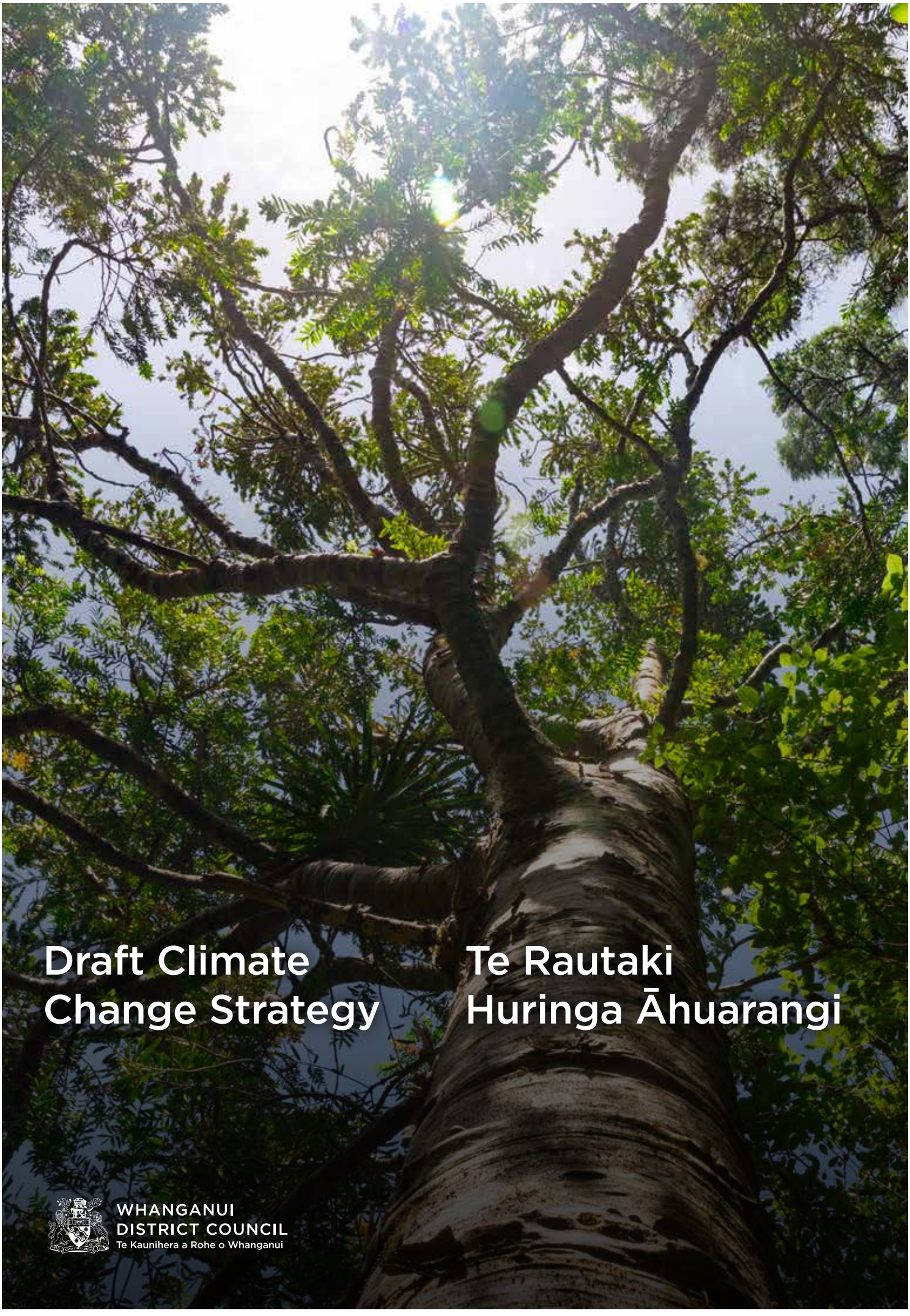


Draft Climate Change Strategy

Te Rautaki Huringa Āhuarangi

WHANGANUI
DISTRICT COUNCIL
Te Kaunihera a Rohe o Whanganui

Contents

Introduction

He tūwheratana kōrero

This strategy tells a story of the New Zealand European and Māori world views coming together to tackle climate change in a uniquely Whanganui way. It is about human activity and changing the way we live to reduce our impact on the planet – traversing social, cultural, environmental and economic realms.

From a Whanganui Iwi perspective, interconnectivity with our environs is evident within our traditional narratives and innate values, recognised at law through Te Awa Tupua Settlement Act 2017. Those innate values – Tupua Te Kawa – guide the way in which decisions are made to protect and enhance the health and wellbeing of our people, Te Awa Tupua and the environment. Tupua Te Kawa advances four kawa or values that underpin an indigenous natural law and value system, binding people to place. In the context of climate change, these kawa might be expressed or understood as follows:

Ko te Awa te mātāpuna o te ora
Our Awa and environs sustains us with life and natural resources, and these must be protected from the impacts of climate change so that current and future generations may be nourished.

E rere kau mai te Awa nui,
mai i te Kāhui Maunga ki Tangaroa
Our Awa and environs, including physical and spiritual elements, are indivisible, and climate change responses must be cognisant of the holistic impact on all realms of wellbeing.

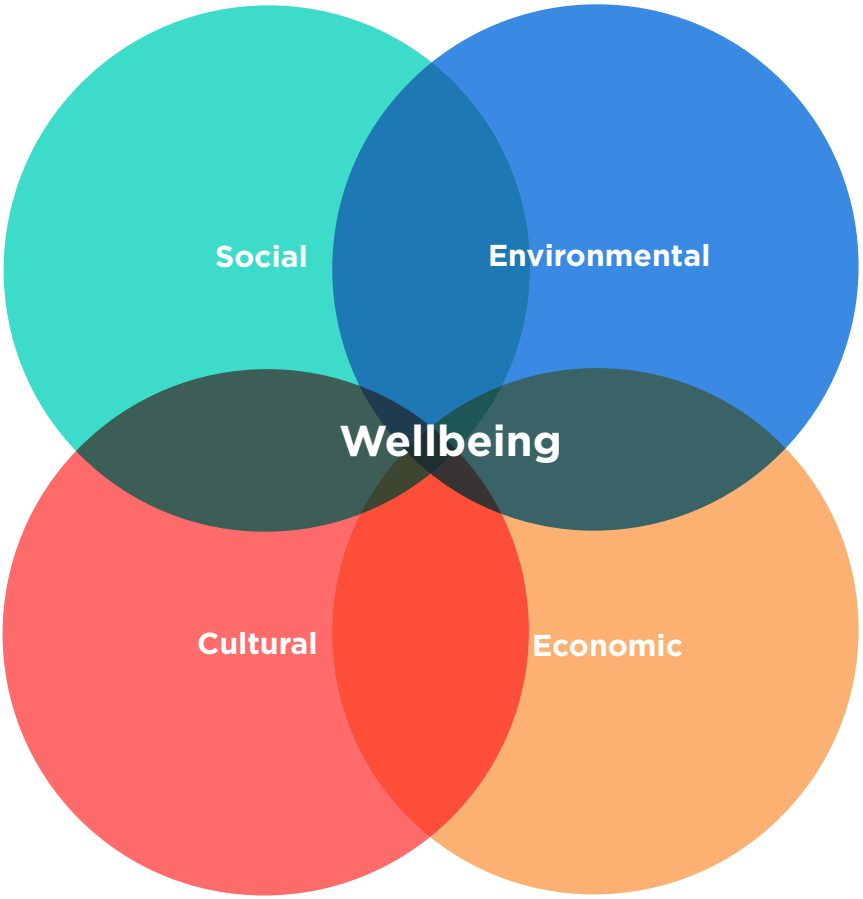
Ko au te Awa, ko te Awa ko au
There is an inalienable connection between people, the Awa and the environment, and we have a responsibility to change the way we live to reinforce and strengthen this connection.

Ngā manga iti, ngā manga nui, e honohono kau ana, ka tupu hei Awa Tupua
Co-ordinated effort on climate change is required across all communities and authorities, given that our Awa and environs are integral to our worldview and lives.

Strategy purpose

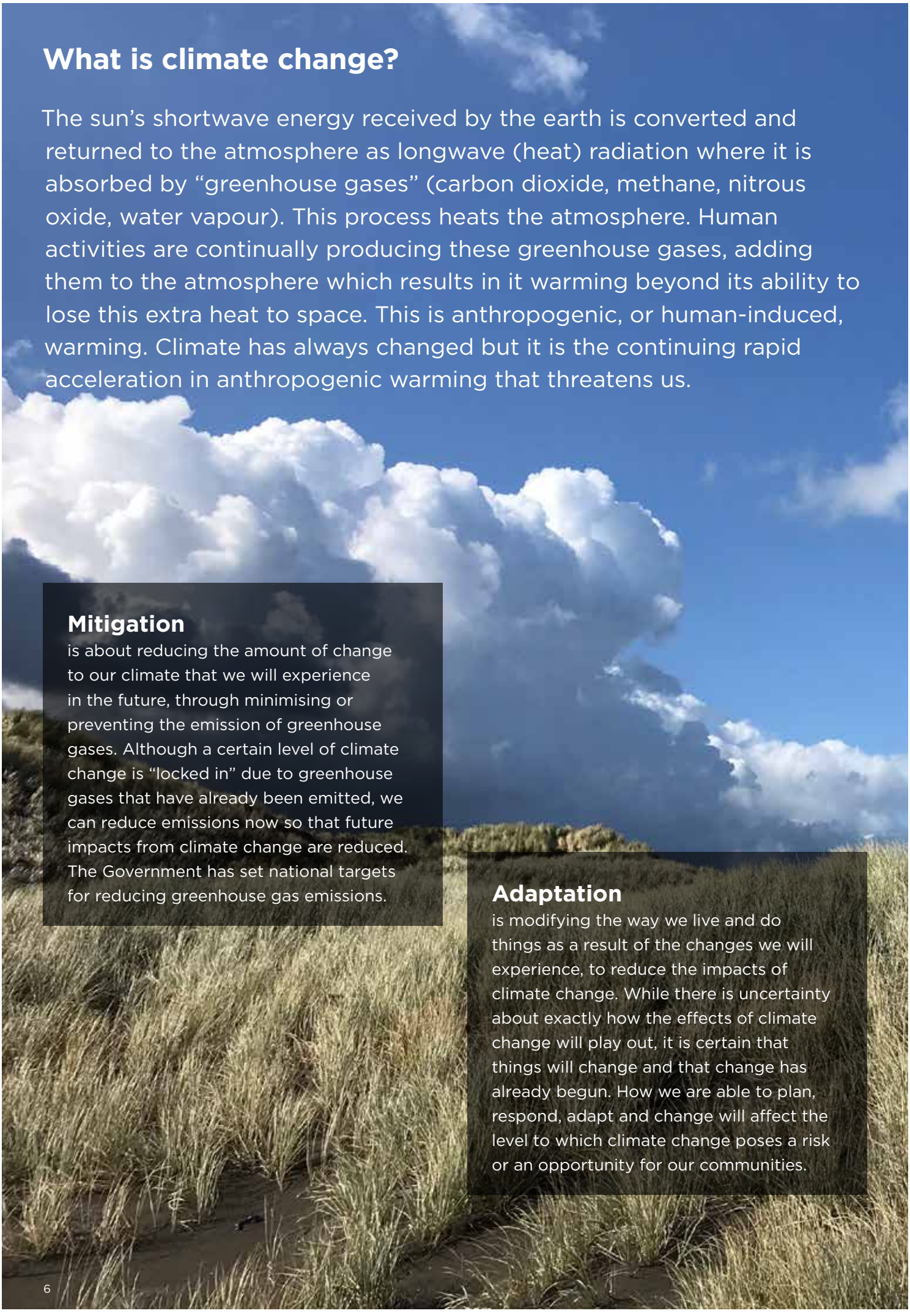
Te kaupapa

The purpose of this strategy is to plot a course for action to both mitigate, and adapt to, climate change and to provide a framework for collaboration across the Whanganui District and beyond among neighbouring councils, tangata whenua, iwi partners, central government, non-government organisations, private industry, education, our communities and people.



What is climate change?

The sun's shortwave energy received by the earth is converted and returned to the atmosphere as longwave (heat) radiation where it is absorbed by "greenhouse gases" (carbon dioxide, methane, nitrous oxide, water vapour). This process heats the atmosphere. Human activities are continually producing these greenhouse gases, adding them to the atmosphere which results in it warming beyond its ability to lose this extra heat to space. This is anthropogenic, or human-induced, warming. Climate has always changed but it is the continuing rapid acceleration in anthropogenic warming that threatens us.



Mitigation

is about reducing the amount of change to our climate that we will experience in the future, through minimising or preventing the emission of greenhouse gases. Although a certain level of climate change is "locked in" due to greenhouse gases that have already been emitted, we can reduce emissions now so that future impacts from climate change are reduced. The Government has set national targets for reducing greenhouse gas emissions.

Adaptation

is modifying the way we live and do things as a result of the changes we will experience, to reduce the impacts of climate change. While there is uncertainty about exactly how the effects of climate change will play out, it is certain that things will change and that change has already begun. How we are able to plan, respond, adapt and change will affect the level to which climate change poses a risk or an opportunity for our communities.

Vision

We live in harmony with the environment to ensure quality of life for all living things

Te wawata

Ko au te taiao,
ko te taiao ko au

Mission

We will take appropriate action to adapt activity to withstand the impacts of our changing climate and play our part in reaching greenhouse gas emission reduction targets

Te aronga

Ka wānanga, ka whakarite, ā, ka huri ngā mahi, i runga i te manawanui ki te taiao

Values

Ngā kaupapa

All whakataukī / whakatauākī are underpinned by features of Whanganui nature and our environment.

Working together
Kia mahi tahi

We will work collectively on climate change solutions

Pūpūngia te kākaho kia mangungu, e kore e whati

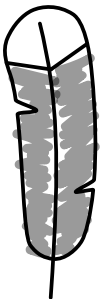
One kākaho reed is easily snapped, but bound tightly many kākaho reeds will possess unyielding strength

Leadership
Kia toi te mana

We will enable leadership at all levels on climate change and will lead by example

Kia whakapurua ki te remu o te huia (nā Te Māreikura Hori Enoka)

Hold fast to the tail feather of the huia, the symbol of a leader

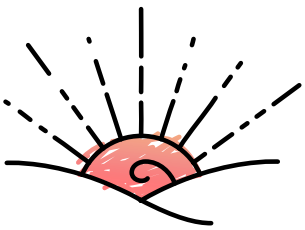


Responsibility
Kia titiro whānui

We will have the environment and future generations at heart in our decision-making

He ao āpōpō, he ao tea (nā Dr Whakaari Rangitākūkū Metekīngi)

Tomorrow holds a bright future

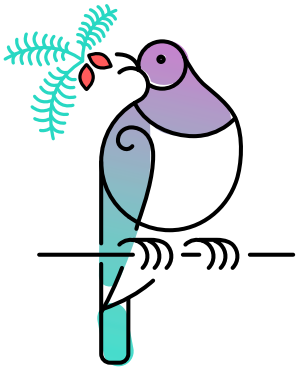


Education
Kia mātau

We are committed to learning and sharing our knowledge with others

Ko te manu e kai ana i te miro, nōna te ngahere; ko te manu e kai ana i te mātauranga, nōna te ao
(nā Te Kere Ngātaierua)

The bird who eats from the miro tree owns the forest; the bird who eats of the tree of knowledge owns the world

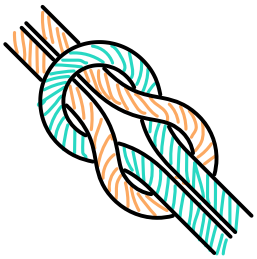


Positive connection
Kia torokaha

We will build positive connections throughout our community and look for opportunities

Whiria te taunoka
(nā Hōri Kīngi Te Anaua)

Tie peace to this shrub

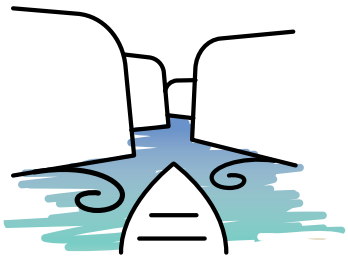


Resilience
Kia manawa nui

We will be agile and build capacity to recover from difficulties

Kei te hunga ririki kei te huti te toko o ēnei rangi (nā Te Ope Whanarere)

The young are to pull and push the bargepole of today's vessel

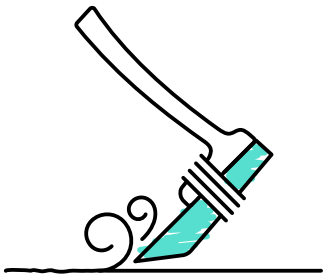


Effectiveness & affordablity
Kia whai hua

We will live within our means and make the most of every opportunity

Tēnei au te morikau nei

I am still fashioning this log



Principles

Ngā mātāpono

1

Mauri

The environment is at the centre of all decision-making and action.

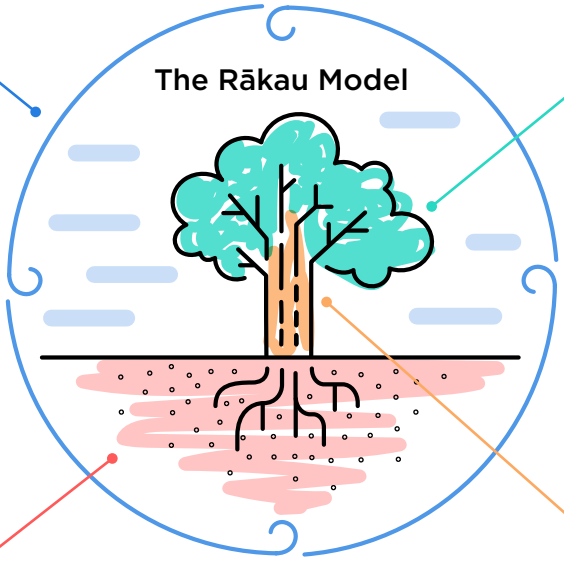
An environment with an intact mauri will sustain healthy ecosystems, support kai harvesting, provide resource use and be a source of pride and identity to the people.

4

Kawa

Costs and benefits of climate change action will be fairly distributed across generations to ensure future generations are not burdened with costs of past and current generations.

As the canopy of the tree provides shelter, we acknowledge the need to provide enduring protection to all, including future generations.



Mauri
life principle, life force, vital essence, special nature, a material symbol of life

Kaupapa
principles, our behaviours towards nature

Kawa
sacred order of creation or ethnosphere (the sum total of all thoughts and dreams, narratives, ideas, inspirations and intuitions brought into being by the human imagination since the dawn of consciousness)

Tikanga
customary practice, law and learnings

2

Kaupapa

The council and iwi will work in partnership with other agencies, organisations and groups to refine and implement the Climate Change Strategy and Action Plan.

As the roots of the tree provide support, strong partnerships provide the foundation for action.

3

Tikanga

The council will lead by example, role modelling good practice in terms of reducing its carbon footprint as much as practicable and applying a climate change lens to all council decision-making. Others will be encouraged to do the same.

As the trunk of the tree extends towards the sky, we acknowledge the importance of leading by example and as the branches weave together, we acknowledge the interconnectedness of relationships to deliver this strategy.

Strategic context

Te horopaki

There are three main international policies that guide the council's climate change adaptation and mitigation work.

The international context

1

The United Nations Framework Convention and Climate Change (UNFCCC): an international environmental treaty with the objective to:

> *"Stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic[1] interference with the climate system."*

The UNFCCC was adopted by more than 185 countries, including New Zealand, at the Rio Earth Summit in 1992.

2

The Kyoto Protocol: the international treaty signed in 1997 that extends the 1992 UNFCCC and commits state parties to reduce greenhouse gas emissions based on the scientific consensus that:

- Global warming is occurring
- It's extremely likely that human-emitted CO_2 emissions have predominantly caused it.

3

The Paris Agreement: an agreement within the UNFCCC signed in Paris in 2016. The aim of the Paris agreement is:

- To hold the increase in the global average temperature at well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels
- To increase the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production
- To make finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

1 Anthropogenic = resulting from or produced by human activities, as defined by the Intergovernmental Panel on Climate Change (IPCC).

The national context

The Climate Change Response (Zero Carbon) Amendment Act 2019 has set a domestic greenhouse gas emission reduction target for New Zealand to:

- Reduce net emissions of all greenhouse gases (except biogenic methane) to zero by 2050
- Reduce emissions of biogenic methane to 24-47% below 2017 levels by 2050, including to 10% below 2017 levels by 2030.

It has also:

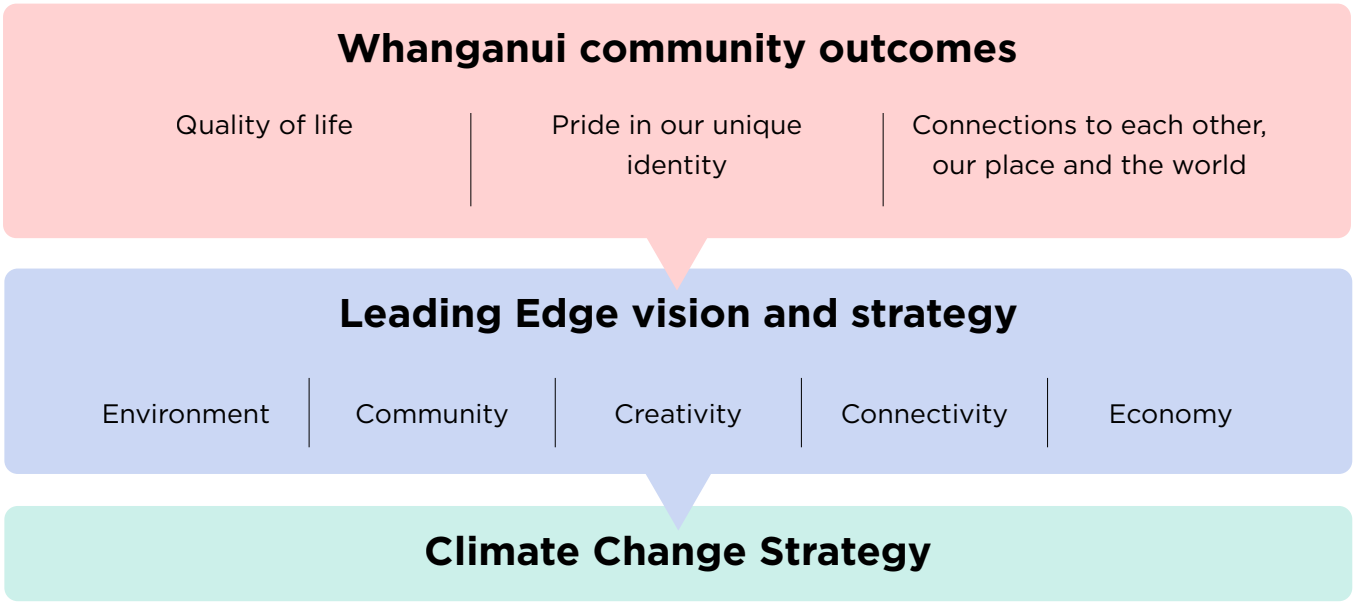
- Established a system of emission budgets to act as stepping stones towards the long-term target
- Required the government to develop and implement policies for climate change adaptation and mitigation
- Establish a new, independent Climate Change Commission to provide expert advice and monitoring to help keep successive governments on track to meeting long-term goals.

The Climate Change Response (Zero Carbon) Amendment Act 2019 required preparation of a National Climate Change Response Assessment (NCCRA) no later than one year after the start of the act (November 2019). This was produced in August 2020. The NCCRA has a critical role to play in providing the best available evidence and assessment to decision-makers, to support a planned approach to climate change risks and opportunities. The act requires the Minister for Climate Change to prepare a National Adaptation Plan (NAP) in response to the NCCRA. This will be published before mid-2022. The NAP will define both the Government's objectives for adapting to climate change and how the Government will meet those objectives.

The Resource Management Act 1991 (RMA) is another piece of key legislation. Under the RMA, local government is required to consider the effects of a changing climate on communities, and to incorporate climate change into existing frameworks, plans, projects and standard decision-making procedures.

Local government's roles and responsibilities are affected by climate change. A climate change perspective is now integrated into activities such as flood management, water resources, planning, building regulations and transport.

Local context



Greenhouse gas emissions

During 2019, Whanganui emitted gross 906,613 tCO_2e and net 779,736 tCO_2e emissions. The population in 2019 was about 47,000 people, resulting in per capita gross emissions of 19.3 tCO_2e/person.

tCO_2e stands for tonnes (t) of carbon dioxide (CO_2) equivalent (e).

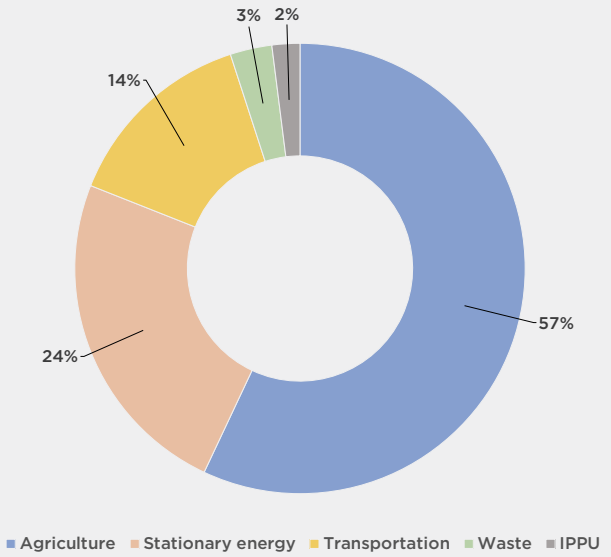
Agricultural emissions are the largest contributor to Whanganui's greenhouse gas emissions (57%), with 99% of agricultural emissions coming from livestock. Sheep are farmed in the largest numbers across the area, accounting for 86% of farmed livestock and 54% of agricultural emissions.

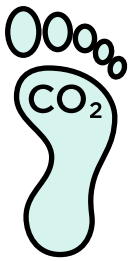
Cattle make up 13% of farmed livestock and 44% of agricultural emissions. Enteric fermentation (animal's digestive processes) from cattle and sheep produced 82% of Whanganui's agricultural emissions and 47% of the district's gross emissions.

This is followed by transport, with 99% attributed to petrol and diesel used for road transport.

Stationery Energy was the third largest emitting sector (electricity consumption was the cause of 26% of stationary energy emissions, natural gas (61%), petrol and diesel consumption (8%). Residential accounts for 15% stationary energy emissions, Commercial 17%, Industrial 60% and the remaining 8% for other e.g. generators and motors.

WHANGANUI'S GROSS GREENHOUSE GAS EMISSIONS BY SECTOR [2]





WHANGANUI DISTRICT'S CARBON FOOTPRINT

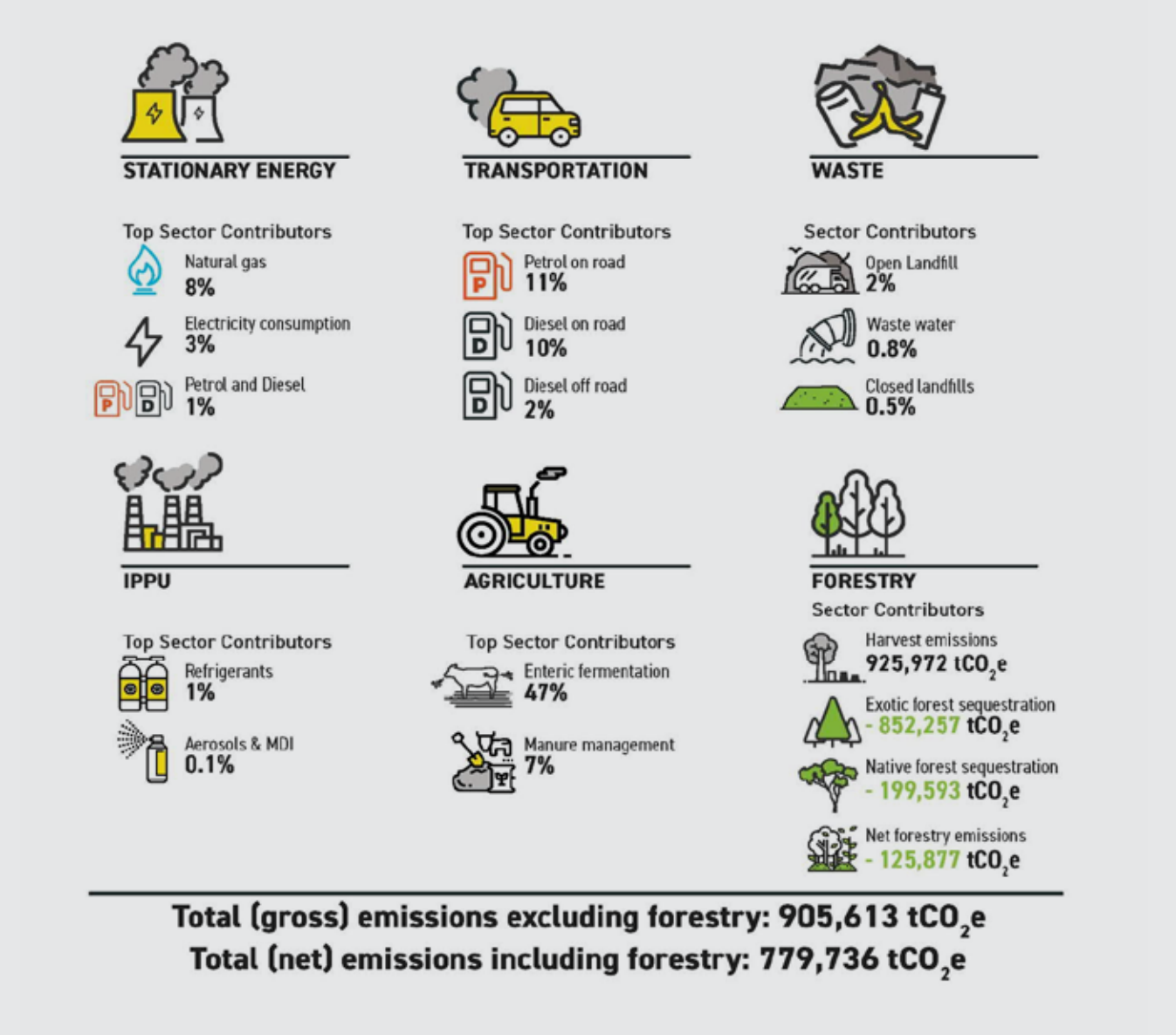
Gross (excluding forestry)
779,736 tCO_2e

NET (including forestry)
779,736 tCO_2e

Gross emissions per capita
19.3 tCO_2e

Gross emissions per hectare
3.8 tCO_2e

2 The Industrial Processes and Product Use (IPPU) sector includes emissions associated with the consumption of GHGs for refrigerants, foam blowing, fire extinguishers, aerosols, metered-dose inhalers and sulphur hexafluoride for electrical insulation and equipment production.

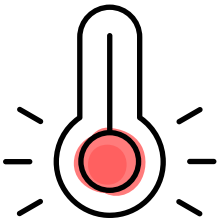


The above infographic is based on a model that has been developed using credible, independent information, but may contain distortions. Any model is based on assumptions, so the information is valid but may differ from other models. The information becomes more accurate when you look at a much bigger area than just the Whanganui District. However, it provides a useful benchmark for measuring change and progress over time.

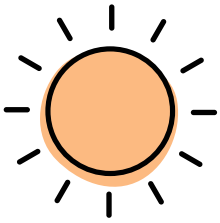
Sequestration in agriculture is still largely unknown at this stage, and further work is required to measure this accurately.

Likely impacts of climate change for Whanganui

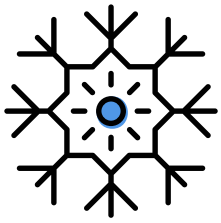
Temperature



- To rise by 0.8°C by 2031-2050
- To rise by 1.8°C by 2081-2100



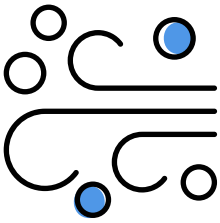
- More hot days >25°C
- Greatest warming in summer/autumn



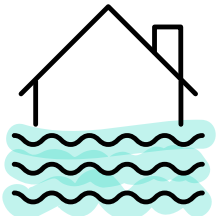
- Earlier spring melt
- Fewer frost days

Rainfall

- Wetter conditions with annual precipitation up 1% and winter rainfall up 6% by 2031-2050
- Winter rainfall up 11% by 2081-2100

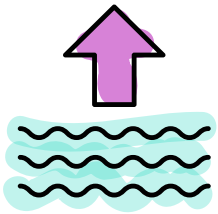


- The frequency and magnitude of storm-related events will increase

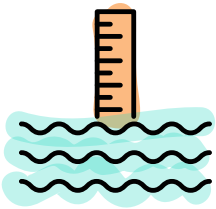


- Increased high country erosion
- Increased flooding risks and river sedimentation

Planning for sea level rise



- Increased coastal erosion and flooding



- A rise of by 0.3-1.0m by 2100
- 0.2-0.5m by 2060

Climate change targets

Eke panuku, eke tangaroa

These interim district mitigation targets have been set to be consistent with national and regional targets. These will be modified as information and our knowledge improves. It is intended that a district carbon model is developed so we may better understand the impact of potential mitigation actions and to inform the setting of targets.

Both the adaptation targets and the council mitigation targets will be determined upon the completion of base research.

Minimum interim district mitigation target	Reduce net carbon emissions for the district to zero (excluding biogenic CO_2) by 2050
	Reduce net carbon (excluding biogenic CO_2) by 30% by 2030
	Reduce emissions of biogenic methane to 24-47% below 2017 levels by 2050
	Reduce emissions of biogenic methane to 10% below 2017 levels by 2030
District adaptation target	Target for development of district adaptation plans is to be determined upon completion of the Regional Climate Change Risk Assessment
Council mitigation target	Targets to be set once the organisational carbon footprint has been calculated and a low carbon roadmap developed

Strategic priorities Ngā pou

The key priorities for the council are both in adaptation and in leading by example – role-modelling good practice in terms of reducing its own carbon footprint.

In terms of adaptation and becoming more resilient to the impacts of climate change, the priority is to complete the Regional Climate Change Risk Assessment, which will inform where our vulnerabilities lie and the development of district adaptation plans.

The council also has a role to play in encouraging everyone in the community to play their part in addressing climate change.

Four focus areas for our community have been identified to guide the first stage of the journey to support central government's efforts toward a low carbon and resilient New Zealand:

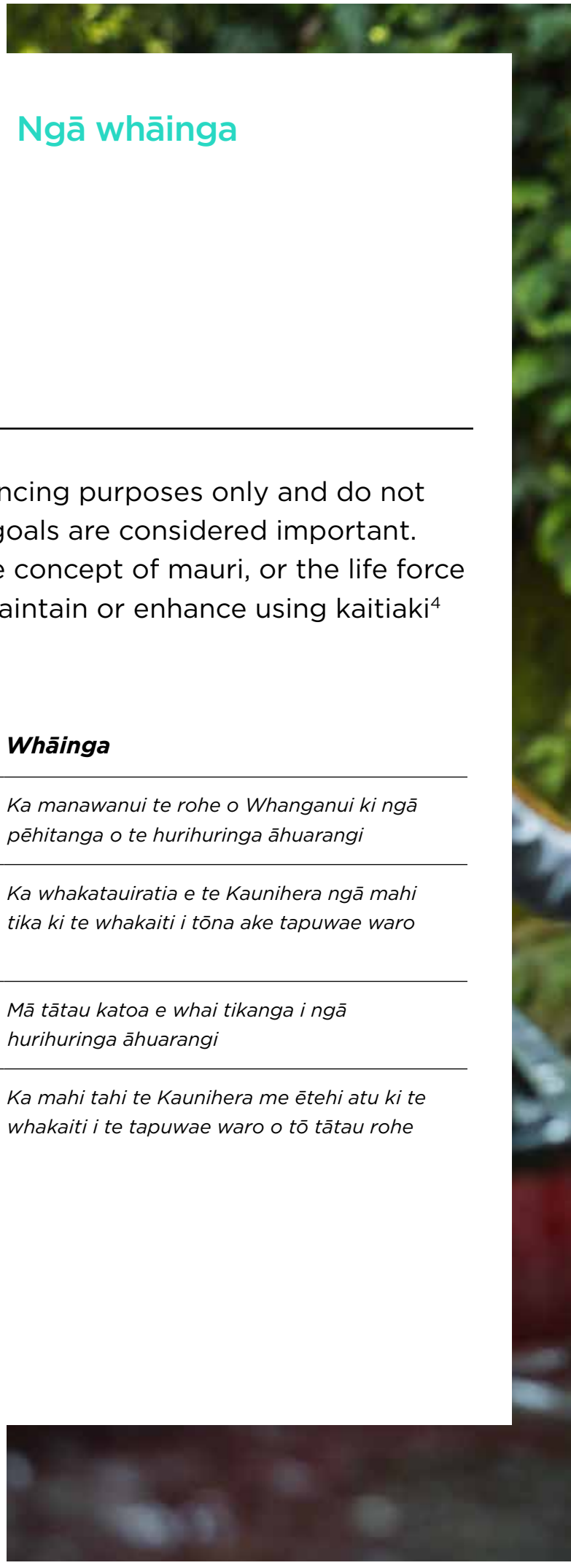
1. Transportation – Eke waka
2. Building energy and urban form – Te hiko / hanaga whare
3. Agriculture – Ahu whenua
4. Leadership and collaboration – Mahi tahi

While agriculture is the biggest emitting sector, the sector has significantly improved productivity over the past 30 years with reductions in numbers of sheep and beef cattle but increases in dairy cattle since 1990. There is also significant work happening nationally, and within the agricultural sectors, to reduce on-farm agricultural greenhouse gas emissions and adapt to climate change. Under the He Waka Eke Noa Primary Sector Climate Action Partnership[3], by 2025 all farmers and growers will include climate change mitigation and adaptation in their farm business and environment plans, and calculate their net greenhouse gas emissions. It is also important to consider the importance of farming to economic activity and social cohesion outcomes, and to be cognisant of the Paris Agreement which highlights the need to work towards low greenhouse gas emissions development in a manner that does not threaten food production.

3 Apiculture NZ, Beef + Lamb NZ, Dairy NZ, DCANZ, Deer Industry NZ, MFE, FOMA, FAR, Federated Farmers, Horticulture NZ, Irrigation NZ, MIA, MPI.

Goals

Ngā whāinga



These goals are numbered for referencing purposes only and do not indicate any particular priority – all goals are considered important. Inherent in each of these goals is the concept of mauri, or the life force of all living things that we seek to maintain or enhance using kaitiaki[4] practices and mātuaranga[5] Māori.

Goals	***Whāinga***
1. The Whanganui District becomes more resilient to the impacts of climate change.	*Ka manawanui te rohe o Whanganui ki ngā pēhitanga o te hurihuringa āhuarangi*
2. The council leads by example, role modelling good practice and reducing its own carbon footprint.	*Ka whakatauiratia e te Kaunihera ngā mahi tika ki te whakaiti i tōna ake tapuwae waro*
3. Everyone plays their part in addressing climate change.	*Mā tātau katoa e whai tikanga i ngā hurihuringa āhuarangi*
4. The council demonstrates leadership and works collaboratively with partners to reduce our district's carbon footprint.	*Ka mahi tahi te Kaunihera me ētehi atu ki te whakaiti i te tapuwae waro o tō tātau rohe*

4 Guardianship, practice of looking after the environment.
5 Traditional knowledge.

Objectives

GOAL 1

The Whanganui District becomes more resilient to the impacts of climate change.

Ka manawanui te rohe o Whanganui ki ngā pēhitanga o te hurihuringa āhuarangi

Objectives:

1.1. Manage district adaptation requirements to address risks to vulnerable communities and at-risk infrastructure

GOAL 2

The council leads by example, role modelling good practice and reducing its own carbon footprint.

Ka whakatauiratia e te Kaunihera ngā mahi tika ki te whakaiti i tōna ake tapuwae waro

Objectives:

2.1. Develop a low carbon roadmap for the council

2.2. Build the capacity and capability of the council to manage climate change action

2.3. Encourage sustainable practices from council suppliers through Council activity and processes

GOAL 3

Everyone plays their part in addressing climate change.

Mā tātau katoa e whai tikanga i ngā hurihuringa āhuarangi

Objectives:

3.1. Encourage everyone to take action and do their part to reduce the impacts of climate change

GOAL 4

Council demonstrates leadership and works collaboratively with partners to reduce our district's carbon footprint.

Ka mahi tahi te Kaunihera me ētehi atu ki te whakaiti i te tapuwae waro o tō tātau rohe

Objectives:

4.1. Transportation | Eke waka

- 4.1.1. Encourage the transition to lower emissions sustainable fuel alternatives
- 4.1.2. Promote travel efficiency and behaviour change
- 4.1.3. Enable and encourage active transport options
- 4.1.4. Work in partnership with the regional council to improve public transport services to make it a more attractive travel option

4.2. Building energy and urban form
Te hiko / hanga whare

4.2.1. Encourage energy efficiency and low carbon energy options for homes and other buildings

4.2.2. Reduce the carbon footprint of buildings which includes greenhouse gas emissions generated from construction materials, construction processes, construction waste disposal and disposal of the building when it has reached its end of life

4.2.3. Plan for growth in a way that promotes lower carbon, high amenity and a more compact urban form including the encouragement of collective housing models

4.2.4. Identify, understand and reduce climate change risk to existing buildings and infrastructure

4.3. Agriculture | Ahu whenua

4.3.1. Sustainable food production – food growing, processing, transporting, distributing, consuming and disposal is done sustainably

4.3.2. Look for opportunities to expand food-growing markets by taking advantage of climatic changes

4.3.3. Work together to share knowledge, educate and support change in the agricultural sector including kaitiaki practices and mātauranga Māori

4.3.4. Encourage sustainable farming practices that support productive and profitable farm outcomes

4.4. Leadership and collaboration | Mahi tahi

4.4.1. Develop a district carbon model to assist with setting emissions targets

4.4.2. Investigate barriers, provide information and educational resources to promote behavioural change and grow community knowledge and collective action

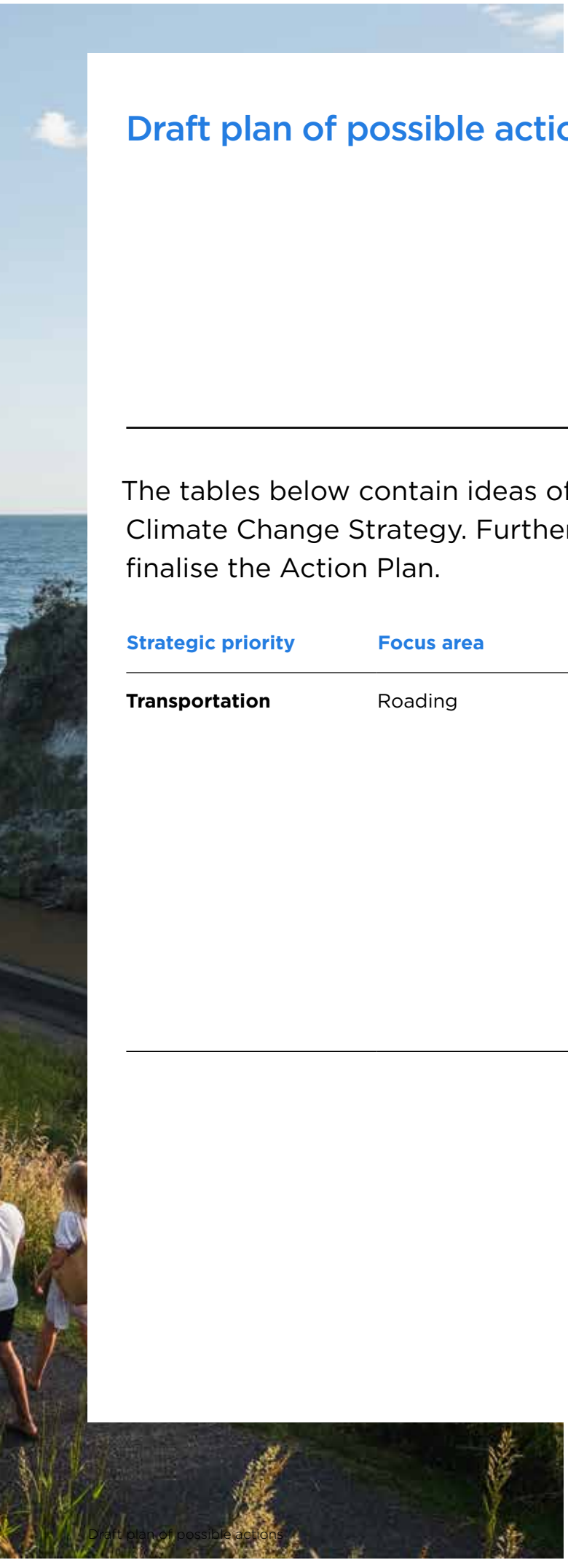
4.4.3. Utilise local government channels to advocate for change

4.4.4. Work collaboratively with local government, tangata whenua, Iwi, government agencies, sector groups and other stakeholders

A key role for the council is to provide leadership including education, promotion and advocacy activities and working collaboratively with partners and key sectors.

Monitoring

A set of indicators and measures will be developed to monitor progress towards the achievement of the goals and targets within this strategy.



Draft plan of possible actions

The tables below contain ideas of possible actions to implement the Climate Change Strategy. Further work is required to refine, cost and finalise the Action Plan.

Strategic priority	Focus area	Initiatives
Transportation	Roading	• Investigate alternative fuel options, e.g. hydrogen • Promote travel efficiency / behaviour change • Enable and encourage active transport • Work with Horizons Regional Council to improve public transport services • Ensure sufficient EV charging infrastructure is available • Encourage an increase in rail transport • Manage climate change risks to existing transport infrastructure

Buildings	Energy efficiency	• Promote energy efficiency and low carbon energy options for homes and other buildings • Encourage use of energy efficient lighting, appliances and heating • Encourage uptake of solar energy
	Location and density of development	• Develop a plan for growth that promotes lower carbon, high amenity and more compact urban form and reduced travel requirements • Enable CBD living • Support alternative, more collective housing models e.g. papakainga, the Delhi Village, etc. • Plant more trees – develop green corridors / network – ensure the right tree is planted, in the right place, for the right purpose • Review treatment of passive open spaces and alternatives to grass • Identify, understand and reduce climate change risk to existing building and infrastructure, e.g. the riverfront • Avoid building or raise floor levels in areas prone or likely to be at risk of inundation
	Waste	• Encourage circular[6] economies – production, use, re-use and recycling • Promote and invest in waste reduction and reuse across the community and key sectors, e.g. the building and construction sector

6 Circular economies design out waste and pollution, keep products and materials in use, regenerate natural systems

Agriculture	Food production	• Develop a sustainable district food plan[7] • Look for opportunities to expand food-growing markets to take advantage of climatic changes
	Education, collaboration, research and planning	• Work together to share knowledge and provide support for change • Acknowledge the kaitiaki practices and matauranga Māori of Māori landowners for farm management • Encourage farmers to understand their farm's carbon footprint and develop farm plans that consider mitigation, sequestration, adaptation and adverse events • Undertake research to identify sustainable water sources to support land-use change • Develop plans to drive sustainable, productive and profitable farm outcomes • Recognise the efforts of the agriculture sector and educate the wider population
Leadership and collaboration	Information, education and promotion	• Provide information and educational resources to grow community knowledge and collective action • Investigate barriers to, and support for sustainable building design and construction • Promote warm, dry homes – Home Energy Save programmes, Warmer Kiwi Homes Scheme • Sign up to Auckland Council's Future Fit programme (footprint tool, dashboard, communications, marketing and educational material) • Become a member of the Sustainable Living Trust which provides practical opportunities for people to learn • Promote behavioural and cultural change to create resilience, e.g. benefits of collective living, use of active and public transport

7 This covers all stages of keeping people fed including growing, processing, transporting, distributing, consuming and disposing of food.

Decision-making and capability	• Align organisational culture, key documents and decisions with climate change principles • Engage and educate staff to ensure climate change considerations are included in operational and council decision-making • Use the Mauri model[8] for environmental decision-making

Advocacy	• Advocate to promote change e.g:
	  • Transportation
	  • Building standards
	  • Waste reduction e.g. food packaging to use higher-grade plastics that are recyclable in New Zealand
	  • Impact of overseas investors planting trees to gain carbon credits
	  • Tourism levies

Collaboration	• Establish a community climate change forum to drive and co-ordinate action • Nominate community climate advisors to support and advise sector groups • Work collaboratively with local government, Tangata Whenua, Iwi, government agencies and other stakeholders
Incentives	• Investigate reducing development contributions for developments that meet the Green Building Standard • Investigate incentive programmes, e.g. targeted rates schemes to support energy efficiency upgrades

8 See Appendix 1

Strategic priority	Focus area	Initiatives
Whanganui District Council	Carbon footprint	• Undertake a baseline emissions inventory for the council • Implement appropriate opportunities to increase carbon sinks in the Whanganui District • Set emissions targets and develop a low carbon roadmap
	Waste	• Reduce waste
	Energy efficiency	• Consider Green Star Building certification for new building projects • Investigate conversion to solar energy for the council buildings • Recognise energy efficiency ratings of houses and buildings on LIMs • Consider the development of a pathway for eliminating use of fossil fuels for heating public buildings and facilities
	Vehicle fleet	• Convert fleet cars to hybrid or electric vehicles
	Travel	• Enable working remotely and use video conferencing instead of travelling to a meeting
	Procurement	• Leverage purchasing power to promote circular economies • Consider carbon emissions when awarding contracts
	Infrastructure	• Consider using ISCA[9] rating scheme for evaluating Infrastructure sustainability across planning, design, construction and operational phases of infrastructure programmes, projects, networks and assets
	Staff	• Appoint a Climate Change Officer to be a champion for climate change action, provide advisory, education, advocacy, research and monitoring services • Provide appropriate training for regulatory staff to support change

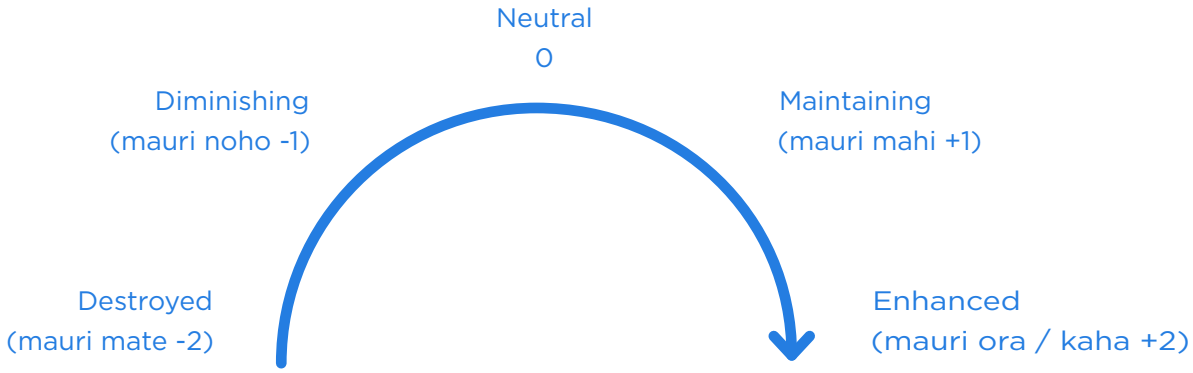
9 ISCA – Infrastructure Sustainability Council of Australia

Whanganui District Council	Resilience	• Develop District Adaptation Plans

What you can do about climate change	Actions
Reduce your electricity use Greenhouse gas emissions are produced when we use electricity and gas. New Zealand has a high level of renewable electricity production, but this is still supplemented by burning fossil fuels	• Switch off lights when not in use. • Use LED lightbulbs • Unplug electronics from the wall socket when they're not in use • Run the dishwasher and the washing machine only when full • Wash clothes in cold water and dry them outdoors when possible • Try having shorter showers or shower before going to bed (there is less fossil fuelled electricity generation after 9pm)
Shop at your local fruit and vegetable market or grow you own Help reduce greenhouse gas emissions from transport by using local ingredients. When you buy local food or products you are also helping your local economy.	• Plant your own vegetables and fruit trees. Containers are great if you are short of space. • Buy local and in-season foods that haven't travelled long distances to reach you.
Reduce, reuse and recycle All products and materials to be built, packaged, transported and sold. Reducing how much you buy is good for the environment and your wallet	Reduce: • Buy only the food you need, and compost your kitchen scraps and garden waste. • Buy products without any packaging whenever possible and always take your reusable bags to the supermarket • Make the most of what you already have. Repairing products such as clothes means they don't have to be replaced so often. Reuse: • Swap your bottles and lunch containers for reusable ones • Donate unwanted goods such as books, clothes and furniture to a charity shop Recycle: • Use recycling services and recycle bins

Plant trees In New Zealand, forests offset 30% of our greenhouse gas emissions. A regenerating native forest can remove more than 8 tonnes of carbon dioxide per hectare per year from the atmosphere over its first 50 years Coastal vegetation can reduce erosion. It can also reduce the impact of waves and floods Trees provide shade which has a cooling effect in towns and cities. When placed around buildings they can cut electricity use for cooling in summer	• Plant native trees on your property • Get involved in a community forest restoration, dune care or coastal revegetation programme in your area
Conserve water Climate change is likely to have an impact on our water resources. Water supply may be altered due to changes in temperature and rainfall patterns, and water demand is likely to increase during summer months as temperatures increase	• Replace lawns with native plants • Collect rainwater and use it to water the garden and for other household tasks that don't require drinking water • When buying new household devices, consider how water-efficient they are
Be aware of your emissions – drive and fly less	• Know where your greenhouse gas emissions are coming from – measure your own emissions footprint • Walk or cycle • Use public transport • Carpool with family or friends • Work remotely and use video conferencing instead of travelling to a meeting • Reduce the number of flights you take • If you fly, pay to offset your emissions
Building and cars	• If you are building a house include balconies, shading and efficient cooling systems such as natural ventilation • Use passive solar design and insulation. • If you replace your car, consider an electric vehicle

Appendix 1: The Mauri model



The Mauri model was developed as a framework, assessment method, and decision-making tool to integrate economic, social and cultural dimensions – regarded as subsets of the environment. It is based on the concept of mauri. As such, the tool demonstrates methods for understanding the interrelatedness or interconnectedness of all living things, and for measuring sustainability and human wellbeing.

The model's aim is to assist decision-making by helping understand how different activities impact on the intrinsic values of ecosystems. The resulting effect of activities and practices on the mauri will be seen as -2 destroyed; -1 diminishing; neutral; +1 maintaining; +2 enhanced.

This document is printed on Eco100 Hi White certified carbon neutral recycled paper. We have also avoided the use of cropping in order to minimise wasted paper and ink.

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For more information on Whanganui District Council climate change initiatives visit:
www.whanganui.govt.nz/climate-change

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