QUEENSTOWN LAKES DISTRICT COUNCIL

DRAFT CLIMATE ACTION PLAN 2019-2022 | HE HUKIHUKI O TE MAHERE ĀHURANGI O NGĀ TAU 2019-2022

FOR THE QUEENSTOWN LAKES DISTRICT |MŌ TE ROHE O WHAKATIPU

INTRODUCTION | WHAKATAKIKA

According to the Intergovernmental Panel on Climate Change (IPCC), we have only 12 years until the effects of climate change are irreversible and catastrophic. Now is the time to stop talking about climate change and to start taking climate action.

Queenstown Lakes District Council (QLDC) recognises the urgency and has prepared this draft Climate Action Plan ('draft plan') to build the district's resilience to the harmful effects of climate change and transition to a zero carbon future.

Aligned to *Vision Beyond 2050*, this is the first of many climate action plans for our district. It is designed to kick-start a range of activities that will develop as our understanding grows. The draft plan is designed to be flexible and will be added to as more information and better technology come to light.

QLDC has a big role to play but cannot do this alone.

This draft plan proposes a collaborative approach with the community, partners and stakeholders that sets out what the Council plans to undertake over the next three years, and how the different sectors in the district working together will contribute to the draft plan's goals.

Linking local action to global goals, this draft plan sets the direction for reducing emissions, transitioning to a low carbon economy, and preparing for the disruptions of a changing climate so everyone in our district adapts and thrives.

The images used throughout this document have been sourced largely from Pexels.com

CONTENTS | RĀRAKI AKE

WHAT IS CLIMATE CHANGE? | HE AHA TĒNEI MEA TE TĪNI ĀHUARANGI?

The Earth's atmosphere is made up of oxygen, a large amount of nitrogen, and a small percentage of greenhouse gases, such as carbon dioxide and methane.

Greenhouse gases act like a blanket around the Earth. They trap warmth from the sun and make life on Earth possible. Without them, too much heat would escape and the surface of the planet would freeze. However, increases in the concentration of greenhouse gases have caused the Earth to heat more and the climate to change.

This process is often called global warming, but it is better to think of it as climate change. This is because global warming changes other aspects of the climate in addition to higher temperatures, such as more frequent extreme events such as floods, storms, cyclones, and droughts.[1]

The planet is heating up faster than previously predicted.

To restrict warming to 1.5°C the global community needs to halve the use of fossil fuels in the next 15 years, and eliminate them entirely within 30 years.

In 2018, the IPCC released a Special Report urging "immediate and permanent transitions in land, energy, industry, buildings, transport and cities" to limit warming to no more than 1.5° C, the temperature that cannot be exceeded if the Earth system is to survive.[2]

The IPCC states if current greenhouse gas (GHG) emission rates continue, the 1.5°C limit could be exceeded as early as 2030 or at the latest by 2052, and is urging the global community to reduce GHG emissions as a matter of urgency.[3] [4]

To restrict warming to 1.5°C the global community needs to halve the use of fossil fuels in the next 15 years, and eliminate them entirely within 30 years. Large-scale CO^2 capture and storage is also required, but the technology to achieve this at the level needed does not yet exist.[5]

We need to act now. This draft plan is a first step in preparing for the climate shocks ahead and becoming a net zero carbon society.

[1] www.mfe.govt.nz/node/16597
[2] The term "Earth system" refers to Earth´s interacting physical, chemical, and biological processes. It consists of the land, oceans, atmosphere and poles, and includes the planet's natural cycles — carbon, water, nitrogen, phosphorus, sulphur and other cycles — and deep Earth processes. Life is an integral part of the Earth system as it affects the carbon, nitrogen, water, oxygen and many other cycles and processes. The Earth system now includes human society (ref Glossary) www.igbp.net/globalchange/earthsystemdefinitions
[3] www.ipcc.ch/sr15
[4] For the most recent data on atmospheric CO^2 go to www.noaa.gov and www.niwa.co.nz/atmosphere/our-data/trace-gas/plots/carbon-dioxide
[5] *Climate Change Implications for the Queenstown Lakes District*, prepared by Bodeker Scientific for the Queenstown Lakes District Council (Chris Cameron and Leroy Bird, April 2019)

WHAT COULD CLIMATE CHANGE MEAN FOR OUR DISTRICT? | HE AHA TE KAWEKAWE KI TE ROHE, NŌ TE ĀHUARANGI WHAKARAREKĒ?

To increase our understanding of climate change and to help us to prepare and adapt, Bodeker Scientific[6] produced a comprehensive report on climate change impacts and implications for the Queenstown Lakes district until the end of the century. The following predictions have been made under the highest GHG emissions scenario (RCP8.5), which assumes global annual GHG emissions will continue to rise throughout the century[7]:

IMPACTS	IMPLICATIONS
> The district is likely to warm by several degrees, with a projected increase in some areas of up to 7°C. > Rainfall distribution and intensity is likely to change, with a greater likelihood[8] of more extreme rainfall events. > Precipitation that would previously have fallen as snow and stored in the snowpack will more likely fall more often as rain and contribute to variability in river flows and lake levels. > A considerable reduction in mountain snowpacks and resultant water storage, with snowmelt occurring earlier in each season, will lead to a reduction in the volume of water through the spring melt season in addition to a variability in freeze-thaws > On average, there will be about 12 to 64 fewer frost days, and up to 60 more 'summer days' each year (i.e. a daily maximum temperature above 25°C). > Summers will get warmer with maximum temperatures from December to February increasing by as much as 6 to 9°C. Summer daily minimum temperatures may increase between 2°C and 3°C, depending on location. > It will also get warmer over the winter months with the seasonal lowest minimum temperatures increasing by 2 to 3°C. > Winter's highest daily maximum temperatures will increase by 5 to 7°C depending on location.	> Higher temperatures may allow for different crops to be grown. It is likely that crops could be sown earlier in the growing season and will reach maturity faster. > More heat stress from heatwaves will have adverse impacts on plant, animal and human health. > Range and habitat of native flora and fauna will change, as will the distribution of pests and crop diseases. > Timing of seasonal activities, such as flowering, breeding, and migration, will change. > Increased temperatures will heighten the risk associated with wild-fire. > Higher intensity extreme rainfall events will lead to an increased likelihood of landslides and flooding. > Extreme precipitation events during winter may result in very high snowfall leading to road hazards and avalanche risk. > Fewer winter frost days are likely to reduce hazards from ice on roads. > A range of likely effects on roading from higher summer temperatures may affect construction and cause heat damage (e.g. damage to bitumen). > An increase in the likelihood of flood events may increase the potential for greater damage to bridges and roads, and stretch the capacity of stormwater infrastructure. > The demand for potable water will increase as temperatures rise. > There will be implications for ski-fields and the hydroelectric power generation due to changes in snowfall and snow melt. > Possible effects from climate change pressures from outside the district could include inward migration.

[6] www.bodekerscientific.com

[7] Representative Concentration Pathway is a GHG concentration trajectory adopted by the IPCC for its 5th Assessment Report in 2014. For more information on RCPs refer to the Glossary at the end of the Plan.

[8] "Likelihood" corresponds to a 66-100% probability according to the IPCC terminology.

FINANCIAL IMPLICATIONS | KO NGĀ HĪRAUNGA Ā-AHUMONI

Investing in climate-resilient infrastructure makes good financial sense because it can reduce recovery costs significantly. Taking a whole-of-life approach to infrastructure decisions also makes good economic sense by accounting for savings over the long term, such as energy efficiency.

Our district is in the relatively fortunate position of not having to contend directly with the effects of sea level rise which is a problem for many coastal communities. However, our district will still feel the impacts of climate change and there are costs associated with responding to them.

QLDC has been preparing for these impacts through work such as developing and maintaining the three waters network and upgrading landfill and wastewater operations. This is funded through operational and capital expenditure.

There will be additional costs if QLDC is to respond to climate impacts more broadly. These costs could include community incentives, ongoing research, emissions audits, funding community initiatives, adjusting infrastructure projects, supporting transformational projects, and employing staff to coordinate climate action and other sustainability initiatives.

Although our district is largely an alpine landscape, we will still feel the impacts of climate change. There are costs associated with responding to them and ensuring we have future-proofed, climate-resilient infrastructure.

Resources and budget requirements to deliver this wider work programme will be sought through the QLDC Ten Year Plan process in 2021. In the meantime, additional resources to fund the other years of this draft plan will be sought through the QLDC Annual Plan process and by leveraging funding from other sources where possible.

HOW WAS THIS ACTION PLAN DEVELOPED? | I PĒHEA TE TIPU O TĒNEI MAHERE MAHI?

In late 2018, Councillors asked QLDC staff to begin developing a climate change strategy for the Queenstown Lakes district. The first task was to listen to the community to understand its concerns and priorities.

In February and March 2019, My Place facilitated workshops were held across the district and climate change was a key topic covered. This provided an opportunity for staff and Councillors to hear first-hand how local people feel about the impacts of climate change on their whānau and communities.

The My Place workshops became a rich source of ideas[9] and this draft plan is based on those ideas, in addition to input from iwi, local experts, thought leaders, and key stakeholders.

In 2018, Te Rūnanga o Ngāi Tahu released its climate change strategy, *He Rautaki mō te Huringa Āhua o Te Rangi*. The Strategy's objective is to create a legacy for those whānau to come in response to the effects of climate change. The Council stands beside Ngāi Tahu in the belief that amid change and loss there is also hope, and opportunities to thrive.

QLDC worked in partnership with staff from mana whenua consultancies to develop this draft plan, and shares the aspirations of Ngāi Tahu to secure the best possible future for us and our children after us.

QLDC thanks the many individuals and organisations who generously gave their time, energy and expertise to this draft plan.

[9] For a summary of the outcomes of the My Place workshops please visit: www.qldc.govt.nz/your-council/your-views/my-place/key-themes-and-messages-from-my-place-workshops/

STRATEGIC ALIGNMENT

The draft plan is underpinned by the Treaty of Waitangi and the principles of kaitiakitanga and manaakitanga.

It is aligned to the United Nations Sustainable Development Goals, and to the Four Wellbeings Framework which comprise Social, Cultural, Environmental, and Economic wellbeings.[10]

The draft plan responds directly to the statements articulated in *Vision Beyond 2050*, in particular Disaster-defying resilience and Zero carbon communities.

DISASTER-DEFYING RESILIENCE	ZERO CARBON COMMUNITIES
Queenstown Lakes is a place that is ready and prepared for every emergency. > Our communities are resilient to disasters and adapting to a changing global climate. > Recovery empowers our people to quickly find a new normal. > Our people stand tall through any challenge, caring for whānau, neighbours and visitors alike. > Our infrastructure is as resilient as our people.	From Makarora to Kingston, our district sets the standard for regenerative, low-impact living, working and travel. > Our homes and buildings take the best ideas from the world, but use sustainable, locally-sourced materials. > Zero waste is just something that we do here. > Our public transport is the cleanest, greenest, innovative choice for district-wide connectivity. > Active travel is an integral part of an accessible and safe network for all of our people.

The draft plan refers to the Council's obligations under the *Local Government Act 2002* to meet the current and future needs of communities for good-quality local infrastructure and services, and to play a broad role in promoting the social, economic, environmental and cultural well-being of their communities, taking a sustainable development approach.[11]

It is aligned to statutory documents, including the Operational and Proposed District Plans, Ten Year Plan, Future Development Strategy and the Waste Minimisation and Management Plan. It is also informed by non-statutory documents such as the QLDC Quality of Life Survey, and the QLDC's Economic Development Strategy.

The draft plan has also been informed by a number of external factors including the Emissions Trading Scheme, New Zealand's obligations under the Paris Agreement, and proposed national legislation on climate change response. For more details, please refer to Appendix One in this document.

[10] The Four Wellbeings are based on the New Zealand Treasury's Living Standards Framework, which aims to measure intergenerational resilience and wellbeing through Four Capitals: Natural; Social; Human; and Financial and Physical. https://treasury.govt.nz/information-and-services/nz-economy/living-standards/our-living-standards-framework

[11] The obligation of local authorities to "play a broad role in promoting the social, economic, environmental., and cultural well-being of their communities, taking a sustainable development approach", was reinstated in the Local Government (Community Well-being) Amendment Act 2019

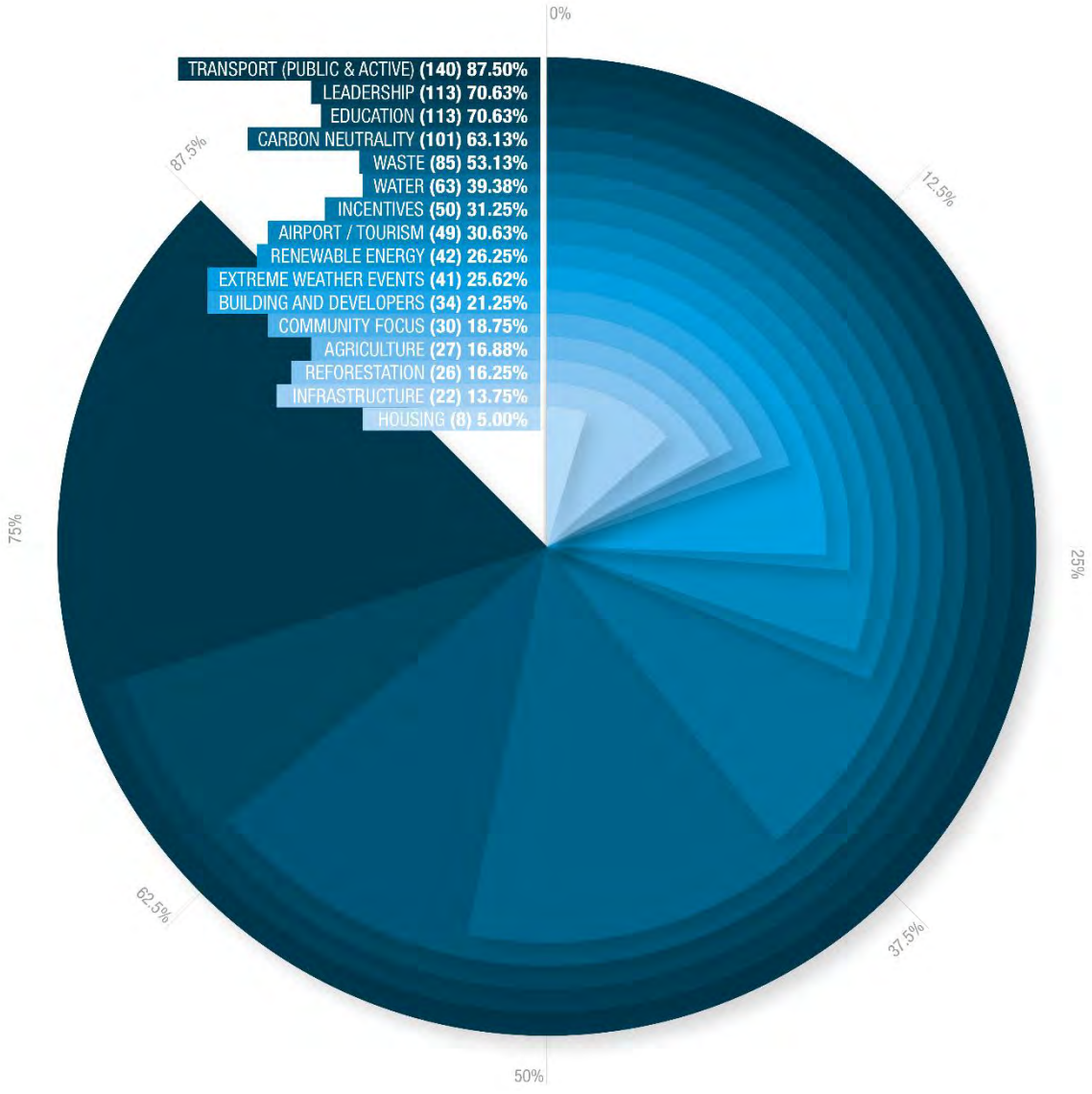
HOW HAS THE COMMUNITY BEEN INVOLVED? | I PĒHEA TE MAHI RŪNANGA O TE HĀPORI

Across the district many individuals and groups are committed to taking action against climate change. Shaping our Future, Sustainable Queenstown and One New Zealand are just three local organisations with climate change and zero carbon emissions high on their agendas. As well as being a source of information, these groups provide a platform for local people to get involved and make a difference. Representatives from these groups contributed to the development of this draft plan and will continue to be involved as subsequent plans are developed.

Further to QLDC's engagement with these groups, facilitated My Place workshops were held with the wider community which included climate change. The issues participants raised in these workshops are illustrated in the diagram below in order of priority. The numbers in the brackets represent the number of participants.

The need for **more public and active transport** came through strongly, as did the need for **strong leadership**, **more information**, and proactively becoming a **net zero carbon district**.

MY PLACE CLIMATE CHANGE PRIORITIES:



HOW WILL WE KNOW IF THE ACTION PLAN IS WORKING? | MĒNĀ KA EKE PĀNUKU TE MAHERE, KA PĒHEA I TE MŌHIO?

To ensure the action plan stays on track, QLDC will identify and set targets and measures after actions are confirmed through community feedback.

A performance framework will be developed and key performance indicators will be identified and reported on annually. Regular surveys will be conducted to ask the community if they feel enough is being done to address climate change impacts.

QLDC will also provide progress reports to Councillors that will identify areas for further action and investment. These reports will be publicly available.

QLDC'S ROLE IN CLIMATE ACTION IS TO:

WHAT IS QLDC ALREADY DOING? | KEI TE AHA KĒ A QLDC?

Mitigation and adaptation are two methods to limit and manage the effects of climate change.

Mitigation refers to **reducing the impact** of human activities that contribute to climate change e.g. reducing GHG emissions.

Adaptation means **adjusting natural or human systems** (e.g. infrastructure networks and the economy) to respond to actual or expected climatic conditions and their effects. Adaptation includes planning for **direct impacts** on health, safety and wellbeing, such as exposure to heat waves; and **indirect impacts**, such as potential food and water insecurity, and disrupted health services. It also means changing the way we live and work in preparation for a zero carbon future, and being open to the opportunities this will bring.

LOCAL ADAPTATION

Forward planning and bold decision making to prepare for and adapt to a changing climate will help residents, visitors and businesses feel more confident about the future.

This will help build community and household self-sufficiency, and will reduce dependence on formal emergency responses during extreme weather events.

LOCAL MITIGATION

A significant component of this draft plan relates to QLDC leading by example by reducing its own emissions from its transport fleet, energy consumption, wastewater treatment, landfill and other operations.

In addition to this, a group of dedicated QLDC staff – Sustainable Transformational Environmental Programme (STEP) – is working to encourage staff to work in a more sustainable way such as minimising waste and being more energy efficient.

The draft plan's other actions reflect a collaborative, ongoing approach across all sectors.

AN OVERVIEW OF QLDC'S ADAPTATION AND MITIGATION ACTIVITIES

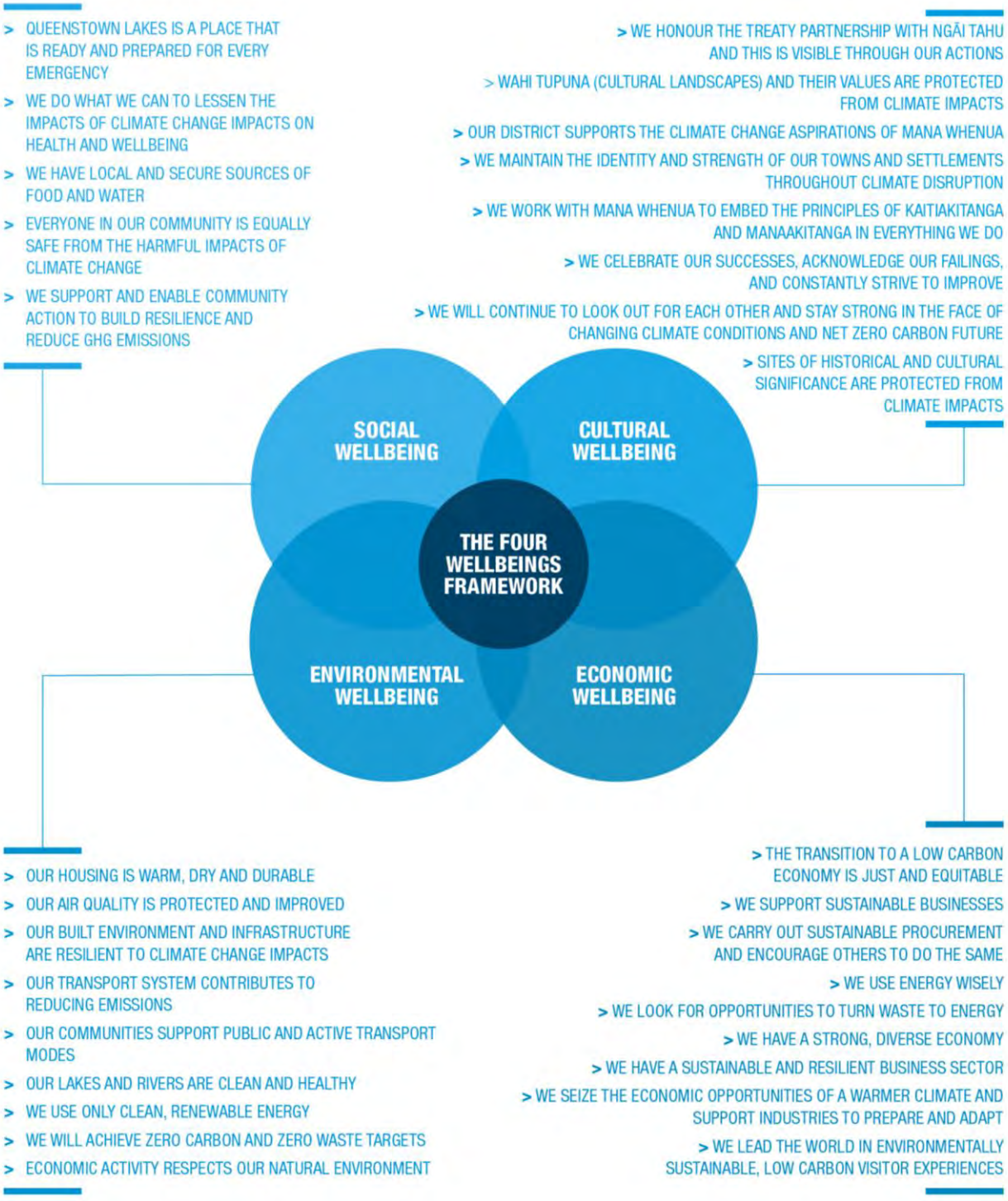
The table below outlines current projects and a selection of future projects from the QLDC Ten Year Plan. Also outlined are the benefits and co-benefits we should expect to see once all of these projects are implemented.

AREA	CURRENT PROJECT/S	FUTURE PROJECT/S	BENEFITS / CO-BENEFITS
3 WATERS	> QLDC land Development and Subdivision Code of Practice 2018	> Shotover wastewater treatment facility	> Best practice in land development & subdivision infrastructure design > Greater protection from extreme rainfall events > Better storm water treatment > Better water quality > Reduced GHG emissions
ENERGY	> Luggate Hall replacement > Shotover energy audit > Queenstown Events Centre energy audit > Queenstown Events Centre heating review		> Building innovation > Community focal point > Smart & viable solution for a growing community > Health & community wellbeing > Passive house design pilot > NZ's first passive house community facility > Energy efficiency / savings > Ventilation and heating improvements
IT	> New Print agreement > Ongoing e-cycling of PC equipment > Replacing wireless mouse and keyboards with solar powered or rechargeable units to reduce battery waste > Lobbying providers to reduce packaging waste		> Sustainable procurement > Reduced environmental impacts > Reduce battery waste to landfill > Waste minimisation
LAND USE / DEVELOPMENT	> Gorge Road hazards: Considered impact of climate change on hazards. > Proposed District Plan: promotes higher densities in town centres and urban residential areas. > Transport chapter: reduced car parking requirements, more cycle parking and end of trip facilities, providing for public transport > Spatial Plan	> Future plan changes to consider Transit Oriented Development and reducing reliance on cars	> Better management of developments > Improved land use > Better access to facilities and infrastructure > Reduced reliance on cars > Affordable housing / affordable urban land
LANDSCAPE	> Winter and tree planting > Removing wilding conifers > Community Gardens > Restoring Wetlands		> Reduce fire risk > Increased indigenous biodiversity > Carbon sinks > Protected tussock lands > Improved water quality
RESEARCH	> Bodeker report on climate impacts for Queenstown Lakes	> CEMARS > 30-Year Infrastructure Strategy	> Water catchment plans > Infrastructure and community resilience > Asset management > Community awareness > Economic opportunities
STREET LIGHTING	> First phase of LED Street Lighting Retrofit of standard P-Category luminaires	> Complete next stages of Street lighting retrofit of LED luminaires. > V-Category Lighting and decorative luminaires	> Energy efficiency > Reduced travel for maintenance > Fuel savings
TRANSPORT	> Wakatipu Way to Go business cases & Masterplans. Focus on: • Public transport, including mass rapid transit • Active travel • Public realm • Parking management • Parking • Behaviour change > Bus stop improvements, including Stanley Street Bus Hub	> Exploring use of recycled materials in road construction > Considering electric vehicle infrastructure > Mass Rapid Transport	> Waste minimisation > Reduced emissions > Modal shift to public transport & active travel > Reduced reliance on private cars > Transport resilience – alternative routes / mitigation > Sustainability > More spare time > Better air quality > Less congestion > Fuel savings > Quicker commutes
WASTE MINIMISATION	> Support for community based initiatives to minimise waste and reduce carbon > Subsidised composting systems	> New Trade Waste Bylaw (2020) > Construction and demolition waste recovery > Landfill gas capture and flare – Victoria Flats landfill > Enhanced resource recovery facilitation > Organic waste processing facility	> Waste minimisation > Reduced GHG emissions > Household action > Reduced landfill operational costs > Protection from extreme rainfall events > Better storm water treatment and water quality outcomes > Energy efficiency > Workplace transformation
PROPERTY		> Project Connect	> Staff / community health and wellbeing > Modelling sustainable building practices
CORPORATE	> Queenstown Partnership Housing Strategy > Sustainable Transformation Environment Programme (STEP)		> Better choices for location and type of housing > Better access to employment, education & services > Quality built environments; > Reduced emissions > Climate resilience > Staff engagement and leadership > Organisational transformation
COMMUNITY FACILITIES	> Energy efficient audit of swimming pools > Investigation into waste heat capture from wastewater flows to heat swimming pools		> Reduce natural gas (fossil fuel) usage > Passive house innovation for public facilities > Cost savings

THE FOUR WELLBEINGS FRAMEWORK | TE POU TARĀWAHO FOUR WELLBEINGS

The Four Wellbeings are based on The New Zealand Treasury's Living Standards Framework, which has been developed to align stewardship of the public finance system with an intergenerational wellbeing approach.

In order to connect this framework with local climate action, QLDC has identified the following outcomes from a range of sources (including the QLDC Ten Year Plan, Quality of Life Survey, and other strategic documents):



QUEENSTOWN LAKES DISTRICT DRAFT CLIMATE ACTION PLAN: 2019-2022 | HE HUKIHUKI O TE MAHERE ĀHURANGI O NGĀ TAU 2019-2022

GOALS

Every community in the Queenstown Lakes district is equally prepared for climate change impacts and a zero carbon future

Our built environment and infrastructure networks are resilient to climate change impacts

Queenstown Lakes District Council achieves net zero greenhouse gas emissions ('GHG') by 2050

The Queenstown Lakes district achieves net zero carbon emissions by 2050

2019-2020

	IDENTIFY, ASSESS AND RESPOND TO CLIMATE CHANGE RISKS AND VULNERABILITIES		IDENTIFY AND LEVERAGE RESOURCES		MEASURE AND REDUCE THE DISTRICT'S GHG EMISSIONS		EVALUATE, MONITOR AND COMMUNICATE PROGRESS	
	QLDC	**COLLABORATIONS**	**QLDC**	**COLLABORATIONS**	**QLDC**	**COLLABORATIONS**	**QLDC**	**COLLABORATIONS**
PRIORITY ACTIONS FOR 2019/2020	Carry out a full assessment of current and future climate hazards and vulnerabilities including ongoing review of the Land Development and Subdivision Code of Practice Develop an adaptation plan that specifically addresses these risks and vulnerabilities Ensure climate change impacts are embedded into QLDC's spatial planning (underway) Identify and mitigate QLDC's litigation and insurance risks (e.g. via LIM and PIM reports) Work with utility and communications providers to identify and mitigate risk to above-ground infrastructure	Collaborate with partners and key stakeholders, e.g. New Zealand Transport Agency and Otago Regional Council to incorporate climate change projections in infrastructure planning (underway) Work with Otago Regional Council to monitor and plan for climate-related hazards, and to protect water and air quality (ongoing) Ensure effective community and workplace planning is in place for extreme weather events. Align climate change hazard planning with existing risk-based planning with Civil Defence Emergency Management	Identify interim budgetary requirements Identify a costing mechanism for climate resilient infrastructure investment Consider staffing requirements to drive the Climate Action Plan e.g. > Consider recruiting an Eco Design Advisor with a role to advise on future developments (town centres, private developments, affordable housing and self-builds) > Upskill key QLDC staff to incorporate carbon accounting into financial processes	Explore regional and district-wide carbon sequestration opportunities through engaging with the rural community, local planting groups and national organisations, using soil mapping to ensure the right trees are planted in right places Identify alternative funding sources to support community-led climate action Identify and support local champions to support resilience initiatives and transition to a low carbon activity Work with community organisations, businesses and education providers to facilitate awareness and information on climate change impacts and emissions reductions	Establish a process with CEMARS to measure QLDC's emissions baseline and drive behaviour change within the Council (underway) Support STEP to drive Council-wide waste minimisation and emissions reduction initiatives (underway) Reduce QLDC's energy use and plan to prioritise clean, renewable energy (ongoing) Design and implement an emissions reduction programme across all QLDC operations Begin transition to an electric vehicle fleet Revise procurement policy to reflect sustainability principles (underway)	***Road transport*** > Road transport suppliers in key sectors and QLDC work together to transition to alternative low emissions transport > With Otago Regional Council, explore alternative low / zero emissions options for public transport > Plan for electric vehicle charging infrastructure across the district > Increase safe active transport options in existing and future developments and masterplans (underway via QLDC Masterplans) > Link popular visitor routes to public transport routes > Continue planning future improvements and investment in public transport (ongoing) ***Rural emissions*** > Engage with the rural sector to understand key challenges > Assess current sequestration activities and best practice for rural communities > Use existing soil mapping to identify best areas for carbon sinks	Establish a performance framework and identify key performance indicators Establish a monitoring and evaluation framework Establish a process for communicating progress regularly Continue to ask climate change questions in the QLDC Quality of Life Survey (ongoing) Ensure all future Best Business Cases include climate change impacts and carbon accounting assessment	Establish an independent, multidisciplinary Climate Reference Group to work in partnership with QLDC and mana whenua to identify key challenges, evaluate best practices, identify funding, and agree future priority action areas Develop and implement an external engagement plan on climate change impacts and emissions reductions

2019-2020 continued

	IDENTIFY, ASSESS AND RESPOND TO CLIMATE CHANGE RISKS AND VULNERABILITIES		IDENTIFY AND LEVERAGE RESOURCES		MEASURE AND REDUCE THE DISTRICT'S GHG EMISSIONS		EVALUATE, MONITOR AND COMMUNICATE PROGRESS	
	QLDC	**COLLABORATIONS**	**QLDC**	**COLLABORATIONS**	**QLDC**	**COLLABORATIONS**	**QLDC**	**COLLABORATIONS**
PRIORITY ACTIONS FOR 2019/2020	Identify and communicate the district's climate risk profile		Consult with the Ministry for the Environment, Land Information New Zealand, and other central government agencies on ongoing climate change policy development Empower staff to appropriately consider climate change impacts within existing functions (underway)	Identify a small number of key transformational projects with community and business where the biggest gains can be made	Complete a QLDC travel plan that prioritises the use of public transport, active travel and remote working (underway) ***Aviation*** > Undertake accurate measurements of GHG emissions attributed to aviation > Approach Queenstown Airport Corporation to work on emissions reduction strategies ***Road transport*** > Undertake first steps to measure GHG emissions from district-wide road transport with a breakdown of key emissions sources (development, freight, tourism, agriculture)	***Building & development*** > Develop and support best practice urban design principles that move the district to sustainable development (ongoing) > Implement eco design and low impact living within key partnership projects > Support building reform to improve residential sustainability and durability (underway) ***Tourism & destination management*** > Collaborate with the hospitality/visitor/business sectors to encourage waste minimisation practices (ongoing) and emission reduction strategies	Ensure the Climate Action Plan is consistent with current and future legislation and regulations Include climate change considerations and carbon accounting in all QLDC decision-making and reporting	
TARGETS AND MEASURES FOR 2019/2020	To be determined		To be determined		To be determined		To be determined	

	IDENTIFY, ASSESS AND RESPOND TO CLIMATE CHANGE RISKS AND VULNERABILITIES		IDENTIFY AND LEVERAGE RESOURCES		MEASURE AND REDUCE THE DISTRICT'S GHG EMISSIONS		EVALUATE, MONITOR AND COMMUNICATE PROGRESS	
	QLDC	**COLLABORATIONS**	**QLDC**	**COLLABORATIONS**	**QLDC**	**COLLABORATIONS**	**QLDC**	**COLLABORATIONS**
PRIORITY ACTIONS FOR 2020/2021	Continue to monitor and plan for current and future climate hazards and vulnerabilities Implement a district-wide tree management strategy (including on private land) to ensure risks from tree fall and fire are identified and mitigated against Adopt sustainability design standards	Review and revise priority actions with the Climate Reference Group Work with the community to plan and fund food and water resilience initiatives (e.g. household water tanks) Engage with the health and community sectors to address potential health and wellbeing impacts Continue to work with the visitor sector to support tools and practices to mitigate industry impacts Engage with partners at the regional level to look at developing a regional climate action strategy	Identify resources and budget requirements through the QLDC Ten Year Plan (e.g. community initiatives, fleet, incentives, audits, education, staffing, carbon off-setting, baseline research, IT system development, transformational projects) Design and fund a suite of incentives to encourage and enable effective climate action and emissions reductions (e.g. free parking for electric vehicles, rate rebates for tree planting) Establish staffing requirements e.g. sustainability team, to drive the climate action plan and other sustainability initiatives Consider bringing forward funding for projects that will make significant emissions reductions e.g. Shotover wastewater project Lobby central government on Resource Management Act and Building Act reform	Support and enable community and businesses initiatives to reduce emissions and build local resilience Support and enable circular economy initiatives	Implement a QLDC emissions reduction programme following the initial CEMARS audit Continue transition to an electric vehicle fleet Commission a district-wide emissions baseline report	Develop a comprehensive GHG Reduction Toolkit and district-wide Roadmap in collaboration with the Climate Reference Group Explore renewable energy investment opportunities at district and community level Begin planning for carbon sequestration / offsetting including incentives ***Road transport*** Continue work on developing a regional electric vehicle charging network ***Aviation*** Approach Queenstown Airport Corporation and others in the aviation industry to plan emissions reduction strategies ***Building development*** Encourage users of fossil fuel furnaces to switch to clean, renewable energy sources ***Tourism & destination management*** Collaborate with Tourism Industry Aotearoa (TIA), Regional Tourism Organisations (RTOs) and the visitor industry to develop the district as a low / zero carbon destination	Produce the first annual climate change action progress report	Work closely with the Climate Reference Group, Ngāi Tahu and community to co-design the next climate action plan
TARGETS AND MEASURES FOR 2020/2021	To be determined		To be determined		To be determined		To be determined	

2021-2022

	IDENTIFY, ASSESS AND RESPOND TO CLIMATE CHANGE RISKS AND VULNERABILITIES	IDENTIFY AND LEVERAGE RESOURCES	MEASURE AND REDUCE THE DISTRICT'S GHG EMISSIONS	EVALUATE, MONITOR AND COMMUNICATE PROGRESS
PRIORITY ACTIONS FOR 2021/2022*	Continue to deliver the work programme/s outlined in previous two years of the plan	Continue to deliver the work programme/s outlined in previous two years of the plan Identify budgetary requirements for climate action through the next Annual Plan process Seek funding for new transformational project/s identified in years 1 and 2	Continue to deliver the work programme/s outlined in previous two years of the plan Develop a district-wide emissions reduction programme with stakeholders based on the 2020/2021 baseline report Enable / implement carbon sequestration activities	Continue to deliver the work programme/s outlined in two previous years of the plan Finalise the next climate action plan with the Climate Reference Group
TARGETS AND MEASURES FOR 2021/2022	To be determined	To be determined	To be determined	To be determined

*NB: Further actions for year 3 of the climate action plan (2021-2022) will be developed in years 1 and 2 subject to funding.

APPENDIX 1: BACKGROUND | ĀPITIHAKA 1: TĀHUHU KŌRERO

INTERNATIONAL CONTEXT

New Zealand is one of 194 signatory nations to the Paris Agreement, which was adopted under the United Nations Framework Convention on Climate Change (UNFCCC) in 2015[12]. The Agreement commits all signatory countries to take action on climate change. New Zealand's Nationally Determined Contribution (NDC) under the Paris Agreement – to reduce greenhouse gas emissions by 30% below 2005 levels by 2030 – will apply from 2021.

At the same time the Paris Agreement was adopted, the United Nations launched a new sustainable development agenda to guide global development over the next 15 years. The two are closely linked. The agenda comprises 17 sustainable development goals including Goal 13 - **to take urgent action to combat climate change and its impacts.**

LOCAL CONTEXT AND LOCAL IMPACTS

The Queenstown Lakes district is experiencing very strong economic and population growth and this is expected to continue. The task to reduce emissions in an area of high growth is challenging[13]. Important factors are our distance from other centres and being the country's premier visitor destination. This growth is contributing to the district's higher than average emissions.

However, reductions can and have been achieved in communities similar to ours. Since the adoption of its first Climate Change Action Plan in 2007, the City of Aspen has reduced its net GHG emissions by 7.4% despite a population growth of 5.5% by focussing on the sectors that are the biggest emitters.[14]

TOURISM

According to the Davos Declaration on climate change and tourism, the global sector has to "rapidly respond to climate change, within the evolving UN framework and progressively reduce its Greenhouse Gas (GHG) emissions, if it is to grow in a sustainable way".[15]

While only 3% of the world's population travel by air in any given year, their contribution to GHG emissions is huge.[16] This is particularly challenging for Queenstown Lakes where the economy is built on tourism.

Climate adaption and mitigation are becoming commonplace in strategic planning in the tourism sector. This draft plan proposes that the Council, Queenstown Airport Corporation (QAC), Regional Tourism Organisations (RTOs), and the tourism sector work together to strengthen this approach through collaboration.

DISTRICT-WIDE EMISSIONS

In 2018, Tonkin + Taylor produced a high level inventory of our district's GHGs emissions. Using a 2018 resident population of approximately of 37,000, our annual gross emissions per person were measured at approximately 18.5 tonnes of carbon dioxide equivalent, compared to the national average of 17.4.

[12] As of February 2019, 194 UNFCCC members have signed up to the Agreement. The USA withdrew its support in 2017.
[13] https://pai.org/wp-content/uploads/2012/02/PAI-1293-Climate-Change_compressed.pdf
[14] *Aspen's Climate Action Plan: a roadmap to our sustainable future* (Aspen City Council, 2017)
[15] http://sdt.unwto.org/sites/all/files/docpdf/decladavose.pdf
[16] www.gci.org.uk/Documents/Aviation-and-Climate-Change.pdf

The estimated emissions of a combined visitor and resident population of 62,763 are 10.8 tonnes of carbon dioxide equivalent, which is still significantly more than New Zealand's cities, including Auckland[17].

The sectors where our emissions rate highly in comparison with the rest of the country are aviation, road transport, and waste. Our agricultural emissions are similar to Dunedin's, and stationary energy (electricity and LPG) emissions are at the lower end. This plan includes an action to produce a detailed baseline from which to measure and reduce emissions district-wide, focusing on the sectors and activities where the greatest gains can be made.

CLIMATE CHANGE LEGISLATION

On 8 May 2019, the Government introduced the Climate Change Response (Zero Carbon) Amendment Bill. The purpose of the bill is to provide a framework in which New Zealand can develop and implement clear and stable climate change policies that contribute to the international effort to limit the global average temperature increase to 1.5°C above pre-industrial levels.

The bill will do four key things:

- Set a new greenhouse gas emissions reduction target to:
  - reduce all greenhouse gases (except biogenic methane) to net zero by 2050
  - reduce emissions of biogenic methane within the range of 24–47% below 2017 levels by 2050 including to 10% below 2017 levels by 2030.
- Set a series of emissions budgets to act as stepping stones towards the long-term target.
- Require 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.[18]

EMISSIONS TRADING SCHEME

New Zealand's method for incentivising the reduction of GHG emissions is via the Emissions Trading Scheme (ETS). This is a market-based mechanism that puts a traded price on GHG emissions at source. It requires that tonnes of carbon emitted by certain sectors (such as industry, electricity and transport) are matched by New Zealand Units (NZUs), also known as carbon credits.

The goal of the ETS is to make businesses (and their consumers) pay for their GHG emissions to encourage them to change their practices or invest in new technology. Forestry owners, on the other hand, can earn NZUs because their trees absorb carbon. These NZUs can then be sold to polluters for a price that is set by the market.

Local authorities are required to purchase carbon credits to offset the emissions they generate from operational activities, such as landfill and waste water treatment. These costs are passed onto residents through rates, and fees such as landfill charges.

[17] *Auckland's Greenhouse Gas Inventory to 2015* (Shanju Xie, October 2017*)*
[18] www.mfe.govt.nz/climate-change/zero-carbon-amendment-bill

CLIMATE ACTION SUPPORTS A CIRCULAR ECONOMY

Effective climate action offers many transformational co-benefits. As well as preparing for a low carbon future, it supports the transition to a circular economy which is based on three principles:

> designing out waste and pollution from manufacture
> keeping products and materials in use
> regenerating natural systems.[19]

The traditional linear economy, on the other hand, uses natural resources to make products that are replaced and disposed of as waste.

A circular economy offers numerous benefits over the traditional linear economy (this is illustrated below[20]). In addition to reversing human impacts on climate change, these benefits include:

> long-term cost savings
> more local jobs
> encouraging technical innovation
> reducing harmful waste.

[19] For more information on how the circular economy works go to https://www.mfe.govt.nz/waste/circular-economy
[20] Image source: www.mfe.govt.nz/waste/circular-economy

APPENDIX 2: GLOSSARY | ĀPITIHAKA 2: HE KUPUTAKA

ADAPTATION: Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities. Various types of adaptation can be distinguished, including anticipatory, autonomous and planned adaptation:

- Anticipatory adaptation – Adaptation that takes place before impacts of climate change are observed. Also referred to as proactive adaptation.
- Autonomous adaptation – Adaptation that does not constitute a conscious response to climatic stimuli but is triggered by ecological changes in natural systems and by market or welfare changes in human systems. Also referred to as spontaneous adaptation.
- Planned adaptation – Adaptation that is the result of a deliberate policy decision, based on an awareness that conditions have changed or are about to change and that action is required to return to, maintain, or achieve a desired state. www.ipcc.ch/publications_and_data/ar4/wg2/en/annexessglossary-a-d.html

CARBON SEQUESTRATION: the long-term storage of carbon in plants, soils, geologic formations, and the ocean. Carbon sequestration occurs both naturally and as a result of anthropogenic activities and typically refers to the storage of carbon that has the immediate potential to become carbon dioxide gas.

In response to growing concerns about climate change resulting from increased carbon dioxide concentrations in the atmosphere, considerable interest has been drawn to the possibility of increasing the rate of carbon sequestration through changes in land use and forestry and also through geo-engineering techniques such as carbon capture and storage. www.britannica.com/technology/carbon-sequestration

CEMARS (CERTIFIED EMISSIONS MEASUREMENT AND REDUCTION SCHEME): A scheme developed by Enviro-Mark Solutions to help organisations accurately measure their greenhouse gas emissions, and put in place strategies to manage and reduce the impacts. www.enviro-mark.com

CLIMATE CHANGE: A change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods (*Proposed Regional Policy Statement for Otago*, May 2015).

EARTH SYSTEM: The Earth´s interacting physical, chemical, and biological processes. It consists of the land, oceans, atmosphere and poles, and includes the planet's natural cycles — carbon, water, nitrogen, phosphorus, sulphur and other cycles — and deep Earth processes. Life is an integral part of the Earth system as it affects the carbon, nitrogen, water, oxygen and many other cycles and processes.

The Earth system includes human society. Our social and economic systems are now embedded within the Earth system, and in many cases – such as anthropogenic GHG emissions, and biodiversity loss due to deforestation – human systems are the main drivers of change in the Earth system. www.igbp.net/globalchange/earthsystemdefinitions.4.d8b4c3c12bf3be638a80001040.html

EMISSIONS TRADING SCHEME (ETS): The New Zealand Government's main tool for reducing greenhouse gas emissions.

Its objective is to support and encourage global efforts to reduce greenhouse gas emissions by assisting New Zealand to meet its international obligations, and reducing New Zealand's net emissions below business as usual levels. www.mfe.govt.nz/climate-change/new-zealand-emissions-trading-scheme/about-nz-ets

GLOBAL WARMING: Greenhouse gases (GHGs) absorb heat from Earth's surface, warming the atmosphere and changing the climate.

Emissions mainly come from combustion of fossil fuels that emit carbon dioxide ($CO_{2)}$, and agriculture which emits methane (CH_4) and nitrous oxide (N_2O). Carbon dioxide remains in the atmosphere for much longer than other major GHGs. Because of this, today's global CO_2 emissions will continue to influence atmospheric CO_2 concentrations for a very long time.

KAITIAKITANGA: Guardianship and conservation. Traditionally, Māori believe there is a deep kinship between humans and the natural world. This connection is expressed through kaitiakitanga – a way of managing the environment.

Today there is growing interest in kaitiakitanga as iwi restore their environment and their culture. https://teara.govt.nz/en/kaitiakitanga-guardianship-and-conservation

LOCAL GOVERNMENT ACT 2002: **SECTION 10** (1) The purpose of local government is— (b) to meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses; (2) In this Act, good-quality, in relation to local infrastructure, local public services, and performance of regulatory functions, means infrastructure, services, and performance that are (a) Efficient: and (b) Effective: and (c) Appropriate to present and anticipated future circumstances.

MANAAKITANGA: Hospitality, kindness, generosity, support - the process of showing respect, generosity and care for others.
https://maoridictionary.co.nz/search?idiom=&phrase=&proverb=&loan=&keywords=manaakitanga

MITIGATION: A human intervention to reduce the sources or enhance the sinks of greenhouse gases www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_Glossary.pdf

REPRESENTATIVE CONCENTRATION PATHWAY (RCP): A greenhouse gas concentration trajectory adopted by the IPCC for its fifth Assessment Report (AR5) in 2014. The RCPs are consistent with a wide range of possible changes in future anthropogenic (i.e. human) greenhouse gas (GHG) emissions, and aim to represent their atmospheric concentrations.

RCP 2.6 assumes that global annual GHG emissions (measured in CO2-equivalents) peak between 2010–2020, with emissions declining substantially thereafter; emissions in RCP 4.5 peak around 2040, then decline; in RCP 6, emissions peak around 2080, then decline; in RCP 8.5, emissions continue to rise throughout the 21st century.
https://sedac.ciesin.columbia.edu/ddc/ar5_scenario_process/RCPs.html

RESILIENCE: The capacity of individuals, communities, institutions, businesses, and systems to survive, adapt, and grow, no matter what kinds of chronic stresses and acute shocks they experience. Shocks are typically considered single event disasters, such as fires, earthquakes, and floods. Stresses are factors that might recur on a regular basis such as water shortages, an overtaxed transportation system, and unemployment. www.100resilientcities.org/FAQ/#/-_/.

RESOURCE MANAGEMENT ACT 1991 (RMA): New Zealand's main piece of legislation for how we should manage our environment.

SUSTAINABLE TRANSFORMATIONAL ENVIRONMENTAL PROGRAMME (**STEP)**: A group of QLDC staff who are committed to moving towards zero waste and a more sustainable workplace and district. The group, which was formed in 2018 across all QLDC departments, aims to implement changes at work and at home to achieve this goal.

STRESSOR: A chemical or biological agent, environmental condition, external stimulus or an event that causes stress to an organism.

UN SUSTAINABLE DEVELOPMENT AGENDA AND GOALS: In 2015, countries adopted the 2030 Agenda for Sustainable Development and its 17 Sustainable Development Goals. In 2016, the Paris Agreement on climate change entered into force, addressing the need to limit the rise of global temperatures.

The Sustainable Development Goals are a call for action by all countries – poor, rich and middle-income – to promote prosperity while protecting the planet. They recognize that ending poverty must go hand-in-hand with strategies that build economic growth and address a range of social needs including education, health, social protection, and job opportunities, while tackling climate change and environmental protection. www.un.org/sustainabledevelopment

APPENDIX 3: REFERENCES | ĀPITIHAKA 3: NGĀ TOHUTORO

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