a large number of species within a relatively short period of geological time |
| mataawaka | Māori who live in Auckland and are not within a mana whenua group |

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| mātauranga | Māori knowledge and expertise |
| mātauranga ā-iwi | Tribal knowledge |
| mātauranga Māori | Māori knowledge – sciences |
| mate korona | Coronavirus |
| maunga | Mountain, mount or peak. Also refers to volcanic cones. |
| mauri | Life principle, life force, vital essence. The essential quality and vitality of a being or entity. |
| micro-mobility devices | A range of small, lightweight vehicles operating at speeds typically below 25km per hour, e.g. e-scooters, e-skateboards, e-bikes, and bicycles |
| mitigation | The action of reducing the severity, harm and seriousness of climate change through emissions reduction |
| moana | Seas and harbours |
| mode share | The number of trips, or percentage of travellers, using a particular type of transportation, e.g. public transport, walking, cycling, car |
| natural asset | Things of value in the natural environment including land and water areas with their ecosystems, subsoil assets and air |
| natural hazard risks | The potential occurrence and consequence of a natural event (e.g. flood) that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems and environmental resources |
| natural heritage | Indigenous biodiversity (flora, fauna, and terrestrial, freshwater and marine ecosystems and habitats), landscapes, landforms, geological features, and soils |
| natural water cycle | The continuous movement of water on, above, and below the surface of the earth, through processes such as evaporation, precipitation, run-off, and infiltration |
| nature-based solutions | Actions that work with and enhance the natural environment to help people adapt to climate change, simultaneously providing human well-being and biodiversity benefits |
| net emissions | Net – The expression 'net of' represents the exclusion of something.<br><br>Emissions – The production and discharge of something, especially gas or radiation.<br><br>"Net emissions" means gross emissions (including all industrial activities, mostly fossil fuel combustion) minus carbon sinks from forestry activities and |

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| | agricultural soils. The emissions may include carbon dioxide, methane, nitrous oxide, sulphur hexafluoride, hydrofluorocarbons, and perfluorocarbons.<br><br>Net emissions include emissions and removals from land-use change and forestry (LUCF). |
| net positive energy | More energy is produced than consumed. A net positive energy building produces more energy, over a calendar year, than needed for the building to operate. |
| net zero | Net-zero emissions describes a situation whereby the amount of greenhouse gases emitted into the atmosphere is equal to the amount sequestered or offset (e.g. by forestry) |
| net zero emissions | The total of a country's/city's emissions across all sources, minus offsets from land use, land-use change and forestry |
| net zero energy | Net-zero energy consumption, the amount of energy consumed is equal to the amount of renewable produced onsite |
| ngahere | Forest |
| NGOs | Non-governmental organisations |
| nutrient leaching | The process of soil nutrients, such as nitrate, moving downward beyond the plant root zone in percolating water or being removed from soil in drainage from saturated soils. Leached nutrients can pollute groundwater, lakes and streams. |
| ocean acidification | The absorption of carbon dioxide by seawater ultimately reducing its pH |
| open spaces | An area of undeveloped land, including both green space and hard surfaces. Generally accessible to the public. |
| ōritetanga | Equity |
| pakeke | Adult |
| papakāinga | A settlement or village which has whakapapa connections to that land. |
| papatūānuku | Mother Earth |
| perfluorocarbons | Powerful greenhouse gases, any set of inert liquid or gaseous organic compounds that contain only carbon and fluorine |
| pou | Post or support |
| poukai | Name of a series of gatherings that support the Kīngitanga |
| pre-industrial levels | The global average $CO_2$ levels before the Industrial Revolution (1750) |

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| primary industries | A mix of businesses who produce, process and move goods around New Zealand and export to countries around the world. Primary industries of importance to New Zealand include agriculture, forestry, horticulture and seafood. |
| process emissions | The greenhouse gas emissions produced from a variety of industrial activities which are not related to energy |
| process heat | Process heat is steam, hot water or hot gases used in industrial processing, manufacturing and space heating |
| process heat emissions | Greenhouse gas emissions from systems to produce thermal energy, in the form of steam, hot water and direct heat systems, that is used in organisations |
| prosperity | Being successful or thriving, particularly referring to economic and cultural wellbeing |
| puna wai | Freshwater springs |
| pūnaha hauropi ā-whenua | Terrestrial ecosystems |
| pūrākau | Traditional stories, history and narratives |
| quality compact urban form | Future development that is focused in existing and new urban areas within Auckland's urban footprint, limiting expansion into the rural hinterland. This future development maximises efficient use of land and delivers necessary infrastructure. |
| rangatahi | Youth, younger generation |
| rangatahi Māori | Māori youth |
| rangatiratanga | Sovereignty, ownership, right to apply authority |
| Ranginui | Skyfather |
| renewable energy | Renewable energy comes from sources that are naturally replenished in a relatively short timeframe. Sunlight, wind, water and geothermal heat are all renewable energy sources |
| repō | Wetlands |
| resilience | The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management |

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| retrofit | Add components or accessories to something that did not have it when first made |
| retrofitting | The action of retrofit |
| riparian fencing | Fencing of waterways to improve aquatic habitat for fish and other species, improve water quality through reduced input of faecal nutrients and sediments and increase bank stability, by excluding stock and creating a buffer between the water and the land |
| riparian fencing and planting | Fencing of waterways to improve aquatic habitat for fish and other species, improve water quality through reduced input of faecal nutrients and sediments and increase bank stability, by excluding stock and creating a buffer between the water and the land.<br><br>Planting along the edge of streambanks, wetlands, buffer zones and estuary margins rivers/streams to help improve water flows, prevent land erosion, protect land from flood damage and provide important habitat and stepping-stones for native wildlife both in streams and on land. |
| riparian planting | Planting along the edge of streambanks, wetlands, buffer zones and estuary margins rivers/streams to help improve water flows, prevent land erosion, protect land from flood damage and provide important habitat and stepping-stones for native wildlife both in streams and on land |
| road corridor | The area from the private property boundary on one side to the property boundary on the other. This includes the berm (grass verge), footpath and carriageway. |
| rohe | Region |
| rōpū | Group or organisation |
| rōpū Māori | Māori organisation |
| rōpū rangatahi Māori | Māori youth group |
| sequester carbon | The net removal, by natural or artificial processes, of carbon from the atmosphere, and storage in 'carbon sinks' (e.g. plants, oceans, soils) |
| sequestration | The net removal, by natural or artificial processes of carbon from the atmosphere, and storage in 'carbon sinks' (e.g. plants, oceans, soils) |
| social justice | Just or fair relations within society that seek to address the distribution of wealth, access to resources, opportunity, and support according to principles of justice and fairness |
| social vulnerability | The lack of capability of individuals, groups or communities to cope with and adapt to any external stress placed on their livelihoods and well-being |

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| soil carbon sequestration | The net removal of carbon from the atmosphere and storage in soils |
| soil erosion | The wearing away of land by the actions of water, wind or ice |
| solar PV | Solar photovoltaics. A system that converts sunlight (photons) into electricity. |
| stationary energy | Energy used in non-mobile sources (e.g. energy use in buildings and non-mobile machinery and equipment) |
| storm surges | An abnormal rise in seawater level during a storm caused by winds pushing water onshore |
| supply chains | The sequence of processes involved in the production and distribution of a commodity |
| sustainable design | Sustainable design seeks to reduce negative impacts on the environment, and the health of communities, thereby improving product performance. The basic objectives of sustainability are to reduce consumption of non-renewable resources, minimize waste, and create healthy, productive environments. |
| sustainable energy solutions | Innovative solutions to sustainability problems within the energy industry (e.g. energy generation from renewable resources) |
| taiao | Natural resources |
| Tāmaki Makaurau | The Māori name for Auckland. Translates to Tāmaki desired by many. |
| tamariki | Children |
| tāngata | People |
| tangata pasifika | Pacific peoples |
| tangata pasifika whanaunga | Pasifika relatives |
| taonga | A treasured item, tangible or intangible |
| tāruke | Crayfish pot |
| taurite | Equitable, balanced |
| Tāwhiri-mātea | Son of Ranginui and Papa-tū-ā-nuku. He is the actuality of winds, clouds, rain, hail, snow and storms. |
| te ao Māori | The Māori world, or the Māori world view |
| te hau | The wind |
| te ira tangata | The human gene |

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| Te Kōhao o te Ngira | Mana whenua response to the long-term sustainability framework for the Auckland Region |
| te mauri o te wai | The life force of water |
| te Moana-nui-a-Kiwa | Pacific Ocean |
| Te Tiriti o Waitangi | The Treaty of Waitangi which is the document upon which the British and Māori agreed to found a nation state and build a government |
| teina | Younger sibling or peer |
| tiakitanga | The protection |
| tikanga | Customs or protocols |
| tino rangatiratanga | Self-determination, autonomy, self-government. |
| tohu | Sign |
| transit-oriented development | A type of development that maximises the amount of residential, business and leisure space within walking distance of public transport |
| transport modes | Different ways of transporting people or goods, e.g. rail, car, bicycle |
| transport network assets | Infrastructure that facilitates the movement of people and goods, e.g. roads, railway lines, footpaths |
| Tūpuna | Ancestors or grandparents. Alternative – tīpuna. Singular – tupuna. |
| tūpuna atua | Primordial ancestor |
| tūpuna waka | Ancestral canoe |
| tūrangawaewae | Ancestral standing place |
| urban heat island effect | Occurs when a city experiences much warmer temperatures than nearby rural areas, due to the ability for surfaces in each environment to absorb and hold heat |
| urban ngahere | Urban forest, consists of the network of all trees and other vegetation – both native and introduced – in existing and future urban areas |
| urban regeneration | The planning of neighbourhoods and improvement of buildings to strengthen communities and the economy in order to make it a better place to live |
| urupā | Burial ground, cemetery, graveyard |
| viable soils | Soils that are fertile. |
| wai | Water |

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| wairua | Spirit |
| wānanga | Traditional Māori place or way of learning |
| waste heat recovery | Energy recovery (through a heat exchanger) from process outputs at a high temperature to another part of the process |
| waste stream | A waste stream is the flow of a specific waste material, from its source through to recovery, recycling or disposal |
| water sensitive urban design | An interdisciplinary approach, which considers stormwater management in parallel with the ecology of a site, best practice urban design and community values |
| whakaaro | Ideas |
| whakapapa | Genealogy that links Māori to their ancestors |
| whakarongo pīkari | Listen carefully |
| whakataukī | Proverb |
| whakawhanaungatanga | Act of establishing relationships |
| whānau | Extended family, family group, a familiar term of address to a number of people. Also the primary economic unit of traditional Māori society. |
| whānau hauā | Families with disability challenges |
| whanaunga tangata pasifika | Pasifika relatives |
| whanaungatanga | Relationship, kinship, sense of family connection. A relationship through shared experiences and working together which provides people with a sense of belonging. |
| whare | House or building |
| whenua | Land, country, earth or ground |
| zero carbon | Not releasing carbon dioxide into the atmosphere or removing the same amount of carbon dioxide from the atmosphere as produced e.g. by an activity, building or organisation |
| zero carbon building | A building that does not release carbon dioxide into the atmosphere or removes the same amount of carbon dioxide from the atmosphere as produced |
| zero carbon lifestyles | A lifestyle that aims to not generate carbon dioxide emissions or removes carbon dioxide from the atmosphere through daily actions and habits |

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| zero emissions area | A defined area where only zero emissions vehicles such as battery electric and hydrogen vehicles are allowed, along with walking, cycling and fully electric public transport. Also known as zero emissions zones (ZEZ). |
| zero emissions vehicles | Vehicles that emit no emissions from the onboard source of power, e.g. battery-powered electric cars, electric trains, hydrogen-fuelled vehicles |

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