Strategic Waste Minimisation Roadmap

Stage 1 Report

RANGITĪKEI
DISTRICT COUNCIL

making this place home

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BASIS OF REPORT

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EXECUTIVE SUMMARY

Scope of this Report

This report provides a high-level review of the Aotearoa New Zealand waste and resource management industry including the current legislative drivers in place to shape how waste is managed as well as a high-level review of the international key drivers influencing how waste is managed globally.

This report provides context to Stage 1 of the strategic review of Rangitīkei District Council's role and focus of effort in waste and diverted materials to ensure that this responds to best practice and meets the needs of the District in the future. The outcomes will help shape the development of a waste management roadmap for Rangitīkei District Council which will be developed as Stage 2 of this project.

In March 2023 a transformative new waste strategy was announced, with supporting legislation under development. Overarching principles and 2030 waste strategy targets are captured in this Stage 1 report. Those targets and directions set by the new strategy will inform the Stage 2 waste management roadmap, allowing Rangitīkei District Council to respond at the level of pace needed to align with the ambitious targets and comprehensive changes ahead.

International Key Drivers

Aotearoa New Zealand has one of the highest rates of household waste production per capita in the OECD. Population growth and demand for products and services will continue to place pressure on *rawa taiao* - environmental resources, and to limit this, it will require countries to implement policies that improve *whakahaere rauemi* - resource management and ensure sustainable materials management building on the principles of the *pūnaha whakarōpū para* - waste hierarchy of reduce, reuse and recycle.

Most products and the consumer purchasing behaviour follow a linear (take-make-dispose) approach. Because influences beyond our control have impacted recycling markets, we must look at reducing the impacts of manufactured products on our environment through a circular (make-use-return) economy. To help progress this transition, the New Zealand Government is encouraging producers, brand owners, importers, retailers and consumers to make this transition. The *Waste Minimisation Act 2008* (WMA) has several functions to facilitate transition from a linear to a *Ōhanga āmiomio* - circular economy.

Waste and Resource Legislative Overview

A range of kerbside collection services are in operation across Aotearoa New Zealand's territorial authorities. In most cases, local authorities carry the responsibility and risk associated with the collection and the fate of the materials collected. Inconsistent collection methods and recycling rates and ongoing global developments have resulted in a need for Aotearoa New Zealand to critically assess current waste infrastructure to establish investment requirements to support onshore processing and remanufacturing.

Market demand for products with recycled content will be driven by a combination of factors, including the establishment of legislative instruments, consumer behaviour and resource recovery and manufacturing sector investment. Creating demand for products with recycled content will in turn drive increased commercial investment in resource recovery and processing technologies. However, disposal of most waste is still to landfill so landfills will play an important role for the management of waste until other options are investigated.

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A 2010 update to the New Zealand Waste Strategy set the strategic goals to provide greater flexibility for waste management and minimisation. The legislation that gives effect to the Strategy includes the *Waste Minimisation Act 2008*, the *Local Government Act 200,* the *Resource Management Act 1991*, the *Climate Change Response Act 2002*, which created the New Zealand Emissions Trading Scheme.

In 2021 the Government released a consultation paper on proposals for a new waste strategy and supporting legislation. Submissions were received and the new strategy was released in March 2023, titled *Te rautaki para Waste Strategy, Getting rid of waste for a circular Aotearoa New Zealand.*

The new strategy sets out guiding principles and the vision for 2050. It describes three phases of change between now and 2050, with the first culminating in 2030. Phase 1 focuses on embedding circular thinking and establishing building blocks for improved systems and behaviour change. It also establishes national targets to:

1. reduce waste generation by 10 % per person
2. reduce final disposal by 30 % per person
3. reduce biogenic methane emissions from waste by at least 30 %.

Government recognises the level of change ahead for the sector. There is potential to tap into central government funding support and to access shared programmes and resources. These opportunities will be addressed in the Stage 2 study.

RDC's Waste Management Policies and Objectives

Long Term Plan

RDC's Long Term Plan (2021-2031) is 'to provide sustainable waste management practices that protect public health and the environment for present and future generations'. To achieve this, RDC plans to make recycling facilities available at waste transfer stations for glass, paper, metal, plastics, textiles and green waste with special occasion collections for e-waste.

Waste Management and Minimisation Plan 2018

The goals of the 2018 WMMP are to:

- Progressively reduce waste to landfill
- Increase waste diverted from landfill
- Discourage illegal disposal of solid waste and other non-sustainable waste practices.

To progress each of these goals, RDC has established several initiatives and targets including:

- Recycling available at most transfer stations for glass, paper, metal, plastics, textiles, greenwaste and e-waste
- Waste education programmes available to encourage waste reduction, reuse and recycling
- Cost effective solid waste services
- A progressive reduction in waste to landfill
- Increase waste diversion from landfill to 27%.

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The WMMP goals, initiatives and targets will help to inform and shape the strategic waste roadmap including the respective focus areas and proposed work programmes.

Rangitīkei District Waste Management Facilities and Infrastructure

Rangitīkei District Council provides a range of waste management services including collection, recycling, processing and disposal. These services are funded through a combination of targeted rates, user-pays and funds from the waste levy.

There are several areas which will help to inform and shape the strategic waste roadmap:

- Recyclables and organic material in the kerbside waste bags could be recovered and diverted.
- Investigate the feasibility of implementing a kerbside collection service.
- Investigate additional, upgraded and/or expanded waste management facilities and infrastructure.
- Implementation of a container return scheme may present opportunities for RDC
- Investigate a network of Resource Recovery Centres in the District with a connection through the Manawatu-Whanganui Region.

Critical Drivers for Rangitīkei District Council

International Drivers

As a small country in a global economy, Aotearoa New Zealand's waste and resource recovery management industry is affected by factors beyond its control. In turn, these affect Rangitīkei District Council and its strategic approach to waste management. The major international key drivers affecting global waste management are summarised below.

COVID-19 Global Health Pandemic

The effects of the COVID-19 pandemic on waste management included:

- Increase in domestic waste generation and reduction in commercial waste generation
- Decrease in organic processing feedstocks from commercial sources and increases in food waste disposed of in residential kerbside collections
- Some smaller waste companies experienced cash flow and solvency issues
- Waste management was recognised as an essential service
- In some areas, industry and local government shared facilities
- Pandemic related waste, such as disposable masks, gloves and hand sanitising containers, entered the litter stream
- Work practices changed permanently and some of these trends are likely to continue
- There will be long term impacts on the Aotearoa New Zealand economy.

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Restrictions on Plastics

After China's National Sword policy was introduced in 2018 new markets were initially found in other Asian countries for mixed plastics, although many of these now restrict imports. Following the phasing out of plastic shopping bags, *Manatū Mō Te Taiao* - the Ministry for the Environment has initiatives to phase out more single-use and difficult to recycle plastic products.

Climate Change

Most greenhouse gas emissions in the waste management industry come from landfills. A primary contributor to these emissions is the decomposition of organic material. The trends in waste management in Aotearoa New Zealand are likely to include several elements to support the transition to a low carbon economy.

Resource Recovery

The potential for the development and investment in reuse systems and infrastructure is significant. However, continued investment in waste infrastructure is not entirely consistent with a circular economy. The development of reuse infrastructure represents an opportunity for Rangitīkei District Council to establish resource recovery parks providing a range of services.

Organic Material Recovery and Processing

A key component in the reduction of landfill greenhouse gas emissions is the reduction of organic material being disposed to landfills. A range of organic processing options currently exist throughout Aotearoa New Zealand.

Energy Production

In the future there may be a place for waste-to-energy (WtE) to manage residual waste that cannot be recovered. WtE can generate usable forms of energy, including electricity, heat and transport fuels from the processing of waste materials. The *pūnaha whakarōpū para* - waste hierarchy specifies the need to reduce waste in the first instance so the establishment of WtE systems should be done carefully so as to not affect resource recovery.

Illegal Waste Activities

Improper disposal of waste can also affect the financial viability of parts of the waste management sector and can impose costs on local authorities to clean up illegally dumped waste. A range of strategies can be implemented which may reduce illegal waste behaviour. Further work is required to understand illegal waste behaviours in the Rangitīkei District.

Legislative drivers

Waste Minimisation Act 2008

The WMA 2008 provides a regulatory framework to encourage the reduction in the amount of waste produced and disposed of by New Zealanders with the aim to reduce environmental effects while generating economic, social and cultural benefits. The WMA provides for several tools to manage and minimise waste. Part 2 of the WMA 2008 is centred on *kaitiakitanga whakanaonga* - product stewardship.

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Local Government Act 2002

The LGA 2002 gives effect to schemes, including *kaitiakitanga whakanaonga* - product stewardship schemes, accredited through the WMA 2008.

Resource Management Act 1991

The RMA 1991 is Aotearoa New Zealand's key environmental legislative document providing the framework for the sustainable management of environmental resources. It also manages and controls the environmental impacts of waste facilities such as disposal facilities, recycling and recovery facilities and cleanfills.

New Zealand Emissions Trading Scheme and the *Climate Change Response Act 2002*

The NZ ETS was created through the CCRA 2002 in recognition of Aotearoa New Zealand's obligations under the Kyoto Protocol. The NZ ETS is a key tool for ensuring Aotearoa New Zealand meets domestic and international climate change targets from a range of activities, including disposal facilities defined in the CCRA 2002. The importance of the NZ ETS to the Rangitīkei District Council strategic waste review is the application of the CCRA 2002 and emission target which apply to landfills.

Waste Disposal Levy

The New Zealand Government has confirmed an increase and expansion of the national waste disposal levy to divert more material from landfill. Increased investment in alternatives to landfill disposal is anticipated in keeping with the objectives of the WMA 2008. The levy was also established to encourage organisations and individuals to take responsibility for the waste they create and find more effective and efficient ways to reduce, reuse, recycle or reprocess waste.

Aotearoa New Zealand Waste Work Programme

The Aotearoa New Zealand waste work programme focusses on accelerating Aotearoa New Zealand's transition towards a *Ōhanga āmiomio* - circular economy. The *Manatū Mō Te Taiao* - Ministry for the Environment work programme focusses on nine key areas:

1. National waste strategy
2. Review of waste legislation
3. Declaration of six priority products for regulated product stewardship
4. Increase and expansion of the waste disposal levy
5. Investment in recycling infrastructure
6. Investigating the establishment of the Container Return Scheme
7. Standardising kerbside collection systems and consumer packaging labelling
8. Rethinking plastics
9. *Ōhanga āmiomio* – circular economy.

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Extended Producer Responsibility in Aotearoa New Zealand

Aotearoa New Zealand currently has a voluntary approach to *kaitiakitanga whakanaonga* - product stewardship, although the WMA 2008 enables the government to declare priority products. Regulated *kaitiakitanga whakanaonga* - product stewardship schemes could be established requiring all producers, manufacturers, brands, importers, retailers and consumers of those products to participate.

To encourage the shift towards a more resource efficient economy, the New Zealand Government is supporting *kaitiakitanga whakanaonga* - product stewardship to help design waste out of our economy and transition Aotearoa New Zealand to *Ōhanga āmiomio* - circular economy. This will be particularly important for Rangitīkei District Council as the city makes decisions about the future of waste and resource management including identifying opportunities to support localised collection and/or manufacturing or re-processing of materials.

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Glossary of Terms

Glossary of Terms	Definition
Hangarua	Recycling
Huringa mataora	Life-cycle of products
Kaitiakitanga whakanaonga – Product stewardship	To enable and partner with communities and businesses to reduce resource use and waste
Ōhanga āmiomio – Circular economy	A circular economy is an alternative to the traditional linear economy in which we keep resources in use for as long as possible, extract the maximum value from them while in use, then recover and regenerate products and materials at the end of each service life. When a product is designed for the longest use possible, and can be easily repaired, remanufactured or recycled, or used, composted and nutrients returned, we consider it to have a circular life cycle. A circular economy is fuelled by renewable energy, for example, solar, hydro, wind and tidal power, and biofuels)[1]
Pitomata	Potential
Pūnaha whakarōpū para	Waste hierarchy. A decision-making tool which assists with determining the best approach to take during the assessment of options. It is based on the concept that that reducing, reusing, recycling and recovering waste is preferable to disposal, which in New Zealand generally means a landfill site. Enabling a waste hierarchy approach requires investment in the necessary infrastructure
Rawa taiao	Environmental resources
Ruapara	Landfill
Taiao	Environment
Te Aronga	Purpose
The Roadmap	Rangitikei District Council Waste Minimisation Roadmap
Tiakitanga	Protection
Whai wāhi	Participation
Waka hourua	Partnership
Whakahaere rauemi	Resource management
Whakahaere hūrokuroku I te para	Sustainable waste management
Whakamahi anō	Reuse and recovery

[1] Zero Waste International Alliance http://zwia.org/standards/zw-definition/

Abbreviations

Abbreviation	Definition
AD	Anaerobic Digestion
ACC	Albury City Council
AWMC	Albury Waste Management Centre
AWT	Alternative Waste Treatment
C&D	Construction and Demolition Debris
C&I	Commercial and Industrial
EfW	Energy from Waste
HCC	Hamilton City Council
LTP	Long Term Plan
MRF	Material Recovery Facility
MWOO	Mixed Waste Organic Outputs
NSW EPA	New South Wales Environment Protection Authority
NZ ETS	New Zealand Emissions Trading Scheme
OECD	Organisation for Economic Co-operation and Development
SWAP	Solid Waste Analysis Protocol
RDC	Rangitīkei District Council
WMMP	Waste Management and Minimisation Plan
WtE	Waste to Energy

1 Introduction

1.2 Scope of this Report

This report provides a high-level review of the Aotearoa New Zealand waste and resource management industry including the current legislative drivers in place to shape how waste is managed as well as a high-level review of the international key drivers influencing how waste is managed globally. Several case study examples have been provided to illustrate how other jurisdictions are currently managing waste streams and the roadmaps each have developed to help transition their city to a lower carbon economy supported by reducing the amount of waste produced and maximising the principals of the *pūnaha whakarōpū para* - waste hierarchy of reduce, reuse and recycle.

This report forms the international and national overview to provide context to Stage 1 of the strategic review of Rangitīkei District Council's role and focus of effort in waste and diverted materials to ensure that this responds to best practice and meets the needs of the District in the future.

The outcome of this will help shape the development of a bespoke and tailored waste management roadmap for Rangitīkei District Council which will be developed as Stage 2 of this project.

Figure 1 below graphically illustrates the key components of developing the strategic waste roadmap and illustrates the inter-connected relationships between each component.

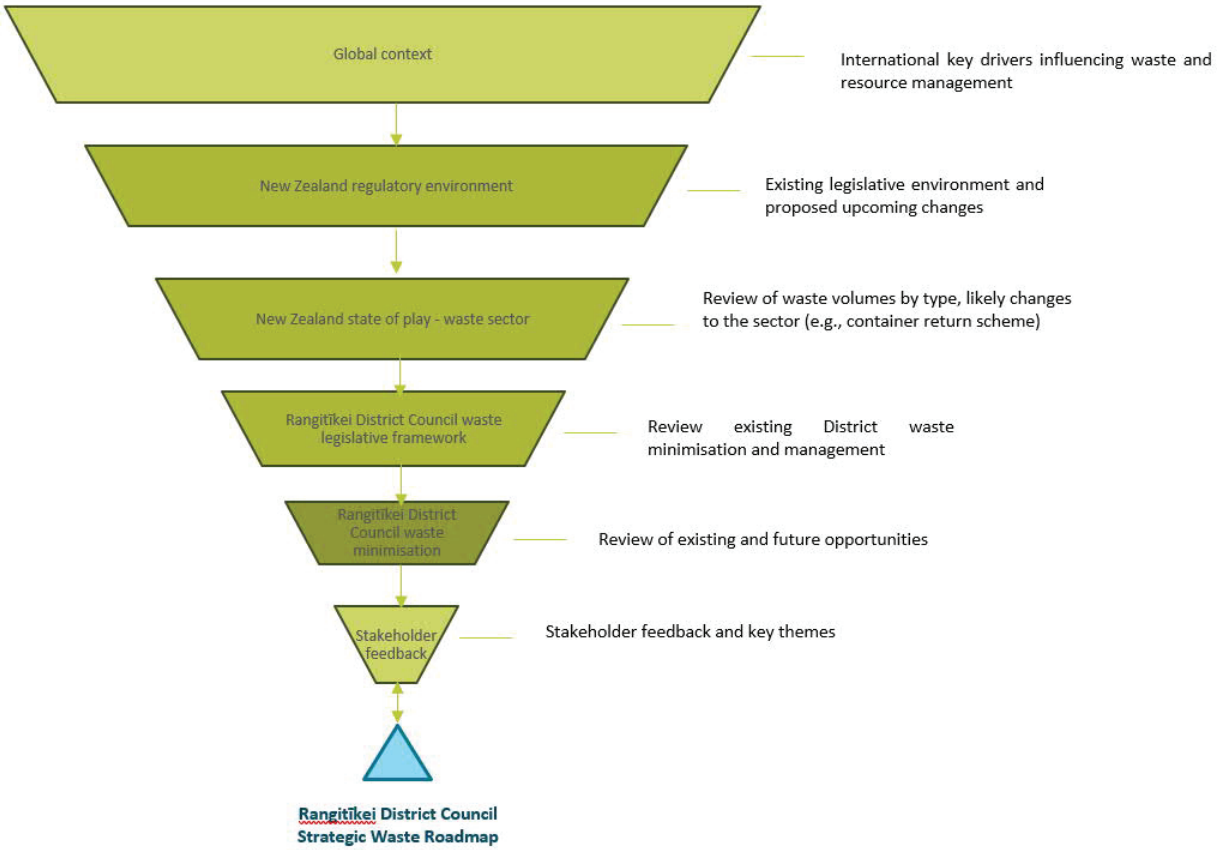

Figure 1 Stage 1 process schematic

2 International Key Drivers Influencing Waste and Resource Management

It is important to note that Aotearoa New Zealand has one of the highest rates of household waste production per capita in the Organisation for Economic Co-operation and Development (OECD).[2] Many of the products used for every-day life are often designed with limited thought for the life cycle of the product meaning the majority of products currently produced and the behaviours by which consumers purchase and use these products is linear (take-make-dispose) in nature. Along with international drivers including the China National Sword and the COVID-19 global health pandemic impacts on the recycling markets, there is now growing awareness and acceptance that countries must look at reducing the impacts of manufactured products on our environment through a circular (make-use-return) economy. To help progress this transition, the New Zealand Government is encouraging producers, brand owners, importers, retailers and consumers to take greater responsibility to transition from a linear to a *Ōhanga āmiomio* - circular economy. This might include improved recovery potential of products, designing products that have greater recyclable content or ensuring there is a reliable means of recycling a product.

The New Zealand Government recognises that continued progress is needed to transition from a linear economy to a *Ōhanga āmiomio* - circular economy with measures such a voluntary and regulated *kaitiakitanga whakanaonga* - product stewardship for priority products. The *Waste Minimisation Act 2008* (WMA) has several functions to facilitate this transition, including[3]:

- Bans of specific products – New Zealand has recently enacted the WMA to ban two products to address the environmental harms of microplastics and marine plastics: banning the sale and manufacture of microbeads in certain wash-off products as of 7 June 2018, and banning the sale of single-use plastic shopping bags as of 1 July 2019.
- Implementing regulated *kaitiakitanga whakanaonga* - product stewardship.

As global economies and populations grow, continued pressure is put on *Papatūānuku* and *rawa taiao* - natural resources to produce the wide range of products available on the market. The Platform for Accelerating the Circular Economy[4] reported that the global increase in material resource use is predominantly due to several factors including global reliance on virgin materials rather than making better use of existing resources, ongoing addition to the global stock of housing, infrastructure and machinery to service a growing population and lack of end-of-life processing as well as the poor design of products. It is clear that continued population growth and demand for products and services will continue to place pressure on *rawa taiao* - environmental resources, and to limit this, it will require countries to implement policies that improve *whakahaere rauemi* - resource management and ensure sustainable materials management building on the principles of the *pūnaha whakarōpū para* - waste hierarchy of reduce, reuse and recycle.

To enable this, countries have implemented extended producer responsibility (EPR) systems also known as *kaitiakitanga whakanaonga* - product stewardship defined by the OECD[5] as 'an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life-cycle'. An EPR policy is characterised by:

[2] https://www.mfe.govt.nz/consultations/priorityproducts
[3] Ministry for the Environment (2019). Proposed priority products and priority product stewardship scheme guidelines: Consultation document. Wellington: Ministry for the Environment.
[4] https://pacecircular.org/
[5] New Zealand has been a member of the OECD since 1973

1. the shifting of responsibility, physically and/or economically, fully or partially, upstream toward the producer and away from municipalities and
2. the provision of incentives to producers to take into account environmental considerations when designing their products.

While other policy instruments tend to target a single point in the chain, EPR seeks to 'integrate signals related to the environmental characteristics of products and production processes throughout the product chain'.

The principle of Extended Producer Responsibility as defined by the OECD is stated as 'producers of products should bear a significant degree of responsibility, physical and/or financial, not only for the environmental impacts of their products downstream from the treatment and/or disposal of the product, but also for their upstream activities inherent in the selection of materials and in the design of products' and aims to encourage producers to:

- Avoid using materials that may pose risks to human health or the *taiao* - environment
- Increase *hangarua* - recycling and *whakamahi anō* - reuse and
- Redesign products and packaging and reducing the amount of post-consumer material entering *ruapara* - landfills.

Without EPR systems, some products can require significant amounts of resources, for example, reworking and deconstruction, before they can be recycled. It is also important to note here that the efficacy of EPR systems is linked to the design of the scheme, and, as reported by the OECD, the economic and environmental performance of these schemes can be highly disparate.[6] This will be particularly relevant to the design of Aotearoa New Zealand *kaitiakitanga whakanaonga* - product stewardship schemes for priority products and the resultant impact of the schemes across Aotearoa New Zealand, for example, environmental, social, cultural and economic outcomes.

Recent events, including China National Sword and the COVID-19 global health pandemic, highlighted the delicate relationship between reliance on global post-consumer recycling markets, such as plastics and fibre, and the quantity of post-consumer recyclables produced by economic activity. As a result, Aotearoa New Zealand, along with many other countries, for example, Australia, are now having to reassess their respective waste industries, including:

- Investigating and establishing alternative end-markets for recycled materials
- Identifying profitable and stable end markets to support investment in resource recovery infrastructure
- Encouraging and establishing greater onshore re-manufacturing and reprocessing
- Developing guidelines for priority products which would require producers to take responsibility for the full *huringa mataora* - life-cycle of their products
- Establishing mandatory *kaitiakitanga whakanaonga* - product stewardship schemes
- Improving the collection of waste data to measure success and plan future infrastructure investment
- Ongoing awareness of changing and/or emerging waste streams.

Globally, alongside the establishment of *kaitiakitanga whakanaonga* - product stewardship schemes and extended producer responsibility, are initiatives including:

[6] Extended Producer Responsibility: Updated Guidance for Efficient Waste Management, OECD 2016, OECD Publishing, Paris

- Taxes on plastic packaging with targets for the use of recycled content in the production of new products
- Introducing legislation to ban single-use plastics from supermarkets
- Consistency in kerbside collections to improve and drive up recycling
- Introduction of weekly food scrap collections to reduce landfill greenhouse gas emissions
- Economic transition from a linear to a circular economy
- Onshore reprocessing and remanufacturing of recycled material
- Transitioning to a low carbon economy, for example, fuel sources, onshore re-manufacturing and reprocessing.

2.1 International Key Drivers Influencing Waste and Resource Management

The following sections provide a high-level description of the various international key drivers affecting global waste management. Application of these key drivers to an Aotearoa New Zealand context has been made where applicable to provide context for the development of the Rangitīkei District Council strategic waste review.

2.1.1 COVID-19 Global Health Pandemic

COVID-19 has affected global waste management in several ways, including:

- Government stay-at-home orders and a quick switch to more people working from home, has resulted in an increase in domestic waste generation and a reduction in commercial waste generation.
- Kerbside waste collection services were largely unaffected, while the effect on waste management facilities, such as recycling facilities and transfer stations, was mixed. In some areas, facilities were closed. In others there were increases in traffic and waste quantities as people staying at home undertook home improvement projects. In other areas, there was a reduction in traffic as stay-at-home orders prevented people travelling to facilities.
- Organic processing facilities experienced decreases in feedstocks from commercial sources but increases in food waste from residential kerbside collections. Levels of contamination were also sometimes higher.
- While major commercial waste companies have been able to accommodate these changes, some smaller companies, especially those servicing regional areas or the non-government sector, experienced cash flow and solvency issues.
- Waste management was recognised as an essential service and in some jurisdictions memoranda of understanding were developed between industry and local government to ensure service continuity and sharing of facilities.
- Pandemic related waste, such as disposable masks and gloves and hand sanitising containers, have been found in the litter stream and in marine and other environments. Contamination levels of some kerbside recycling services after COVID lockdowns were found to have higher contamination levels than compared to pre-COVID levels.
- Some of these trends are likely to continue if work practices do not return to how they were before the pandemic. It is likely that waste operators will adjust to the new conditions and in many cases accommodate heath requirements to allow some form of normal operation.

- The pandemic is likely to have long term impacts on the Aotearoa New Zealand economy and it is likely that these will also affect the waste and resource recovery industry.

2.1.2 Banning the Export of Waste

The implementation of China's National Sword policy in 2018 resulted in the ending of exports of some mixed recyclables to China. New markets were found in other Asian countries although many have since also implemented restrictions. Prices for recyclable materials dropped and resulted in the stockpiling of materials and the collapse of a major recycling company.

Following the phasing out of plastic shopping bags, *Manatū Mō Te Taiao* - the Ministry for the Environment has initiatives to phase out more single-use and difficult to recycle plastic products, for example, some hard to recycle PVC and polystyrene packaging, seven single-use plastic items including plastic plates, bowls and cutlery.

In comparison, the Australian Government announced bans on exporting waste plastic, paper, glass and tyres to be implemented over four years. This increased the importance of local processing and a new Recycling Modernisation Fund was established to fund recycling infrastructure. States and territories are also promoting local initiatives such circular economy policies, infrastructure funding and promoting purchase of products with recycled content.

While it will take some time for these initiatives to result in more local processing facilities and a stable market for recovered resources it is hoped that the local recycling industry will eventually become more self-sufficient.

2.1.3 Solid Waste Management and Climate Change

Most greenhouse gas emissions in the waste management industry come from landfills, although these have declined substantially over the last 25 years due to increasing gas capture and combustion. A primary contributor to these emissions is the decomposition of organic material.

The trends in waste management in Aotearoa New Zealand are likely to include several elements to support the transition from a linear to a *Ōhanga āmiomio* - circular economy and to a low carbon economy.

The recent 26th UN Climate Change Conference of the Parties (COP26) brought parties together to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change. Notwithstanding the commitments made by other member countries, Aotearoa New Zealand made a number of COP26 declarations, initiatives, pledges and statements. Those expected to have a bearing on the management and minimisation of waste and shown in Table 1 below.

Table 1 Aotearoa New Zealand Waste Management and Minimisation and COP26 Commitments

COP26 Declarations, Initiatives, Pledges and Statements	Overview
Carbon Neutrality Coalition COP26 Communique: Realising true zero	Communique by members of the Carbon Neutrality Coalition calling on countries to submit their long-term low greenhouse gas emissions development strategies as soon as possible[7]

[7] https://carbon-neutrality.global/cop26-communique/

COP26 Declarations, Initiatives, Pledges and Statements	Overview
Champions Group on Adaptation Finance	An informal group of countries and organisations that provide climate finance calling for more adaptation finance. The group was launched in September 2021 at the United Nations General Assembly with the goal to increase the total share of climate finance spent on adaptation and resilience[8]
Global Coal to Clean Power Transition Statement	A commitment to urgently scale-up the deployment of clean power to accelerate the energy transition and to work together with other countries to make clean power the most affordable and accessible option globally[9]
Declaration on Accelerating the Transition to 100% Zero Emission Cars and Vans	A commitment from representatives of governments, businesses, and other organisations to rapidly accelerate the transition to zero emission vehicles to achieve the goals of the Paris Agreement, including work towards all sales of new cars and vans being zero emission globally by 2040, and by no later than 2035 in leading markets[10]
Global Memorandum of Understanding: Zero-Emission Medium and Heavy-duty Vehicles	A commitment by leading countries to work together to enable 100% zero-emission new truck and bus sales by 2040 with an interim goal of 30% zero-emission vehicle sales by 2030, to facilitate achievement of net-zero carbon emissions by 2050[11]
Global Methane Pledge	Countries joining the pledge commit to a collective global target to reduce global methane emissions by at least 30% from 2020 levels by 2030. Delivering on the Global Methane Pledge is estimated to reduce warming by at least 0.2°C by 2050[12]
Joining the Agriculture Innovation Mission (AIM) for Climate	This is a joint initiative created by the United States and the United Arab Emirates. AIM for Climate seeks to address the climate crisis by uniting participants to significantly increase and accelerate investment in, and/or other support for, climate-smart agriculture and food systems innovation over the next five years, 2021–2025[13]
Joint Climate Change Ministerial Statement on: Agreement on Climate Change, Trade and Sustainability (ACCTS)	Joint Statement of Climate Ministers from Costa Rica, Fiji, Iceland, New Zealand, Norway and Switzerland following a meeting at COP26 to discuss progress in negotiations for the ACCTS[14]
Joint Declaration with Quebec and California on Co-operation in the Fight Against Climate Change	New Zealand, California and Quebec agreed to work together to maximise opportunities for reducing emissions in the most cost effective way; to support research and development into low carbon technologies; co-operate on ETS design and implementation; and to promote the environmental integrity of carbon pricing mechanisms around the world[15]
No New Coal Power Compact	No New Coal Power Compact was launched in September 2021 by Sri Lanka, Chile, Denmark, France, Germany, Montenegro and the UK. It commits countries to immediately cease issuance of new permits for unabated coal-fired power generation projects and cease new construction of unabated coal-fired power generation projects as of the end of 2021. This commitment was included in the Global Coal to Clean Power Transition Statement[16]

[8] https://www.iied.org/champions-group-adaptation-finance-join-forces-accelerate-adaptation-finance-solutions-beyond-cop26
[9] https://ukcop26.org/global-coal-to-clean-power-transition-statement/
[10] https://www.gov.uk/government/publications/cop26-declaration-zero-emission-cars-and-vans/cop26-declaration-on-accelerating-the-transition-to-100-zero-emission-cars-and-vans
[11] https://globaldrivetozero.org/mou-nations/
[12] https://www.globalmethanepledge.org/
[13] https://www.aimforclimate.org/
[14] https://www.mfat.govt.nz/en/media-and-resources/climate-ministers-on-the-role-of-trade-policy-in-accelerating-climate-action/
[15] https://www.mfat.govt.nz/assets/Environment/Climate-change/Quebec-California-NZ-joint-declaration-on-cooperation.pdf
[16] https://ukcop26.org/global-coal-to-clean-power-transition-statement/

COP26 Declarations, Initiatives, Pledges and Statements	Overview
Policy Action Agenda on Transition to Sustainable Agriculture through Repurposing Public Policies and Support and Scaling Innovation	The Policy Dialogue on Accelerating Transition to Sustainable Agriculture was co-convened by the UK as in-coming COP Presidency and by the World Bank. Its intent was to catalyse efforts to deliver the global transformation in agriculture and land use so urgently needed to tackle climate change, to produce nutritious food, to support jobs and economic growth, and to protect our planet[17]
Statement on International Public Support for the Clean Energy Transition	A commitment to ending international public support for the unabated fossil fuel energy sector by the end of 2022 and instead prioritising support for the clean energy transition[18]
Supporting the Conditions for a Just Transition Internationally Declaration	The Declaration sets out how countries will support developing and emerging economies transition their workers as we make the global transition to net zero. By signing the Declaration, countries commit to seeking to ensure they embed a just transition-focused framework into their various funding streams, for example, aid budgets, international climate financing[19]
Welcomed the establishment of International Sustainability Standards Board	Minister of Finance Hon Grant Robertson, along with Finance Ministers and Central Bank Governors from 40 jurisdictions, publicly welcomed the IFRS Foundation's establishment of the ISSB and its work programme to develop a set of internationally consistent, high-quality, and reliable baseline standards for disclosure of sustainability-related information on enterprise value creation[20]
Wellbeing Economy Governments partnership pledge	New Zealand endorsed the following pledge following the Wellbeing Economy Governments COP26 ministerial meeting. • *We, as Wellbeing Economy Governments:* • *Reaffirm our commitment to the transition to a wellbeing economy which should be intertwined with action to address the global climate emergency.* • *Continue the dialogue and partnership between our respective governments on putting the wellbeing economy into practice.* • *Will foster engagement with young people as part of our work as a network.*[21]
World Leaders Statement and Glasgow Breakthrough Agenda	A commitment to work together internationally this decade to accelerate the development and deployment of the clean technologies and sustainable solutions needed to meet our Paris Agreement goals, ensuring they are affordable and accessible for all. The Agenda has specific breakthrough goals on power, road transport, steel and hydrogen.[22]

[17] https://ukcop26.org/policy-dialogue-on-accelerating-transition-to-sustainable-agriculture-through-redirecting-public-policies-and-support-and-scaling-innovation-chairs-summary/
[18] https://ukcop26.org/statement-on-international-public-support-for-the-clean-energy-transition/
[19] https://ukcop26.org/supporting-the-conditions-for-a-just-transition-internationally/
[20] https://www.gov.uk/government/news/uk-welcomes-work-to-develop-global-sustainability-reporting-standards-alongside-36-international-partners
[21] https://weall.org/wego
[22] https://ukcop26.org/cop26-world-leaders-summit-statement-on-the-breakthrough-agenda/

2.1.3.1 Resource Recovery

As reported by the New Zealand Infrastructure Commission *Te Waihanga*, the potential for the development and investment in reuse systems and infrastructure is significant, however this is based on the assumption that waste will continue to be created at significant quantities over the coming decades. It is acknowledged that Aotearoa New Zealand is seeking to transition from a linear to a *Ōhanga āmiomio* - circular economy and as such continued investment in waste infrastructure is not entirely consistent with the goal of a circular economy. However, it is recognised that development and investment in reuse infrastructure represents one of the highest levels on the *pūnaha whakarōpū para* - waste hierarchy, including for example, refillable glass beverage containers, development and establishment of a system supporting the reuse of construction and demolition material (C&D), including standards and guidelines to facilitate industry confidence in recycled C&D materials. Figure 2 below illustrates the *pūnaha whakarōpū para* - waste hierarchy noting the various waste management stages beginning with reduction followed by waste diversion activities and finally disposal of waste.

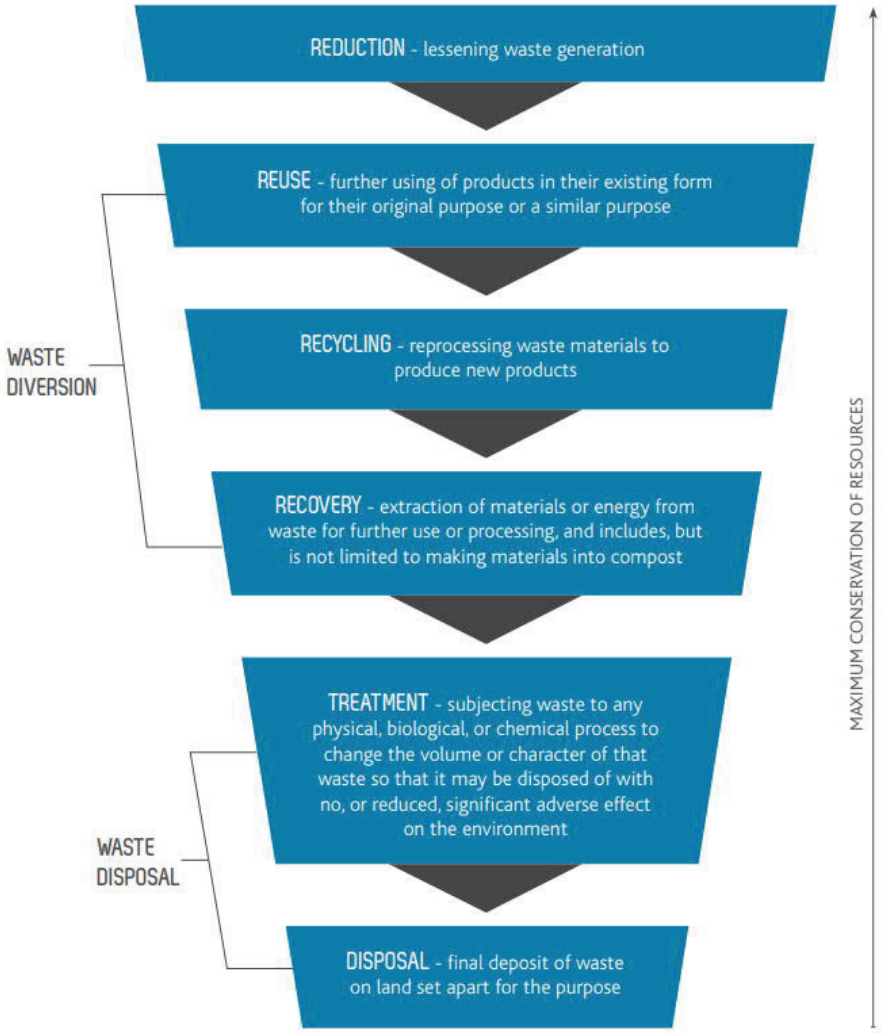

Figure 2 *Pūnaha whakarōpū para* - Waste hierarchy[23]

[23] Auckland Waste Management and Minimisation Plan

The development of reuse infrastructure represents an opportunity for Rangitīkei District Council to investigate the establishment of a resource recovery park providing a range of services, including for example, recovery of C&I, C&D, organics, recyclable material and a public drop-off facility. See Section **3.3** for further discussion on resource recovery networks. Detailed modelling to assess the various waste management options should be carried out to determine for example, feasibility of implementation, funding models and infrastructure investment.

2.1.3.2 Organic Material Recovery and Processing

A key component in the reduction of landfill methane emissions is the reduction of organic material being disposed to landfills. A range of organic processing options currently exist with composting operations common place throughout Aotearoa New Zealand. Anaerobic digestion (AD) facilities are also commonplace abroad, for example, Australia and the UK, with Auckland Council having confirmed the construction of an anaerobic digestion facility to process the city's collected residential urban food scraps. It is important to note that while a ratepayer funded service, residents will still be able to compost at home while providing a service to other residents where this option may not be available and/or where residents choose not to compost. **Figure 3** below broadly illustrates the AD system including the type of feedstock that can be digested by an AD facility and the two outputs of the facility being biogas and digestate.

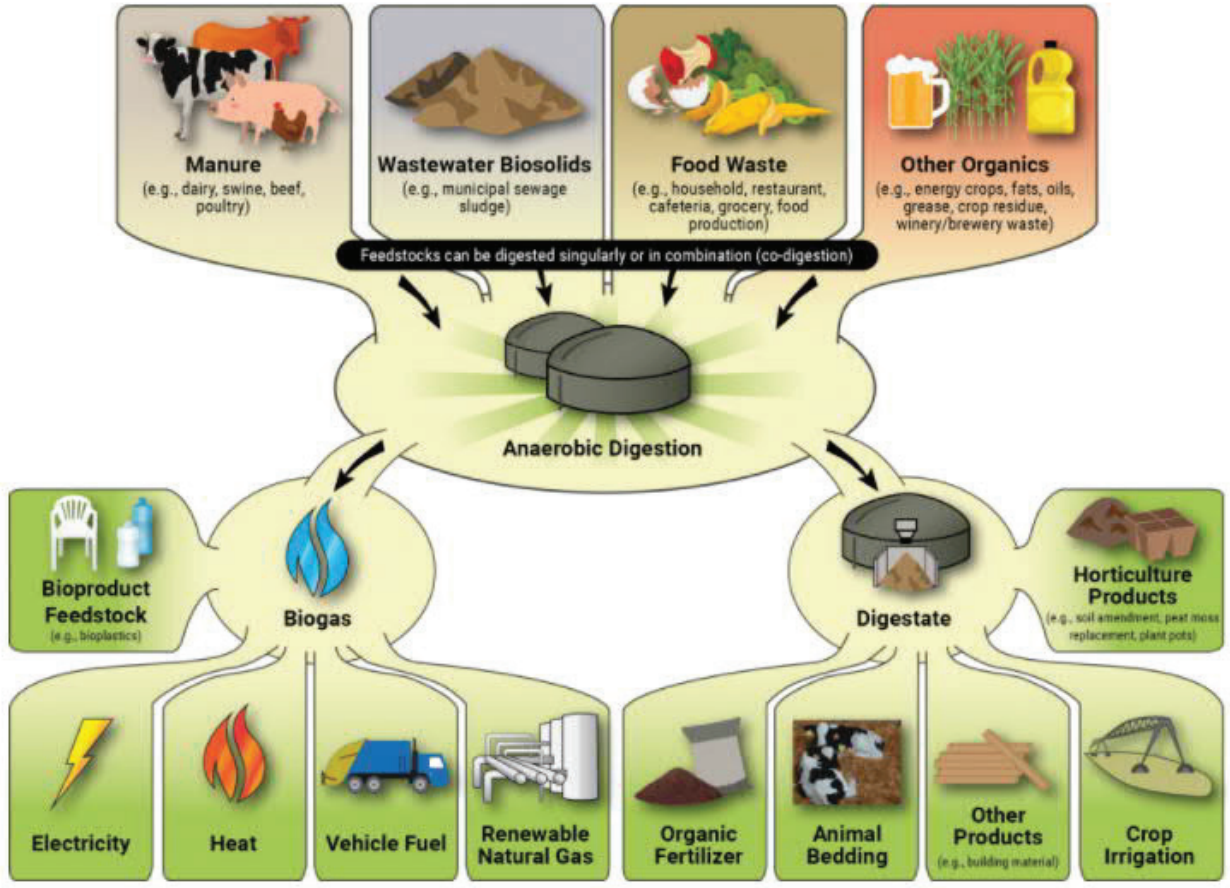

Figure 3 The Anaerobic Digestion process illustrating inputs and outputs[24]

[24] https://www.epa.gov/agstar/how-does-anaerobic-digestion-work

The application of processed organic material, for example, compost and digestate produced by food and green waste processing using composting or anaerobic digestion, to land is generally well regulated across Australia. Around 2017, the New South Wales (NSW) Environment Protection Authority (EPA) investigated the future use of mixed waste organic outputs (MWOO). MWOO is not the same as compost or biosolids as it is the end product of a practice which aims to separate the organic waste in household residual bins from other waste. It was previously allowed in NSW to be applied as a soil amendment under strict controls. As reported by the NSW EPA, MWOO is produced at alternative waste treatment (AWT) facilities, primarily to divert general household residual waste from landfill.

In NSW, MWOO is marketed under the trade names Agriblend, Rehab-ARRT Rejuvenate for mine sites, Pasture-ARRT Rejuvenate for broadacre agriculture, or OGM (organic growth media). In October 2018, the NSW EPA revoked the general and specific resource recovery orders and resource recovery exemptions for the application of MWOO to land due to the risks associated with chemical and physical contaminants. The NSW EPA also introduced phase one of a transition package for the AWT industry to ensure kerbside collection services would not be disrupted and that any additional transport and landfill costs would not be passed on to councils or ratepayers.

While it is not the intent of this report to provide a comparison of organic processing technology options, further work should be undertaken to determine the preferred option for Rangitīkei District Council acknowledging several factors including, for example, population growth, accessibility to the service, equitable service offering, end-markets and the contribution the technology has to reducing the city's impact on the national goal of reducing climate emissions.

2.1.3.3 Energy Production

In the future there may be a place for waste-to-energy (WtE), also referred to as energy-from-waste (EfW), plants to manage the proportion of residual waste that cannot be reused or diverted from landfill and that generate a usable form of energy, including electricity, heat and transport fuels from the processing of waste materials.

EfW technologies can be divided into two broad categories:

- Biological processing of biodegradable waste, which includes anaerobic digestion or fermentation to produce biogas or alcohol
- Thermal treatment of residual waste, including direct combustion, gasification and pyrolysis to produce heat, electricity and/or synthetic fuels.

The most common type of EfW technology is direct combustion of waste to create heat, which can be used directly or to generate electricity. There are more than 800 fully operational thermal EfW facilities world-wide and the technology is considered an integral part of the global waste management system.

However, acknowledging the *pūnaha whakarōpū para* - waste hierarchy and the need to reduce waste in the first instance, the establishment of EfW systems should be done carefully so as to, for example, not replace resource recovery or disincentivise efforts to redesign and reduce waste but to potentially replace and/or provide an alternative to disposing to landfill.

2.1.4 Landfill Mining

The New Zealand Infrastructure Commission *Te Waihanga* reported that landfill mining, a process by which landfills are excavated, their contents processed and any usable waste recovered and on-sold, is being investigated as an option to remediate closed landfills, or landfill cells that are vulnerable to climate change, or sites that pose a persistent environmental risk. The New Zealand Infrastructure Commission *Te Waihanga* reported that landfill mining may be particularly suited to monofil landfills rather than municipal mixed waste landfills.

2.1.5 Rethinking Plastics

Despite increased awareness and reporting of the negative environmental impacts of the irresponsible disposal of single use plastics, plastic consumption is projected to rise almost exponentially in the next 30 years. As reported in the Rethinking Plastics in Aotearoa New Zealand Report,[25] plastics are now ubiquitous in our lives and the issues plastics present to us are so great that not a single new innovation or technology will solve the plastic challenge. The development of new technologies can be a long slow process and so we need to use all available technologies, process and consumer behaviours to help minimise the effects of plastics.

Although plastic bag bans have been implemented in Aotearoa New Zealand, coupled with consumer movements such as using reusable cups and packaging and return of soft plastics to selected supermarkets, there are still few incentives for reducing or eliminating the use of plastic. In addition, the recovery of plastics in Aotearoa New Zealand is varied with inconsistent collection systems available throughout local authority jurisdictions. Work is through underway by *Manatū Mō Te Taiao* - the Ministry for the Environment to investigate a standardised kerbside collection system for recyclable materials. Additionally, *Manatū Mō Te Taiao* - the Ministry for the Environment is currently investigating the implementation of a container return scheme which would see a deposit applied to all single use beverage containers incentivising consumers to return empty packaging for recycling. Until the establishment of recycling systems supported by end-markets and accepted changes in consumer behaviour adopted, changes to industry manufacturing requirements and, potentially, alternative energy production facilities developed to cater for the residual plastics, the amount of recovered plastics may not see a substantial change.

2.1.6 Illegal Waste Activities

Waste is commonly considered negatively and with no value which in many cases can provide an incentive for its improper disposal resulting in visual disamenity, increased fire risk, human and wildlife health impacts and Environmental pollution. Improper disposal such as illegal dumping can also affect the financial viability of parts of the waste management sector and can impose costs on local authorities to clean up illegally dumped waste.

The following list provides a non-exhaustive summary of potential illegal waste activities which may occur because of increasing waste management standards and increases in cost:

- Littering - Small scale improper disposal of waste
- Dumping - Larger scale improper disposal, typically involving planning and transport
- Hiding - Placing waste requiring special management in waste that does not
- Mixing hazardous and non-hazardous materials to reduce contamination below regulated limits
- Disguising - Passing a waste off as something it is not

[25] https://cpb-ap-se2.wpmucdn.com/blogs.auckland.ac.nz/dist/f/688/files/2020/02/Rethinking-Plastics-in-Aotearoa-New-Zealand_Full-Report_8-Dec-2019-PDF-1.pdf

- Illegal acceptance - Unauthorised acceptance of waste
- Illegal stockpiling – Storing waste beyond legal amounts
- Illegal management - Accepting waste requiring specific management, then undertaking cheaper management or stockpiling
- Inadequate management - Management of waste at a facility to a standard that does not meet requirements for control of run off, litter, dust, noise, odour risks, fire risks and others
- Illegal combustion - Setting fire to waste as a means of disposal
- Illegal landfilling - Accepting waste for disposal at a location not authorised to receive it
- Abandonment – Charging for disposal of waste, deliberately accumulating it at a site and then abandoning the site.

Several proactive strategies which may reduce illegal waste behaviours include:

- Placing liability on companies and their directors personally
- Incentivising proper management through schemes such as container return schemes and mandated *kaitiakitanga whakanaonga* - product stewardship schemes
- Phasing out easily littered materials such as single use plastic bags, plastic straws, stirrers, cutlery, plates and expanded polystyrene containers.

Further work will be required to understand the potential for illegal waste behaviours in the Rangitīkei District relative to any proposed changes and/or modifications to how waste is managed in the city.

2.2 Snapshot of Several International Systems

While it is difficult to find cities that are directly comparable to the Rangitīkei District due to variances in for example, legislative environments, economic drivers and demographics, several case study examples have been provided below to illustrate how other cities are progressing to reduce waste disposed to landfill and maximising reuse and recycling.

The following case study examples are located in NSW, Australia, with all councils in NSW paying for waste services through the Domestic Waste Management Charge, a flat cost on each household that covers waste collection, recycling and disposal services. This is required by legislation to be 1) no more than the cost of the service so that councils can't charge extra to make a profit out of the services, and 2) shown as a separate line item on the household rates notice.

2.2.1 Case Study: Albury City Council, New South Wales

2.2.1.1 Overview

Albury City Council is a local government area located in the Riverina region of NSW. It covers an area of approximately 306 km^2 and, in 2020, had a population of about 55,000 people living in more than 23,000 households.[26]

[26] Australian Bureau of Statistics, Census of Population and Housing 2011 and 2016. Compiled and presented by .id (informed decisions).

Albury is located on the northern banks of the Murray River which forms the border with Victoria. On the opposite bank of the river to Albury is the town of Wodonga in Victoria, which has a population of more than 35,000. Albury and Wodonga are often considered a single community which has benefited from programs to decentralise government by locating government staff in the Albury-Wodonga region. Albury-Wodonga is positioned almost equidistant between Sydney and Melbourne a feature than has seen it become a logistics and distribution hub and base for manufacturing.

The population of ACC is expected to pass 67,000 by 2036,[27] an increase of around 30% over 20-years, and the number of dwellings is expected to pass 27,800 in the same period. The ACC population is spread across 15 suburbs comprising a mixture of urban, suburban and rural settings with the current housing stock including approximately 88% single unit dwellings and 12% multi-unit dwellings.[28]

Albury and Wodonga[29] have initiated the *Two Cities One Community*[30] initiative to achieve a number of goals under the four pillars of Our Economy, The Environment, Our Community and Partnering in Leadership. The goals under the Environment pillar are:

- 2.1 - We have a high level of awareness of sustainability and environmental issues
- 2.2 - We preserve and experience the beautiful and unique area we live in
- 2.3 - We are a leader in natural resource management
- 2.4 - We are acting to ensure the sustainability of our environment.

The Two Cities One Community Strategic Plan references the existing collaborative approach to waste management with Albury City providing waste disposal and recycling services at the Albury Waste Management Centre (AWMC) for Wodonga residents and the regional waste contract and Halve Waste initiative. Although the City of Wodonga operates a kerbside collection service for its own residents, has its own transfer station and has developed its own waste management strategy, the two cities share the Halve Waste program,[31] (see Section 2.2.3), and participate in a joint collaborative kerbside collection service.

The Two Cities One Community Strategic Plan goals are as follows:

- Section 1: Our Economy
  - 1.1 We have managed the growth and development of our community for the betterment of all
  - 1.3 We promote business, investment and jobs
- Section 2: The Environment
  - 2.1 We have a high level of awareness of sustainability and environmental issues
  - 2.4 We are acting to ensure the sustainability of our environment
- Section 3: Our Community
  - 3.2 We are a liveable community, connected to our region and other cities
- Section 4: Partnering In Leadership

[27] Australian Bureau of Statistics, Census of Population and Housing 2011 and 2016. Compiled and presented by .id (informed decisions).
[28] RAMJO Regional Waste Strategy 2014-2020
[29] Albury and Wodonga are considered a single community which has benefited from programs to decentralise government by locating government staff in Albury-Wodonga, particularly the Australian Tax Office and the Australian Defence Force.
[30] https://alburywodonga.gov.au/
[31] https://halvewaste.com.au/

- 4.1 Regional priorities and cross-border issues are addressed by an integrated approach

2.2.2 Albury City Council's Current Waste Activities

The following section summarises ACC's current waste management arrangements. It is important to note here that Albury City Council also operates the AWMC which is discussed further in Section 2.2.4 below.

2.2.2.1 Municipal solid waste management

ACC operates a three-bin domestic waste and recycling collection system supported by drop-off services at the AWMC. ACC also provides additional municipal waste services including litter bin collections and the removal of illegally dumped waste.

Residents are also issued with four entry vouchers to the AWMC each year as part of the annual waste management charge levied by ACC and can use these vouchers to drop-off items such as hard waste. Residents who are facing hardship or are otherwise unable to transport their materials to the AWMC are an exception to this and are offered a kerbside hard waste collection subject to eligibility.

Kerbside recycling

Dry recyclable materials are collected fortnightly in 240 litre commingled yellow-lidded bins. The kerbside recycling service targets key materials including paper and cardboard, plastics, metals and glass.

Kerbside organics

The organic waste collection service targets all organic materials generated from households and gardens, including food scraps as well as lawn clippings and garden pruning, and is collected weekly in 240 litre green-lidded bins. Residents are also provided with a kitchen caddy and compostable liners for the transfer of food scraps, with additional liners provided annually.

Kerbside residual waste

Residual waste, that is non-recyclable or non-organic waste, is collected from domestic properties every fortnight in 140 litre red-lidded bins.

Problem waste

Problem waste includes household materials which are unsuitable for disposal in regular kerbside collections, and sometimes have hazardous properties. ACC provides a drop-off facility for residents to self-haul and disposed of their problem waste at the AWMC, including paint, motor oil, cooking oil, household batteries, gas bottles, fire extinguishers, vehicle batteries and smoke detectors.

It is worth noting here that the problem waste section of the AWMC is a joint initiative with the NSW EPA which contributed more than A$200,000 towards the facility.

Litter and illegal dumping

ACC collects waste from public place bins and dedicated public place recycling bins.

Commercial Waste Management

ACC does not operate any commercial waste management collection services. Waste from commercial customers is delivered to the AWMC and as such ACC's influence over commercial waste operations in the region is limited.

2.2.3 Halve Waste Program

Halve Waste is an initiative of ACC, the City of Wodonga and neighbouring councils, Federation Council, and the Shires of Towong, Greater Hume, and Indigo. The overarching goal of the Halve Waste program is to reduce the amount of waste going to landfill by 50% by 2020.

Halve Waste is a comprehensive education program, with an annual budget of approximately A$380,000. The program provides ACC with third party resources including:

- A project manager who works four days per week to deliver education and engagement activities in the regional area and
- An education officer working two days per week.

The Halve Waste initiative includes a number of programs and activities, which for 2018-2019 are summarised in **Table 2** below.

Table 2 Overview of the Halve Waste Program

Program	Title	Example Activities
1	Stakeholder Engagement	a) Deliver presentations to Halve Waste councils to provide updates on Halve Waste progress and the Halve Waste targets for the future b) Share the Halve Waste story to increase the connection between Halve Waste and stakeholders
2	Halve Waste Advertising Campaigns	a) Continue to deliver consistent educational messaging, resources and material to ensure the continued success of Halve Waste b) Continue to build on case studies of local residents to champion Halve Waste in all future advertising campaign to increase the connection with Halve Waste and the community c) Continue to deliver Halve Waste campaigns regarding correct behaviour around food waste disposal, plastic education and waste reduction
3	Halve Waste Education Materials / Resources	a) Review and update education materials and resources b) Procure Halve Waste branded waste minimisation displays at the Sustainable Activity Centre, council libraries and events and education sessions c) Manage Halve Waste social media, Facebook and website d) Procure Halve Waste branded shirts and outer jackets for wearing to all school, community and business sessions
4	Local Solutions – Community	a) Participate in local community events as invited or appropriate including AWMC Open Day, Garage Sale Trail, Defence Force Family Expo b) Ongoing delivery of education sessions, including landfill tours, to community groups such as Probus Groups, Country Women's Association, University of the Third Age c) Advertise and promote Halve Waste sponsorship program to community groups and manage and award sponsorships

Program	Title	Example Activities
		d) Support local programs such as Boomerang Bags, Crafters Connect, Yack Folk Festival Green Team, Sustainable Living Festival, that encourage waste avoidance, community awareness and ownership e) Continued support for the local repair café at the SAC centre, allowing a space where the community can share resources to repair items
5	Local Solutions - Schools	a) Ongoing delivery of the Halve Waste education sessions to schools, all ages, with a focus on diversion of food organics b) Ongoing delivery of Halve Waste workshops - holiday upcycling program c) Ongoing delivery of Halve Waste AWMC tours d) Waste education workshops for high school waste assessments, Enviro Day, host school e) Design bin stickers competition for use on school bins
6	Local Solutions – Businesses / Industry (C&I/C&D)	a) Subsidise polystyrene collection and transport to AWMC for Wodonga and Indigo Shire b) Promotion of polystyrene recycling service for businesses c) Review key finding and recommendations from Review of Results C&I and C&D Business Visits and Waste Assessment 2017 d) Promote local recycling options for businesses, paper and cardboard, metal, plastics e) Delivery of Halve Waste education with a focus on business education and diversion of recyclable items out of landfill
7	Halve Waste Logistics - travel, Halve Waste trailer, Bus Licence	a) Promotion of the Halve Waste Message b) Ability for Halve Waste staff to drive Council bus for AWMC tours c) Ongoing travel to deliver Halve Waste education
8	Grant Funding	a) Ongoing proactive identification of suitable grant funding programs for Halve Waste Councils b) Preparation and lodging of grant funding applications
9	Recognising Halve Waste - awards, presentations and conferences	a) Identification of and nomination of suitable awards programs b) Preparation of awards and development of presentations and abstracts

Halve Waste manages a website for the region which includes information for each of the six member councils. Halve Waste also undertakes all social media for the councils in relation to education, such that all social media is incorporated under the same banner for related projects.

Halve Waste support was previously delivered by a third-party contractor, but ACC has recently brought in-house the provision of Halve Waste support.

This has assisted ACC in streamlining the development and delivery of engagement and education activities, in order to maximise reach and exposure while ensuring consistency of message to drive improved environmental performance.

It has also ensured optimisation of staff deployment, providing a dedicated education and engagement resource and allowing other members of the current managerial and operational team to focus fully on the delivery of their core roles.

2.2.4 New South Wales Waste Levy

In NSW a levy is applied to every tonne of waste landfilled in, or generated in, a 'regulated area'. The levy is commonly referred to as the 'landfill levy' or the 'section 88' levy after the relevant part of the *Protection of the Environment Operations Act 1997* under which it is established.

The regulated areas are as follows:

- Metropolitan Levy Area - Sydney metropolitan area, Illawarra and Hunter regions
- Regional Levy Area - central and north coast local government areas to the Queensland border, as well as the Blue Mountains, Wingecarribee and Wollondilly local government areas.
- Non-Levied Area – the remaining local government areas and the unincorporated area of the state.

These are shown in Figure 4 below.

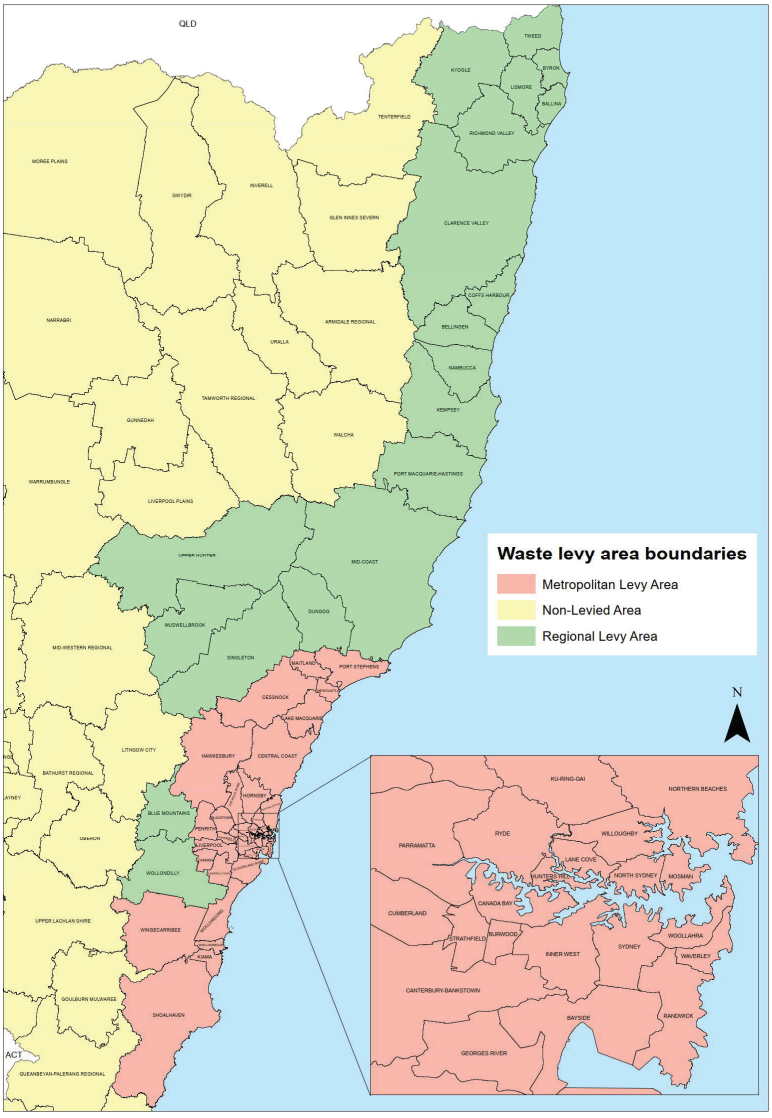

Figure 4 NSW waste levy area boundaries

The value of the levy differs from region to region within the regulated area. The 2021–2022 waste levy rates[32] apply from 1 July 2021 and increase with the Consumer Price Index.

For comparison and clarity on the changes in regulated area waste levy rates since 2009-2010, Table 3 below provides a summary of these rates. The previously separate levy areas of the Sydney Metropolitan Area and the Extended Regulated Area were combined in 2013-2014 and the Regional Regulated Area renamed the Regional Levy Area.

Table 3 Historical Waste Levy Rates in the Regulated Areas

Period	MLA (A$)		RLA[33] (A$)
2020-2021	$146.00	$146.00	$84.10
2019-2020	$143.60	$143.60	$82.70
2018-2019	$141.20	$141.20	$81.30
2017-2018	$138.20	$138.20	$79.60
2016-2017	$135.70	$135.70	$78.20
2015-2016	$133.10	$133.10	$76.70
2014-2015	$120.90	$120.90	$65.40
2013-2014	$107.80	$107.80	$53.70
	Sydney Metropolitan Area	**Extended Regulated Area**	**Regional Regulated Area**
2012-2013	$95.20	$93.00	$42.40
2011-2012	$82.20	$78.60	$31.10
2010-2011	$70.30	$65.30	$20.40
2009-2010	$58.80	$52.40	$10.00

Currently, only part of the levy is hypothecated for waste and environmental projects. Many councils in NSW oppose a levy unless it is 100% hypothecated to waste projects.

ACC is located outside of the regulated area and the waste levy does not apply to waste disposed of at the AWMC unless it originates from within the regulated area. ACC however, applies its own levy of A$2.50 on each tonne of landfilled waste. While probably not enough to make a significant difference in waste diversion its main purpose is to provide funding for the Halve Waste Program (see Section 2.2.3).

2.2.5 Albury Waste Management Centre Overview

ACC owns and operates the AWMC in Lavington, about 6 km north-northeast of the city. The AWMC is the region's major waste disposal facility, servicing a wide area including Albury City and the neighbouring councils of Towong, Greater Hume, Wodonga, Indigo and Federation. The AWMC typically receives between 150,000 t and 210,000 t of waste per year.

The AWMC facility provides a range of services for resource recovery and waste disposal including:

- A self-haul recycling facility for residents and small commercial users to deposit various materials for recycling including a second-hand goods recycling shop
- A push pit facility for deposit of general residual waste prior to disposal to landfill

[32] Waste levy rates for excavated natural material, fines alternative daily cover, shredder floc and coal washery rejects are lower
[33] The RRA is now known as the Regional Levy Area

- Facilities for the receipt and management of C&D waste, including an inert landfill area for disposal of such materials
- Facility for the receipt and management of C&I waste
- Facilities for the receipt of organic green waste collected at the kerbside, and
- A large landfill area for the disposal of general putrescible waste.

The AWMC receives waste and recoverable materials from domestic and commercial sectors from the six neighbouring regional councils, with approximately 89,800 t being disposed to landfill, achieving an overall waste recovery rate of approximately 45%.

The following items are accepted free of charge at the AWMC:

- Steel
- Second hand goods
- Cardboard
- Reuse items
- Commingled recyclables
- Batteries
- Polystyrene
- Motor oil
- Hard plastic
- Cooking oil
- Electronic waste
- Fluorescent tubes
- Gas bottles
- Fire extinguishers and
- Paint.

The following items are accepted for a nominal fee:

Domestic Waste

- Green waste
- Plasterboard
- Concrete
- Bricks
- Wood
- Mixed waste
- Mattresses and/or bases
- Motorcycle, car, truck, tractor tyres
- White goods, for example, refrigerators, freezers, air conditioners
- Animal carcasses

Commercial waste

- Municipal, C&I, C&D general solid waste
- Green waste
- Plasterboard
- Concrete
- Bricks
- Wood
- Commercial recyclable loads, for example, cardboard, polystyrene, e-waste, plastics, steel
- Low level contaminated waste, including asbestos
- Unspecified waste by appointment, for example, out of region and security burial waste.

ACC has divided the AWMC into three distinct sections:

- Northern Valley - gatehouse, proposed education centre, C&D hardstand area, inert landfill
- Southern Valley - AWMC offices and workshops, organic waste bulk-up area, putrescible landfill and
- Recycling Centre - residential drop-off area for recycling, green waste, push pit

This provides a user-conscious and safe facility. The Recycling Centre Section of the AWMC is a drop-off facility for residents to self-haul and dispose of their larger recyclables and other problem wastes. Residential users are directed through a staged process of weighing, resource recovery and waste disposal, including:

- Zone A – Recycling
- Zone B – Steel and white goods recycling
- Zone C – Green waste and wood recycling
- Zone D – General waste disposal

To help provide a quick and convenient service for users, ACC has produced a three-step guide which encourages site users to pre-sort their waste and recyclables prior to arrival.

The main challenge currently facing the AWMC is maximising the level of recycling achieved at the site, thereby reducing the amount of waste requiring disposal and prolonging the life of the landfill facility. This requires dealing effectively with periods of high use and optimising the site layout and traffic management to improve the user experience and help in driving up recycling performance.

Further ongoing challenges and objectives include maintaining the provision of services and amenity value to residents, while ensuring that environmental impacts are minimised and effectively managed at all times.

2.2.6 Albury Waste Management Centre – Renewable Energy Hub

The AWMC incorporates a renewable energy hub which comprises a 1.1 MW landfill gas-to-energy facility commissioned in 2013 capable of generating approximately 9,000 MWh of reliable, base-load renewable energy each year. In 2019, the AWMC added a 1.1 MW alternating current solar photovoltaic system to the hub (Figure 5), which included approximately 4,000 solar panels with the overall installed capacity of the site producing 2.2 MW. The solar panels alone power about 400 homes and also power an onsite electric super charger allowing the community to charge their electric cars with clean energy.

Figure 5 Example of an 'LMS Energy' landfill solar system[34]

The overall capacity of the hub will be capable of generating approximately 11,200 MWh of renewable electricity each year, which is reported to be able to power more than 1,900 homes with enough energy to provide power to more than 5,000 electricity users in the local community each year, equivalent to charging approximately 225,000 electric vehicles each year.

Power generated from the renewable energy hub is expected to reduce approximately 54,000 t of CO_2e from being emitted each year.

The system abates approximately 54,000 t of CO_2e, extracts approximately 5,400,000 m^3 of gas and saves approximately 24,750,000 L of water when compared to a traditional coal-fired power station.

Several frequently asked questions and answer are listed on the Albury City Council website including:

- What about glare?
  - Solar photovoltaic panels are designed to reflect as little light as technically possible, generally around 2% of light received, in order to maximise their efficiency. This is why solar photovoltaic farms are not considered reflective and have been installed at airports around the world.
- Is there any noise?
  - Solar farms do not emit noise. Solar photovoltaic technology does not use any moving parts.
- Are there any visual impacts from the solar farm?
  - The siting of the solar arrays is designed to minimise any visual impact on the site. It is well within the boundary of the landfill area. There are also good foliage barriers along the adjacent roads and the facility has been set back to reduce any visual impact.

[34] https://www.alburycity.nsw.gov.au/__data/assets/pdf_file/0007/209761/Albury-Fact-Sheet-Final-Jul-2018.pdf

2.2.7 Case Study: City of Sydney, NSW

The City of Sydney council area is home to approximately 200,000 residents and it is estimated that on an average day the city accommodates approximately 1.2 million people including workers, residents, students and visitors. It is estimated that by 2031 the city's population will increase by another 60,000 residents. The amount of residential and city building waste managed by the City is approximately 65,000 t per year from more than 115,000 households and a further approximate 11,000 t from city managed assets, parks and public places. Waste quantities are forecast to grow to approximately 100,000 t a year by 2030.

In comparison, commercial and industrial waste is managed by businesses with approximately 700,000 t of waste produced annually, which is also expected to grow to more than 800,000 t a year by 2030. The City of Sydney is now looking at ways to influence the way this significant waste stream is reduced and managed to achieve the most sustainable outcome.

The City also recognises the opportunities to manage and reduce the amount of C&D waste generated in the city. It is reported that approximately 1.2 million tonnes of C&D waste is produced in the city each year with the City responsible for approximately 400,000 t either through ongoing maintenance or directly through major contracts.

2.2.7.1 Waste Strategy Objectives, Priorities and Targets

Recognising the current and projected waste generation in the city, the City developed a waste strategy with an objective 'that waste from the city be managed as a valuable resource and the environmental impacts of its generation and disposal be minimised'. The aim of the strategy while providing the roadmap for waste management in the city also signalled to the waste industry and broader Sydney area about how the Council would like to see waste and resources managed into the future.

As part of the waste strategy, the City established a long-term goal 'to reduce all waste for maximum resource recovery so materials used aren't just used once and then disposed of'. The City also recognises that to achieve zero waste sustained advocacy to reduce the impact of product manufacture is needed and recognises that once recycling is maximised alternative technologies, such as waste to energy for any remaining waste will be needed to manage leftover waste and to achieve recovery rates of 90% by 2030, targets discussed further below.

The City has also established three simple, high-level objectives to support the long-term goal focussing on reduction, recycling and the sustainable treatment of residual waste:

1. To reduce the amount of waste produced
2. To recycle as much as possible
3. To treat what's left over in the most sustainable way.

To help progress these objectives, the City has established priority areas to provide clarity on the better management of waste and resources in the city. These priority areas are briefly set out below and help to provide clarity and direction to progress waste minimisation and management activities against the overall objectives:

- Priority 1 – Promote innovation to avoid waste
  - Advocate for and help the City's businesses and communities to innovate and reduce the impact of waste management.

        - Continue to seek out and identify opportunities to reduce the amount of waste produced within the City of Sydney. The City plans to achieve this through ongoing collaboration with members of the community, state government organisations, industry groups, and academia. As part of the City's continuous improvement measures, review and update the products and services the City purchase for even better environmental outcomes.
    - Actions the City will progress:
        - Provide and promote funding opportunities for innovative technologies and processes to address problem waste streams not currently managed in a sustainable way.
        - Advocate for the Federal Government to expand national product stewardship schemes.
        - Continue with regional partnerships to review and identify opportunities for re-use initiatives.
- Priority 2 – Improve recycling outcomes
    - Optimise existing City services, reduce contamination and explore new services.
        - The City has reported more targeted education programs, and new services, like collecting food waste from residents to recycle at a local facility, will be implemented. When delivering services to residents, the City will provide education materials to improve recycling rates and reduce contamination of recycling bins. The City will introduce free weekly booked-in, separate e-waste, metals, and white goods collections from every dwelling. The City will also provide a drop-off service for problem waste streams at a permanent location, investigate giving residents access to regular clothing and textiles collections for recycling.
    - Actions the City will progress within its own organisation:
        - Introduce a separate food waste collection infrastructure, where appropriate, to City properties.
        - Investigate ways to improve public place recycling.
        - Prepare the City's operations depot to collect and store illegally dumped waste separately from other public waste to improve recycling outcomes.
        - Where waste and recycling management are part of the City's service, the inclusion of targets in all future contracts.
    - Actions the City will progress for residents:
        - Improve recycling rates and reduce contamination at home, provide more signs and education materials
        - Create community waste drop off points for problem waste streams
        - Introduce free, weekly separate e-waste, metals and white goods collections for all City of Sydney residents
        - Develop and implement a subsidised trial food waste collection scheme for residents
        - Investigate providing all City of Sydney residents with regular clothing and textiles collections for recycling

        - Investigate opportunities for new collection services, such as recycling soft plastics, at the new Alexandra Canal depot.
    - Actions the City will progress for businesses:
        - Encourage and support building owners and tenants within business sectors to improve their waste avoidance, re-use, recycling and recovery performance
        - Help train and identify roles, for example, cleaners in commercial, office, accommodation and entertainment sectors to educate on waste and recycling programs and deliver best practice separation.
- Priority 3 – Sustainable design
    - Focus on planning for waste in new developments.
        - The City will update internal guidelines with more consistent and effective guidance for staff and contractors on how to incorporate waste management into design and construction of new buildings and services. The City will incorporate minimum requirements into upcoming revisions of our planning documents for all new residential and commercial developments.
    - Actions the City will progress within the City's organisation:
        - Update the City's Policy for Waste Minimisation in New Developments
        - For new developments, incorporate the Development Control Plan for the City's minimum waste management requirements for waste storage capacity.

- **Priority 4 – Clean and clear streets**
    - Improve how waste and recycling managed and transported around the city.
        - Maintain and improve traffic flow and pedestrian amenity around the city, the City will focus on reducing illegal dumping and litter. The City will minimise the time bins are left out on footpaths, reduce the number of waste collection vehicles in the CBD during peak hours, and investigate options for recycling in public spaces.
    - Actions the City will progress within the City's organisation:
        - All new Development Application conditions will include requirement for compliance with the City's Waste Local Approvals Policy
        - Update the City's online process for booking bulky waste collection service to be compatible with mobile devices
        - Address illegal dumping, discarded cigarette butts, and litter with targeted education and patrols by City Rangers
        - Develop a program to reduce illegal dumping, we'll engage with university representatives for student accommodation within the city
        - Investigate the use of low and/or no zero emissions of vehicles that are fit for purpose for example, hybrids, electric and hydrogen.
- **Priority 5 – Better data management**
    - Improve how the City collects, reports and verifies waste and recycling data.

- The City will create a digital platform to collect, store, transform and report the waste and recycling data from our operations. This will help the City to better monitor against environmental targets and react more quickly to changes in waste types or quantities. The City will install appropriate waste-tracking and monitoring equipment on all residential collection vehicles, to improve waste service standards and reduce contamination. In the business community, the City will continue to support and expand consistent waste reporting across key commercial sectors, through partnership arrangements with industry and state government organisations.

- Actions the City will progress within the City's organisation:
  - Upgrade the existing environmental reporting platform for City operations and construction
  - Incorporate organisational and other relevant waste data into the open data environmental platform
- Actions the City will progress for residents:
  - To improve waste service standards and reduce contamination, install appropriate waste tracking and monitoring equipment on all collection vehicles
  - Advocate for state government agencies to standardise waste data collection definitions and processes and reinstate annual reporting.
- Actions the City will progress for businesses:
  - Support consistent waste reporting across key commercial sectors by partnering with industry and state government
  - Advocate for state government to improve transparency and integrity of waste data from waste and recycling operators.
- Actions the City will progress:
  - Engage with industry and other stakeholders to create opportunities to develop energy recovery facilities in NSW
  - Identify and secure solutions for easy collection and preparation of waste for onward transportation to final destination treatment or recycling facilities.

- **Priority 6 – Future treatment solutions**
  - Prioritise a long-term solution for the treatment of non-recyclable waste to minimise the use of landfill.
    - Once the City has maximised recycling, through the separate collection of materials for re-use, or processing into new materials, the City will need a solution to manage leftover waste. The City can only achieve targeted recovery rates of 90% by 2030 if alternative technologies are in place, such as a waste-to-energy treatment solution for mixed residual waste.

The City has also recognised that population growth will increase along with an increase in consumption and as such the City needs to limit the impact of this growth through measures such as producing less waste, reusing and recycling more and recovering energy from what is left over. Broadly, these components are in line with the principles of *pūnaha whakarōpū para* - waste hierarchy of reduce, reuse and recycle.

To help measure the performance against the objectives and priority areas, the City of Sydney created several phased targets for the City's organisation, city parks and public spaces, residents and businesses. These targets are as set for June 2021 and 2030 as follows:

By June 2021 –

- City targets
    - To divert 50% of waste from city parks, streets, and public places away from landfill.
    - To divert 70% of waste from City-managed properties away from landfill.
    - To divert 80% of construction and demolition waste, generated and managed by City operations, away from landfill.
- Resident targets
    - To divert 70% of waste, with a minimum of 35% as source-separated recycling, away from landfill.
- Business targets
    - To divert 70% of waste from operating businesses in the local government area away from landfill.
    - To divert 80% of waste from construction and demolition activities in the local government area away from landfill.

As reported in the City of Sydney Environmental Sustainability Progress Report (January to June 2021),[35] public place recycling of waste increased from 46% to 55% between 2019-2020 and 2020-2021 achieving the City's target of 50% diversion from landfill.

The City's target to divert 70% of waste from City-managed properties from landfill was also reported to have been exceeded with a recovery rate of 44% in 2019-2020 to 92% in 2020-2021.

Lastly the diversion of C&D waste has continually increased as a result of working closely with the City's project contractors. At one of the City's projects 93% of C&D waste was diverted from landfill, exceeding the 2020-2021 target of 80% for June 2021.

The resident and business targets were more challenging due to a number of factors including recent NSW EPA regulation changes resulting in residential waste diversion to landfill falling by 1% to 47% from 2019-2020 to 2020-2021 and the source-separated kerbside recycling rate not changing from 28% for the same period. However, the City reported that the per capita annual waste generation rate has reduced from 2015 by more than 15% per resident. While the cause is due to a combination of factors, the City reported this reduction was likely due to the light-weighting of products, home composting, introduction of a state-wide container deposit scheme and more residents taking up waste avoidance initiatives.

By 2030 the long-term goal of the City is to reduce all waste for maximum resource recovery, so materials are not just used once and then disposed of.

- 2030 City targets
    - To divert 90% of waste from city parks, streets, and public places from landfill.
    - To divert 90% of waste from City-managed properties from landfill.

[35] https://meetings.cityofsydney.nsw.gov.au/documents/s55229/Attachment%20E%20-%20Environmental%20Sustainability%20Progress%20Report.pdf

    - To divert 90% of waste from construction and demolition, generated and managed by City operations, from landfill.
- Resident targets
    - To divert 90% of waste, with a minimum of 35% as source-separated recycling, from landfill.
- Business targets
    - To divert 90% of waste from operating businesses in the local government area from landfill.
    - To divert 90% of waste from construction and demolition activities in the local government area from landfill.

City of Sydney also acknowledges that to achieve zero waste to landfill ongoing advocacy to reduce impacts and waste from product manufacture is needed as well as the need for alternative technologies, for example, waste-to-energy, for any remaining waste.

3 Aotearoa New Zealand Waste and Resource Legislative Overview

3.1 Introduction

A range of kerbside collection services are in operation across Aotearoa New Zealand's 67 territorial authorities. There is limited consistency between regions with many local authorities having bespoke collection arrangements. However, some local authorities employ kerbside collection services similar to neighbouring local jurisdictions to provide a degree of synergy. In most cases, local authorities carry the responsibility and risk associated with the collection, including contamination, and the fate of the materials collected. These materials include glass, plastics, fibre and metal. In addition, the ownership of commodity products varies depending on the contractual arrangement and may include, council ownership, ownership by the operator of the materials recovery facility (MRF) or shared ownership between council and the MRF operator.

In addition to inconsistent collection methods and recycling rates across Aotearoa New Zealand there are ongoing global developments, such as China's National Sword policy, which require increasing the quality of exported recyclable materials. As a result, there is now a need for Aotearoa New Zealand to critically assess current waste infrastructure to establish investment requirements to support onshore processing and remanufacturing to:

- Improve sorting of collected commodity products
- Minimise contamination
- Maximise the quality of commodity products
- Respond to increased recycling recovery and
- Increase quantity of recovery through product stewardship schemes.

In Aotearoa New Zealand, most key waste infrastructure, such as MRFs, are owned by the private sector with contracts in place with a range of councils and commercial organisations to manage recyclables. The total annual quantity of recycled commodities is approximately 1.3 million tonnes,[36] of which about 340,000 t are originate from households.

With the current international trends for a reduction in waste production and an increase in onshore recycling stimulated by factors including China National Sword and the recent COVID-19 global health pandemic, many recycling operators in Aotearoa New Zealand may move towards focussing on targeting and selling their products to a wider range of international end-markets, including, for example, Australia, China, Indonesia, India, Thailand, Malaysia and Vietnam, coupled with supporting current onshore markets. With China's restrictions, export of recyclable material into China, including from Aotearoa New Zealand, must now meet a quality criterion of 99.0-99.5% uncontaminated material, up from 90-95% previously. This increase in material purity is having an impact on global recycling markets and is placing pressure on existing Aotearoa New Zealand infrastructure to optimise sorting processes to meet requirements for higher quality materials.

In addition to the changing international commodity markets, the trade of Aotearoa New Zealand recyclable materials is also impacted by factors such as costs of transportation, such as port costs and compliance costs, to export destinations, costs which must be accounted for in organisational profitability.

[36] https://www.mfe.govt.nz/publications/waste/national-resource-recovery-project-situational-analysis-report

The disposal of residual waste throughout Aotearoa New Zealand is most commonly to landfill depending on the type of residual waste. While globally there is a shift away from landfill disposal to other options reflecting the principles of the *pūnaha whakarōpū para* - waste hierarchy, landfills still serve an important option for the management of waste until other options are investigated and explored further. These other options include consumer waste reduction behaviours, increased use of refilling options, energy from waste facilities for remaining residual waste.

It is also important to note that local authorities in Aotearoa New Zealand play a very important role in managing waste in their respective regions as well as having responsibility to reduce the amount of waste produced through measures such as behaviours change, procurements, compliance and enforcement, policy planning, strategic planning and developing and implementing improved and/or new waste services to residents and ratepayers. However, many local authorities have minimal resources and limited revenue and as such are challenged to manage and deliver such a diverse and critically important work programme. Acknowledging these challenges, local authorities have a significant role in leading, supporting and encouraging change alongside central government initiatives.

The geographical separation of *Te Ika-a-Maui* - the North Island and *Te Waka-o-Maui* – the South Island, presents a significant challenge for factors such as transportation of products from source to processor or manufacturer. For example, at present O-I Glass is the only organisation in Aotearoa New Zealand managing glass production all the way from *Waihōpai* - Invercargill in the south, to *Te Tai Tokerau* – Northland in the north. Understanding these complexities is essential to help inform and shape the legislative instruments needed to support the further development and expansion of an onshore waste management and resource recovery sector.

Sustained growth of an Aotearoa New Zealand waste management and resource recovery sector needs to be based on the growth of markets for recycled products, which in turn depends on pull-through demand of products. Market demand for products with recycled content will be driven by a combination of factors, including, the establishment legislative instruments, such as requiring recycled content in the production of plastic bottles, consumer behaviour and resource recovery and manufacturing sector investment. Creating demand for products with recycled content will in turn drive increased commercial investment in resource recovery and processing technologies.

Figure 6 below shows that Aotearoa New Zealand as one of the highest producers of municipal waste in the OECD. Data reported by the OECD in 2014, showed that the amount of municipal waste produced in Aotearoa New Zealand[37] was approximately 640 kg per capita, with a significant increase in 2017 to approximately 740 kg per capita,[38] a jump of 99 kg per capita in three years.

[37] Municipal waste is defined as waste from households, including bulky waste, similar waste from commerce and trade, office buildings, institutions and small businesses, as well as yard and garden waste, street sweepings, the contents of litter containers, and market cleansing waste if managed as household waste. The definition excludes waste from municipal sewage networks and treatment, as well as waste from construction and demolition activities.
[38] https://data.oecd.org/new-zealand.htm

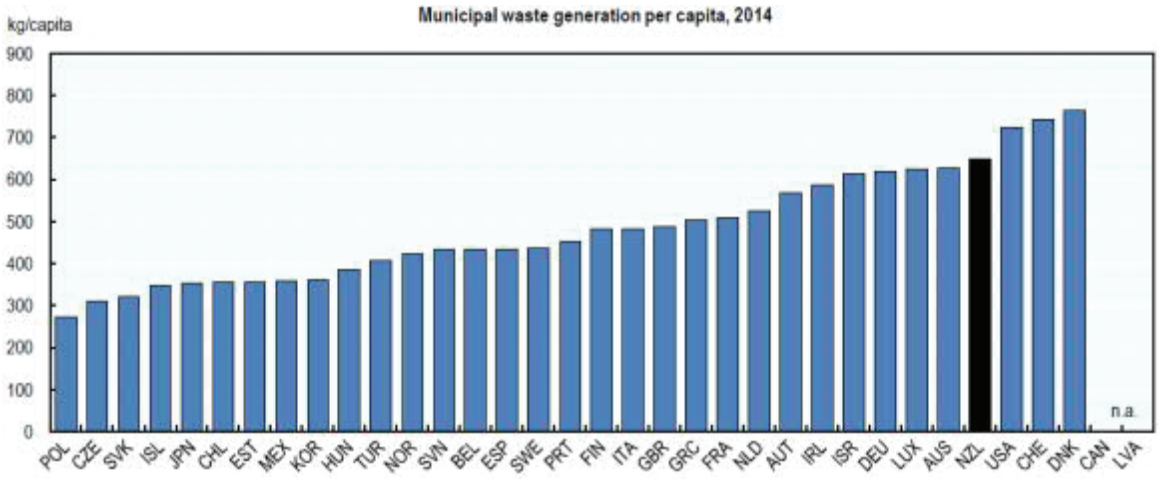

Figure 6 Municipal waste generation per capita (2014)[39]

In Aotearoa New Zealand landfilling is still the most common method of solid waste disposal. The *Manatū Mō Te Taiao* - Ministry for the Environment is investigating a range of methods to reduce the amount of waste disposed to landfill, such as mandatory product stewardship schemes, increasing and expanding the waste disposal levy and developing a national waste strategy (see Section **3.2.3** for further information).

3.2 Aotearoa New Zealand Waste Legislative Framework

The *Manatū Mō Te Taiao* - Ministry for the Environment has noted that the take-make-dispose use of products has created a linear economy and that *Ōhanga āmiomio* - circular economy is an alternative to this approach where a product is designed for the longest use possible.[40] Globally, there is growing awareness and recognition that economies must transition from a linear economy to *Ōhanga āmiomio* - circular economy. Recent international market changes, including restrictions by China on the importation on waste and recyclables has highlighted the need to take a closer look at the way Aotearoa New Zealand manages its waste, including current onshore processing and recycling. To achieve this, the New Zealand Government has established and enacted several key legislative documents that set the requirements for waste minimisation and management. In addition, the New Zealand Government has ratified several international agreements to manage Aotearoa New Zealand's impact on the global waste sector.

3.2.1 Central and Local Government Legislation and Regulations

To manage waste and assist in the transition from a linear economy to *Ōhanga āmiomio* - circular economy, a series of central and local government legislation and regulations set the expectations and requirements to enable and facilitate this process, including the establishment of the New Zealand Waste Strategy, the overarching framework for managing and minimising waste.

Since 2002, the New Zealand Waste Strategy ('the Strategy') has provided direction to local government, businesses, including the waste industry, and communities to manage and deliver environmental, social and economic benefits to New Zealanders. An update in 2010 set the following strategic goals to provide greater flexibility for waste management and minimisation:

- Reduce the harmful effects of waste and

[39] https://www.oecd.org/environment/country-reviews/Annexes_NZL%20web.pdf
[40] https://www.mfe.govt.nz/waste/circular-economy

- Improve the efficiency of resource use.

To give effect to the Strategy, legislation provides the drivers to enable waste management and minimisation in Aotearoa New Zealand:

- *The Waste Minimisation Act 2008* (WMA 2008)
- *The Local Government Act 2002* (LGA 2002)
- *The Resource Management Act 1991* (RMA 1991)
- New Zealand Emissions Trading Scheme (NZ ETS) and
- *The Climate Change Response Act 2002* (CCRA 2002).

These documents are discussed briefly in the following sections.

3.2.1.1 Waste Minimisation Act 2008

The WMA 2008 was established to provide a regulatory framework to encourage the reduction in the amount of waste produced and disposed of by New Zealanders with the aim to reduce environmental effects while generating economic, social and cultural benefits. The WMA provides for several tools to manage and minimise waste, including:

- Recognition of central government accredited *kaitiakitanga whakanaonga* - product stewardship schemes and the ability for central government to impose mandatory *kaitiakitanga whakanaonga* - product stewardship schemes for six declared priority products
- Clearer waste management responsibilities for territorial authorities, including implementation and review of waste management and minimisation plans (WMMPs)
- Implementation of a waste levy of $10 per tonne (plus GST), as at 2019, on waste disposed of at disposal facilities to be used for funding waste minimisation activities through the Waste Minimisation Fund. An increase to the municipal (Class 1) landfill levy announced by MfE in 2020 from $10 per tonne, set in 2009 to $20 by 1 July 2021, $30 by 1 July 2022, $50 by 1 July 2023 and $0 by 1 July 2024 and extending the levy to cover additional landfill types including industrial and construction and demolition fills, but not cleanfills or farm dumps[41]
- Give Central Government the power to make regulations to collect information and to impose standards for various aspects of waste minimisation
- The Minister for the Environment may make regulations, for example, for the control or prohibition on disposal, sale, take-back services, fees and refundable deposits, labelling of products, quality standards, information to be collected and provided (Section 23 of the WMA 2008) and
- Establishment of the Waste Advisory Board to provide independent advice to the Minister for the Environment on matters relating to the Act and waste minimisation, including also consideration of *tikanga Māori* (Section 93, 5.f of the WMA 2008).

Part 2 of the WMA 2008 is centred on *kaitiakitanga whakanaonga* - product stewardship, where the purpose:

'is to encourage (and, in certain circumstances, require) the people and organisations involved in the life of a product to share responsibility for:

[41] https://www.mfe.govt.nz/waste/waste-and-government

a. *Ensuring there is effective reduction, reuse, recycling, or recovery of the product; and*

b. *Managing any environmental harm arising from the product when it becomes waste.'*

It also sets out the conditions associated with *kaitiakitanga whakanaonga* - product stewardship schemes for declared priority products, including the accreditation of *kaitiakitanga whakanaonga* - product stewardship schemes that have been developed for a non-priority product including the ability to make potentially relevant regulations whether or not priority products.

Kaitiakitanga whakanaonga - product stewardship schemes are discussed further in Section **3.2.4**.

3.2.1.2 Local Government Act 2002

The LGA 2002 provides the legislative framework for democratically elected local authorities to promote the social, economic, environmental and cultural well-being of communities in the present and for the future. This includes taking 'appropriate account of the principles of the Treaty of Waitangi' and facilitating 'participation by Māori in local authority decision making processes'. The Act also gives effect to any schemes, including *kaitiakitanga whakanaonga* - product stewardship schemes, accredited through the WMA 2008, including any bylaws defined in the LGA 2002.

3.2.1.3 Resource Management Act 1991

The RMA 1991 is Aotearoa New Zealand's key environmental legislative document providing the framework for the sustainable management of environmental resources, including development activities. The RMA 1991 also manages and controls the environmental impacts of waste facilities such as disposal facilities, recycling and recovery facilities and cleanfills.

Section 31 of the RMA 1991 sets out the functions of territorial authorities to give effect to the RMA 1991, including to control the actual or potential effects of land-use activities on the *taiao* - environment in the district. All exercising functions under the RMA 1991 need to take into account the principles of *Te Tiriti o Waitangi* - the Treaty of Waitangi and recognize and provide for matters of national significance, including Māori and their cultural relationship to their *taonga*, including land, water and sacred sites.

3.2.1.4 New Zealand Emissions Trading Scheme (NZ ETS) and the Climate Change Response Act 2002

In addition to the WMA (2008), LGA (2002) and the RMA (1991), the NZ ETS is a key tool for ensuring Aotearoa New Zealand meets domestic and international climate change targets from a range of activities, including disposal facilities defined within the CCRA 2002. Broadly, the NZ ETS was created through the CCRA 2002 in recognition of Aotearoa New Zealand's obligations under the Kyoto Protocol. The importance of the NZ ETS to the Rangitīkei District Council strategic waste review is the application of the CCRA 2002 and emission target which applies to disposal facilities including landfills:

Disposal facility means any facility, including a landfill –

(a) At which waste is disposed; and

(b) At which the waste disposed includes waste from a household that is not entirely from construction, renovation, or demolition of a house; and

(c) That operates, at least in part, as a business to dispose of waste; but

(d) Does not include a facility, or any part of a facility, at which waste is combusted for the purpose of generating electricity or industrial heat

Dispose, in relation to waste -

(a) Means-

(i) The final or more than short-term deposit of waste into or onto land set apart for that purpose; or

(ii) The incineration of waste by deliberately burning the waste to destroy it; but

(b) Does not include any deposit of biosolids for rehabilitation or other beneficial purposes.

The 2050 target as set by the Act is described as:

Part 1B Emission reduction, Subpart 1 – 2050 target

(1) The target for emissions reduction (the 2050 target) requires that –

(a) Net accounting emissions of greenhouse gases in a calendar year, other than biogenic methane, are zero by the calendar year beginning on 1 January 2050 and for each subsequent year; and

(b) Emissions of biogenic methane in a calendar year –

(i) Are 10% less than 2017 emissions by the calendar year beginning on 1 January 2030; and

(ii) Are 24% to 47% less than 2017 emissions by the calendar year beginning on 1 January 2050 and for each subsequent calendar year.

(2) The 2050 target will be met if emissions reductions meet or exceed those required by the target.

(3) 2017 emissions means the emissions of biogenic methane for the calendar year beginning on 1 January 2017.

Aotearoa New Zealand has made climate change commitments under the United Nations Framework Convention on Climate Change, the Paris Agreement and the Kyoto Protocol. Aotearoa New Zealand's targets are as follows:

- To reduce greenhouse gas emissions to 30% below 2005 levels by 2030
- An unconditional target to reduce our greenhouse gas emissions to 5% below 1990 levels by 2020
- A conditional target to reduce New Zealand's emissions to between 10% and 20% below our 1990 levels by 2020 and
- To reduce New Zealand's emissions to 50% below 1990 levels by 2050.

As reported by the New Zealand Environmental Protection Authority – *Te Mana Rauhī Taiao*, if a landfill site is currently subject to the waste disposal levy, then its operator is also a mandatory participant of the NZ ETS. However, other types of waste related facilities including cleanfills and/or sewage treatment facilities are not currently included in the NZ ETS scheme. For example, remote disposal facilities are exempt from the NZ ETS as detailed in Clause 12A of the Climate Change (General Exemptions) Order 2009.[42] For the purpose of the Rangitīkei District Council strategic waste review, the NZ ETS notes that waste disposal facilities are only responsible for methane emissions from their facilities and not responsible for other greenhouse gas emissions, such as carbon dioxide from waste decomposition, associated with landfills or other methods of waste disposal.

Under the NZ ETS operators are required to record information about the gross quantity of waste entering their landfill facility each year and submit this as part of their annual emissions return. This figure is then multiplied by an emissions factor that estimates the methane emissions per tonne of waste to give a total emissions figure. Once the return is completed, the operator is required to surrender emissions units corresponding to the amounts of emissions reported to the NZ ETS.

3.2.2 Waste Disposal Levy

The cost of landfill disposal has also had an influence on product recovery with disparity across the national costs of *ruapara* - landfill disposal resulting in disparate behaviours by the waste industry and different levels of investment throughout the country. The New Zealand Government has confirmed an increase and expansion of the national waste disposal levy to divert more material from landfill.[43] Consequently, increased investment in alternatives to landfill disposal is anticipated in keeping with the objectives of the WMA 2008.

The waste disposal levy was introduced under the WMA 2008 to:

- Raise revenue for the promotion and achievement of waste minimisation
- Recognise that disposal imposes costs on the environment, society and the economy.

The levy was also established to encourage organisations and individuals to:

- Take responsibility for the waste they create
- Find more effective and efficient ways to reduce, reuse, recycle or reprocess waste.

The current waste levy is set at $10 per tonne (excluding GST) on all waste sent to landfill. From 1 July 2021 the levy will progressively increase starting with an increase for municipal (Class 1) landfills. As reported, disposal facility operators are required to pay the levy based on the weight of material disposed of at their facility, and they may pass this cost on to the waste producer such as households and businesses. **Table 4** below summarises the increase and expansion of the waste levy.

Table 4 Increase and expansion of the waste levy

Landfill Class	Waste Types	1 July 2021	1 July 2022	1 July 2023	1 July 2024
Municipal landfill (Class 1)	Mixed municipal wastes from residential, commercial and industrial sources	$20	$30	$50	$60
Construction and demolition fill (Class 2)	Accepts solid waste from construction and demolition activities, including rubble, plasterboard, timber, and other materials	-	$20	$20	$30

[42] Climate Change (General Exemptions) Order 2009 (SR 2009/370)
[43] https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/waste-disposal-levy/

Landfill Class	Waste Types	1 July 2021	1 July 2022	1 July 2023	1 July 2024
Managed or controlled fill (Class 3 and 4)	On or more of: • contaminated but non-hazardous soils and other inert materials, for example, rubble • soils and other inert materials.	-	-	$10	$10

As such, an increase in the waste disposal levy is anticipated to create more funding opportunities for waste minimisation initiatives, noting that at present:

- Half of the levy money goes to territorial authorities to spend on promoting or achieving waste minimisation activities set out in their WMMPs
- The remaining half of the levy money, excluding administration fees, is put into the contestable Waste Minimisation Fund for waste minimisation activities in Aotearoa New Zealand.

Further, it is acknowledged that *Manatū Mō Te Taiao* - Ministry for the Environment have signalled potential changes under the WMA 2008 review process, including allocations of funding.

3.2.3 Aotearoa New Zealand Waste Work Programme

This section provides a high-level overview of the Aotearoa New Zealand waste work programme which is focussed on accelerating Aotearoa New Zealand's transition towards a *Ōhanga āmiomio* - circular economy. The intent of this section is to highlight the potential implications of the Government work programme initiatives on Rangitīkei District Council's review of its role and focus on waste and diverted materials.

The *Manatū Mō Te Taiao* - Ministry for the Environment work programme focusses on nine key areas which are briefly discussed below:

4. National waste strategy[44] - development of a new waste strategy for Aotearoa New Zealand that will set the direction and guide investment.
    - Timeline: As reported, public consultation on the draft strategy is expected to be held in the second half of 2021.
5. Review of the waste legislation - *Manatū Mō Te Taiao* - Ministry for the Environment have recognised the need to strengthen various legislative provisions to support the broad waste work programme, including regulated product stewardship schemes and a national plastics action plan. The intent of the review will also support the new national waste strategy by providing tools and incentives to transform the waste sector and help transition to a more circular and resource-efficient economy. The review will also include, for example, looking at how the WMA 2008 and *Litter Act 1979* could be improved or amended and considering new provisions that are not yet in the Acts.
    - Timeline: As reported, evidence will be gathered and draft legislation drafted in the first half of 2021 with public consultation on possible legislative changes held in the second half of 2021.
6. Declaration of six priority products for regulated product stewardship under the WMA 2008[45] - The New Zealand Government has declared six priority products for regulated product stewardship which are part of the plan to reduce the amount of waste being disposed of to landfills or polluting the environment:
    - Plastic packaging

[44] https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/aotearoa-new-zealand-waste-strategy/
[45] https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/product-stewardship/

- Tyres
- Electrical and electronic products (e-waste)
- Agrichemicals and their containers
- Refrigerants
- Farm plastics.

- Timeline: *Manatū Mō Te Taiao* - Ministry for the Environment is currently working with stakeholders to co-design *kaitiakitanga whakanaonga* - product stewardship schemes for each priority product with consultation on any regulations under the WMA 2008 that may be required to implement those schemes. *Manatū Mō Te Taiao* - Ministry for the Environment has reported that co-design schemes for tyres and refrigerants are currently underway.

7. Increase and expansion of the waste disposal levy[46] - Progressively increase and expand the levy rates for landfills starting on 1 July 2021 to July 2024. At present the waste levy only applies to municipal landfills (Class 1) that receive household waste with no levy on the remaining approximate 90% of nationwide landfills.

    - Timeline: The increase and expansion of the waste disposal levy began on 1 July 2021 with an increase from $10 per tonne to $20 per tonne for Class 1 municipal landfills followed by a staged increase for the remaining Class 2 (construction and demolition fill), Class 3 (managed fill) and Class 4 (controlled fill) beginning on 1 July 2022.

8. Investment in recycling infrastructure - The New Zealand Government as part of the COVID-19 recovery programme is investing $124 million into a number of recycling infrastructure initiatives including plastic recycling facilities and community resource recovery facilities.

    - Timeline: *Manatū Mō Te Taiao* - Ministry for the Environment has reported that details of projects will be made publicly available on the website when funding arrangements have been confirmed.

9. Investigating the establishment of the Container Return Scheme to litter and waste to landfill[47] - Internationally, container return schemes incentivise the return of beverage containers for recycling and/or refilling through the inclusion of a refundable deposit, for example, 10-cents or more, applied at the point of purchase. Consumers receive their deposit back when the container is returned empty to a selected recycling drop-off location.

    - Timeline: *Manatū Mō Te Taiao* - Ministry for the Environment has reported that should a decision to proceed with a scheme be made by Cabinet, further development will be required over the following two years.

10. Work to standardise kerbside collection systems and consumer packaging labelling[48] - To make it easier for households to recycle, the government is working to standardise kerbside collection systems as well as packaging labelling.

    - Timeline: No information was available at the time of writing to provide clarity on the expected timeline to develop and implement this project.

[46] https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/waste-disposal-levy/
[47] https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/container-return-scheme/
[48] https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/improving-household-recycling-and-food-scrap-collections/

11. Rethinking plastics[49] - The 2019 'Rethinking Plastics in Aotearoa New Zealand' report produced by the Office of the Prime Minister's Chief Science Advisor sets out an aspirational vision for Aotearoa in 2030 where 'New Zealanders are innovative world leaders in reducing plastic use and in limiting the amount of plastics found in our environment'.
    - Timeline: The report made 51 recommendations with many underway.
12. *Ōhanga āmiomio* – circular economy[50] - The Governments waste work programme has been designed to accelerate Aotearoa New Zealand's transition to a circular economy which is based on the principles shown in **Figure 7.**

Figure 7 Design out waste and pollution: Keep products and materials in use. Regenerate natural systems[51]

- Timeline: Ongoing.

3.2.4 Extended Producer Responsibility in Aotearoa New Zealand

The New Zealand *Manatū Mō Te Taiao* - Ministry for the Environment defines *kaitiakitanga whakanaonga* - product stewardship as 'an approach whereby producers, importers, brand owners, retailers, consumers and other parties involved in the *huringa mataora* – life-cycle of a product accept a responsibility for the environmental impacts of the products through their life-cycle. This can include upstream impacts from the choice of materials and the manufacturing process, through to downstream impacts from the use and disposal of products'. The *Manatū Mō Te Taiao* - Ministry for the Environment also notes the term Extended Producer Responsibility is used in a similar way to *Kaitiakitanga whakanaonga* - Product Stewardship, although 'usually with a narrower focus on the responsibilities of producers'.

Aotearoa New Zealand currently has a voluntary approach to *kaitiakitanga whakanaonga* - product stewardship although the WMA 2008 enables the government to declare priority products, that is, General Guidelines for Product Stewardship Schemes for Priority Products Notice 2020,[52] meaning regulated *kaitiakitanga whakanaonga* - product stewardship schemes could be established requiring all producers, manufacturers, brands, importers, retailers and consumers of those products to participate.

Table 5 below provides a high-level overview of accredited voluntary *kaitiakitanga whakanaonga* - product stewardship schemes in Aotearoa New Zealand.

[49] https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/actions-underway-in-response-to-the-rethinking-plastics-report/
[50] https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/ohanga-amiomio-circular-economy/
[51] Image: The Ellen MacArthur Foundation
[52] https://gazette.govt.nz/notice/id/2020-go3342

Table 5 Examples of accredited voluntary *kaitiakitanga whakanaonga* - product stewardship schemes

Scheme	Details
Agrecovery rural recycling programme	Agrecovery provides Aotearoa New Zealand farmers and growers with programmes for container recycling, drum recovery and the collection of unwanted or expired chemicals.
Fonterra Milk for Schools Recycling Programme	Milk cartons, including the straw and straw wrapper, are collected from schools participating in the Fonterra Milk for Schools Programme. They are broken down into components, paper, aluminium foil and plastic, and recycled into roof tiles, books and paper. Since the scheme began, more than 600 t of waste materials have been recycled into new schoolbooks for children.
Public Place Recycling Scheme	The scheme aims to install 3,400 recycling bins in public places by 2020. This aims to reduce litter and increase recycling to around 140 million cartons, cans, glass and plastic bottles each year. The scheme is funded by brand owners and packaging manufacturers who work with event organisers, councils and other organisations.
Soft Plastic Recycling Scheme	Soft plastic packaging is collected from participating stores and delivered to two Aotearoa New Zealand processors; Future Post in Waiuku and Second Life Plastics in Levin. The soft plastics are then turned into new products, such as plastic fence posts, cable covers and garden edging. Noting the scheme was stopped in December 2018 when stockpiles of soft plastics reached 400t after a Melbourne-based processor stopped accepting New Zealand's plastic. In May 2019 the scheme resumed in Auckland after a New Zealand based company 'Future Post' took over and reduced the stockpile. The scheme expanded across other parts of the North Island in September 2019 and is now also in Christchurch. The scheme is funded by the food and grocery product brand owners that are members of the scheme. These brand owners represent around 70% of the food and grocery products packaged in the soft plastics that can be processed via the scheme. The brand owners pay a levy which funds the collection of the soft plastics from participating stores, quality checks, baling, transport and processing.
Sharp Comprehensive Recycling and Waste Reduction Scheme	Sharp New Zealand aims to reuse and recycle 100% of its packaging materials, electronic products, equipment, and obsolete and used parts. In 2016, the Sharp scheme recycled 1,006 m^3 of e-waste, 18,782 toner cartridges and 1,249m^3 of packaging waste. Sharp's waste to landfill decreased 29% between 2015 and 2016.
Paintwise	Resene accepts unwanted Resene paint containers and paint to recycle or dispose of them responsibly which is funded through a levy paid for by the consumer at the point of sale. A small charge applies to non-Resene branded products to help offset the costs of the PaintWise Programme.

To encourage the shift towards a more resource efficient economy, the New Zealand Government is supporting *kaitiakitanga whakanaonga* - product stewardship to help design waste out of our economy and transition Aotearoa New Zealand to *Ōhanga āmiomio* - circular economy. This will be particularly important for Rangitīkei District Council as the city makes decisions about the future of waste and resource management including identifying opportunities to support localised collection and/or manufacturing or re-processing of materials.

3.2.5 New Zealand Infrastructure Commission *Te Waihanga*: Sector State of Play: Resource Recovery and Waste

In March 2021, the Infrastructure Commission - *Te Waihanga* released a sector state of play for resource recovery and waste to characterise how the infrastructure component of the system is contributing to the enhancement of New Zealanders wellbeing, as well as considering how infrastructure may be affected by a changing economic market, including legislative drivers. As discussed by the state of play report, Aotearoa New Zealand's waste management infrastructure sits across the *pūnaha whakarōpū para* - waste hierarchy. Figure 8 below illustrates the waste minimisation hierarchy and resource recovery and disposal infrastructure.

Figure 8 Waste minimisation hierarchy and resource recovery and disposal infrastructure[53]

As discussed in the state of play report, resource recovery infrastructure broadly describes infrastructure that extracts value from materials at the end-of-life, including:

- MRFs
- Processing plants
- Facilities such as waste-to-energy plants.

Infrastructure used to treat and dispose waste is described as comprising:

- Collection of residual waste
- Transfer stations
- Treatment of waste to ensure it is inert
- Disposal to landfills.

The report also recognises the link between resource recovery and waste disposal systems to support New Zealanders' wellbeing, including protecting environmental, cultural, social wellbeing and creating positive economic outcomes related to the recovery of resources.

[53] New Zealand Infrastructure Commission – *Te Waihanga*: Sector State of Play: Resource Recovery and Waste Discussion Document, adapted from s44 WMA 2008 and Auckland Council 2018

3.2.6 Other Relevant Legislation

In addition to the WMA 2008, LGA 2002 and RMA 1991, several other national legislative documents are relevant to the strategic waste review. These are discussed briefly in **Table 6** below.

Table 6 Relevant national legislative documents

Legislation	Description
Litter Act 1979	The *Litter Act 1979* was established to facilitate abatement and control of litter with Keep New Zealand Beautiful Incorporated appointed as the body primarily responsible for the promotion of litter control in Aotearoa New Zealand. The Act enables local authorities to enforce the provisions of the Act through measures such as litter control officers with powers to issue infringement fines to *'any individual or body corporate who deposits any litter or, having deposited any litter, leaves it:* *a) In or on a public place; or* *b) In or on private land without the consent of its occupier.'* Litter as defined by the Act includes *'any refuse, rubbish, animal remains, glass, metal, garbage, debris, dirt, filth, rubble, ballast, stones, earth, or waste matter, or any other thing of a like nature.'*
Health and Safety at Work Act 2015	The *Health and Safety at Work Act 2015* (HSWA) is Aotearoa New Zealand's key work health and safety legislation including regulations under the Act. The aim of the HSWA is to provide a framework to protect the safety of all workers and workplaces together with regulations under the HSWA. The HSWA includes mechanisms to protect workers and other persons from harm, provide for resolution of workplace health and safety issues, and promote health and safety education. The HSWA includes provisions for a range of roles, including the Person Conducting a Business or Undertaking that may have a primary duty of care, including, for example, workers and contractors operating in the waste sector and associated businesses.
Ozone Layer Protection Act 1996	The *Ozone Layer Protection Act 1996* was established to fulfil Aotearoa New Zealand's commitments under the Montreal Protocol on substances that deplete the ozone layer. The Act relates to the waste management sector by setting the broad controls and requirements for any ozone depleting substances.

Te Tiriti o Waitangi – The Treaty of Waitangi signed in 1840 is Aotearoa New Zealand's founding document with New Zealand's system of government strongly influenced by *Te Tiriti o Waitangi*. While *Te Tiriti o Waitangi* is between the Crown and Māori, Local Government New Zealand imposes certain obligations on local government to reflect Treaty obligations as well as via several other legislative documents, for example, LGA 2002 and RMA 1991). A key obligation is to provide an opportunity for Māori to contribute to the decision-making processes of a local authority.

Other policy documents that may have relevance on the implementation of the strategic waste review include:

- *Biosecurity Act 1993*
- *Trans-Tasman Mutual Recognition Act 1997*
- *Imports and Exports (Restrictions) Act 1988*
- *Commerce Act 1986*
- *Commerce Amendment Act 2018*
- *Hazardous Substances and New Organisms Act 1996*
- *Climate Change Response (Zero Carbon) Amendment Act 2019* and

- New Zealand Packaging Declaration.

This section does not preclude the addition of other and/or update of existing legislation and regulations that may influence the strategic waste review.

3.2.7 2023 Update

In 2021 the Government released a consultation paper on proposals for a new waste strategy and supporting legislation. Submissions were received and the new strategy was released in March 2023, titled *Te rautaki para Waste Strategy, Getting rid of waste for a circular Aotearoa New Zealand.*

The 2023 strategy sets out guiding principles and the vision for 2050. It describes three phases of change between now and 2050, with the first culminating in 2030. Phase 1 focuses on embedding circular thinking and establishing building blocks for improved systems and behaviour change. It establishes national targets to:

1. reduce waste generation by 10 % per person
2. reduce final disposal by 30 % per person
3. reduce biogenic methane emissions from waste by at least 30 %.

Household waste is a key focus, with an expectation that all councils will offer a standardised kerbside collection service to urban areas service for recyclables by 2027 and a food waste service by 2030. Separation of food scraps from business general waste has also been signalled, under the same 2030 timeframe.

New waste legislation is currently under development and will replace the current *Waste Minimisation Act 2008* and the *Litter Act 1979*. This revision will support delivery of new initiatives set out within the waste strategy as well as waste actions contained with the Emissions reduction plan.

The new legislation will seek to:

- Improve consistency, defining waste roles and responsibilities for central and local government
- Strengthen effectiveness of the waste levy, addressing how the local government portion is allocated, what it can be spent on, and targeting all forms of final disposal including waste-to-energy facilities
- Increase regulatory powers to target specific materials and increase environmental performance, including product and landfill bans, extended producer responsibility, and environmental standards and reporting
- Increase regulation of the waste industry, through a national licensing scheme, electronic waste tracking and national standards for waste and resource activities. This will include increased ability to place controls on import and export of materials for disposal or recycling
- Encourage individual and collective responsibility for how we manage waste, across its life cycle
- Improve waste and resource recovery data, via increased provisions for record-keeping and reporting, and strengthened compliance and enforcement powers.

A draft Bill expected to be introduced into the House late 2023 or early 2024. Feedback will be sought during the select committee process with an aim to enact the legislation in 2025.

With significant policy changes underway, combined with a relatively short timeframe to implement activities that align with 2023 national targets, government has recommended actions for local government:

- use the new strategy as the starting point for your next waste management and minimisation plan

- develop an action and investment plan
- seek out opportunities to work with other councils on new, or expanded, facilities and services to manage resources in a circular way
- support local community groups and non-governmental organisations to reduce waste
- link with national behaviour change programmes
- ensure that planning and consenting processes take account of the need for waste management infrastructure and services
- plan and resource work to identify and manage vulnerable landfills and other contaminated sites

These are useful actions to inform development of the Stage 2 Waste Management roadmap. There is also potential to tap into further central government support and access to national behaviour change resources, aspects that can also be addressed within Stage 2.

3.2.8 International Agreements

There are several international agreements, including free trade agreements that Aotearoa New Zealand is party to that may affect the import and export of waste including recyclable materials and therefore the strategic planning for waste management and resource recovery in the Rangitīkei District. These international agreements are broadly discussed in **Table 7** below.

Table 7 Relevant international agreements

Agreement	Description
Montreal Protocol on Substances that Deplete the Ozone Layer	The Montreal Protocol is an international agreement made in 1987 which has received international approval. The agreement was established with the aim to stop the production and import of ozone depleting substances and reduce their concentration in the atmosphere to help protect the earth's ozone layer. The agreement affects the waste management industry by recognising that emissions of certain substances used in the manufacture and recycling of certain substances can significantly deplete and/or modify the ozone layer in a manner that may result in adverse effects on human health and the *taiao* - environment.
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	The 1989 Basel Convention is an international treaty designed to reduce the movements of hazardous waste between countries and to protect human health and the *taiao* - environment against the adverse effects of hazardous wastes. The Treaty also regulates the movement of hazardous wastes to developing countries. The Treaty sets the provisions by which signatories must abide by regarding the movement of waste material, including recyclables). In May 2019, Aotearoa New Zealand and approximately 186 other countries agreed via consensus to amend the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their disposal to better regulate global trade in plastic waste to prevent environmental harm. The amendment means exporters of contaminated or hard to recycle plastic waste will require consent from the governments of receiving countries before shipping: *'The amendment will not prevent the trade of plastic waste but will incentivise trade in high-quality, sorted, clean plastic waste and help ensure that the materials are being shipped for purposes of recycling.'*[54]

[54] https://www.lawsociety.org.nz/news-and-communications/latest-news/news/nz-agrees-to-basel-convention-plastic-waste-amendment

Agreement	Description
The Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region	The Convention to Ban the Importation into Forum Island Countries of Hazardous and Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region (Waigani Convention) came into effect in 2001 and constitutes the regional implementation of the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. The aim of the Waigani Convention is to minimise the production of hazardous and toxic wastes in the Pacific region, an additional component to reduce and eliminate transboundary movements of hazardous and radioactive waste.
Organisation for Economic Co-ordination and Development Decision C (2001)107/FINAL	The OECD Decision C (2001)107/FINAL (OECD Hazardous Waste Decision) was established to facilitate trade of recyclables in an environmentally sound and economically efficient manner by regulating the movement of hazardous waste between OECD countries.
Stockholm Convention on Persistent Organic Pollutants	The Stockholm Convention is a multilateral environmental agreement to protect human health and the *taiao* - environment from chemicals that remain intact in the *taiao* - environment for long periods of time, become widely distributed and accumulate in the tissues of wildlife and humans.
New Plastics Economy Global Commitment	The New Plastics Economy Global Commitment is aimed at bringing together businesses, governments and other organisations to address plastic waste and pollution at its source. The commitment sets clear objectives for signatories to abide by with clear targets set for 2025. All signatories report on an annual basis to ensure transparency and help drive momentum with targets reviewed every 18 months.
The Convention for the Protection of Natural Resources and Environment of the South Pacific Region (1986)	The Convention, also known as the SPREP Convention or Noumea Convention, is a comprehensive umbrella agreement for the protection, management and development of the marine and coastal environment of the South Pacific Region and represents the legal framework of the Action Plan for managing the Natural Resources and Environment of the South Pacific adopted in 1982 on behalf of the South Pacific Conference on Human Environment.
Kyoto Protocol	The Kyoto Protocol was adopted on 11 December 1997 and came into force on 16 February 2005 after a complex ratification process. To date there are 192 parties to the Kyoto Protocol. As reported by the United Nations, the Kyoto Protocol operationalizes the United Nations Framework Convention on Climate Change by committing industrialized countries and economies in transition to limit and reduce greenhouse gases (GHG) emissions in accordance with agreed individual targets. The Convention itself only asks those countries to adopt policies and measures on mitigation and to report periodically. It only binds developed countries and places a heavier burden on them under the principle of 'common but differentiated responsibility and respective capabilities', because it recognizes that they are largely responsible for the current high levels of GHG emissions in the atmosphere.
26th UN Climate Change Conference of the Parties (COP26) declarations, initiatives, pledges and statements	COP26 brought together parties to accelerate action towards the goals of the Paris Agreement and the UN Framework Convention on Climate Change. The COP26 goals are as follows: • Secure global net zero by mid-century and keep 1.5 degrees within reach • Adapt to protect communities and natural habitats • Mobilise finance • Work together to deliver See **Table 1**, Section **2.1.3** for further detail of those declarations, initiatives, pledges and statements made by Aotearoa New Zealand and which have relevance to the waste sector.

3.3 Community Resource Recovery Network

Diversion of waste from landfills will need the combined effort of everyone including the public, community groups and businesses to reduce the amount of waste that is sent to landfill for disposal. Alongside kerbside collection options, the recovery of resources before they enter the traditional disposal pathways may provide the Rangitīkei District with an opportunity to create a single location or a network of sites that accept waste items, for example, whiteware, electronics, residential do-it-yourself materials, for resale.

As part of Auckland Council's plan to divert and reduce the amount of waste sent to landfill, Council established a nine resource recovery centres across the Auckland region providing locations for people to drop off unwanted items. These sites include:

- Aotea Community Recycling Centre – Great Barrier Island
- Devonport Community Recycling Centre
- Helensville Community Recycling Centre
- Lawrie Road Community Recycling Centre – Warkworth
- Rustybrook Road Community Recycling Centre – Wellsford
- Waiheke Community Resource Recovery Park – Waiheke Island
- Waitākere Community Recycling Centre – Henderson
- Waiuku Community Recycling Centre – Waiuku
- Whangaparāoa Community Recycling Centre – Stanmore Bay.

The intent of these sites is to recover unwanted items from being disposed of to landfill and which are then sold for reuse and recycling. In Auckland, the centres are owned by Auckland Council and run under contract, for example, five- to seven-year terms, by community enterprises to deliver financially sustainable businesses while generating income supporting local jobs, training and volunteering opportunities. A unique differentiator of Auckland's resource recovery network is the ongoing support provided by Council to ensure the success of the sites and encourage increase diversion of goods from landfill to help achieve goals as set in the WMMP. Acknowledging the opportunity for these sites to support Auckland's recovery from the COVID-19 pandemic and to transition to a future with onshore resource recovery infrastructure, Central Government has invested $10.67 million for new infrastructure as part of the Government's Infrastructure Reference Group 'shovel ready' projects with an estimated 50 full- and part-time positions created.

Similarly, Christchurch City Council has established three EcoDrop centres around Christchurch (Bromley, Styx Mill and Parkhouse Road in Wigram) that provide the public with a location to dispose of large quantities of green waste or refuse and the option to drop off larger recyclables including whiteware, furniture, tools, household appliances.

A feasibility investigation assessing the opportunities for establishing one or more community resource recovery centres in the Rangitīkei District is recommended to determine if such an approach would support the cities strategy to manage and minimise waste. The feasibility study would also assess factors such as financial viability, contracting options, location and available sites and end markets.

4 Rangitīkei District Council Waste Management Strategic Review

4.1 Overview of Rangitīkei District Council's Waste Management Policies and Objectives

The following section provides an overview of Rangitīkei District Council's (RDC) waste management policies and objectives, including the strategic drivers to minimise and manage waste within the region.

4.1.1 Long Term Plan (2021-2031)[55]

The strategic vision for the Rangitīkei District is 'to make it a place that we all want to call home'. As noted in the Long-Term Plan (LTP), home speaks of warmth, vibrancy and relationship. It means security and the enjoyment of core services. Homes are built with careful, efficient design and planning within a workable budget. To make sure the District is the best home it can be over the next 10 years, RDC will ensure the costs of our core services are affordable and provide value for money, while considering ways to make projects environmentally sustainable.

Figure 9 shows a key element to the 2021-2031 LTP is the focus on the four well-being pillars of Social, Environment, Cultural and Economic each of which are interwoven into all work programmes managed by RDC.

Figure 9 The Long-Term Plan Well-being pillars

Each of the four well-being pillars can be broadly summarised as follows:

1. Social

[55] Framing Our Future: Rangitīkei District Council Long Term Plan 2021-2031

- RDC embraces the diversity of the districts population make-up by being a connected, progressive and resilient community.

2. Environmental
   - RDC is recognised as having the lead facilitation role as kaitiaki in the district.
3. Cultural
   - A district that recognises the heritage of its people, its diversity and inclusiveness and provides a place to live and work due to the opportunities in the district.
4. Economic
   - An economy that provides for current and future opportunities and one that benefits all.

Figure 10 shows RDC's focus on community outcomes which form the basis of the strategic direction and associated delivery activities.

Figure 10 The Long-Term Plan community outcomes and strategic direction

Broadly, the four key community outcomes are described as follows:

1. Healthy and resilient communities
   - Advocating for the well-being of communities through mechanisms including appropriate and affordable infrastructure services, supporting a range of activities and supporting a welcoming and diverse community.
2. Healthy and improving environment
   - Working towards more sustainable use of resources through reducing carbon footprints including reduced waste to landfill.
3. Partnership with Iwi

- Engaging with Iwi early during the project development phase and identifying and protecting areas of cultural importance.

4. Prosperous economy
    - Facilitating and encouraging investment in the district including housing solutions, supporting rural and primary sector productivity and ensuring rate levels are prudent.

Of specific interest for the development of this strategic waste minimisation roadmap is the long-term direction for waste and recycling initiatives in the district. As reported in the LTP, the aim is 'to provide sustainable waste management practices that protect public health and the environment for present and future generations'. To achieve this, RDC's intended level of service is to make recycling facilities available at waste transfer stations for glass, paper, metal, plastics, textiles and green waste with special occasion collections for e-waste. RDC intends to continue the contractual operation of existing urban waste transfer stations at Rātana, Bulls, Marton, Hunterville, Mangaweka and Taihape. In addition to the existing waste management activities RDC also funds a small education programme with schools having the opportunity to choose to participate in Zero Waste initiatives or the broader Enviroschools programme.[56] The LTP has also included the need for a review of kerbside recycling, currently provided by commercial operators, which is currently deferred until 2021-2022.

Table 8 below provides a summary of the reported LTP RDC waste and recycling sources of operating funding, projected over the 10-year LTP period.

[56] https://enviroschools.org.nz/

Table 8 RDC waste and recycling sources of operating funding by year - $000s[57]

Funding Source	2020-2021 Annual Plan	2021-2022 LTP Year 1	2022-2023 LTP Year 2	2023-2024 LTP Year 3	2024-2025 LTP Year 4	2025-2026 LTP Year 5	2026-2027 LTP Year 6	2027-2028 LTP Year 7	2028-2029 LTP Year 8	2029-2030 LTP Year 9	2030-2031 LTP Year 10
General rates[58]	132	141	151	161	172	187	197	205	213	218	222
Targeted rates	871	932	1,000	1,066	1,136	1,235	1,304	1,353	1,405	1,440	1,470
Fees and charges	566	649	669	689	709	731	753	775	799	822	847
Total	**1,569**	**1,723**	**1,821**	**1,916**	**2,017**	**2,153**	**2,254**	**2,333**	**2,416**	**2,481**	**2,539**

[57] Framing Our Future: Rangitīkei District Council Long Term Plan 2021-2031
[58] Includes uniform annual general charge and rates penalties

4.1.2 Annual Plan

RDC's Annual Plan sets the plan for the upcoming financial year and complements the LTP process by establishing annual plans in the years where the LTP is not produced. A key element of the Annual Plan process is the setting of rates which is split across the various activities that RDC manages. These are shown in **Figure 11** and **Figure 12**.

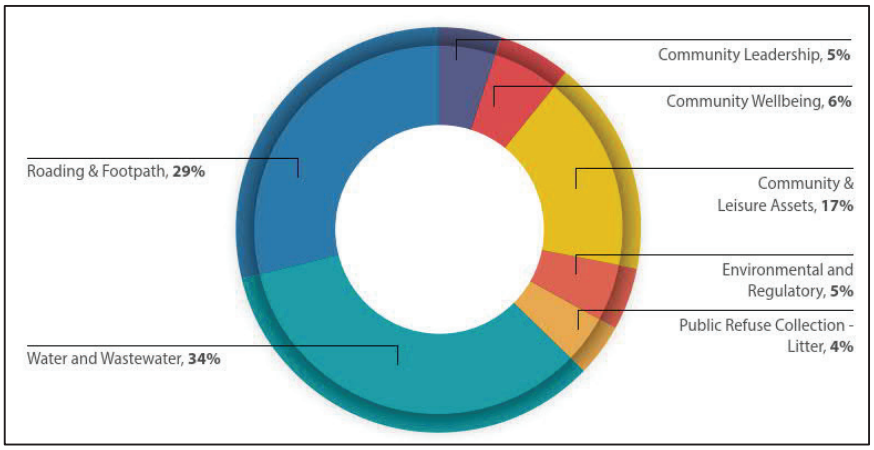

Figure 11 RDC Rates by Activity 2020-2021

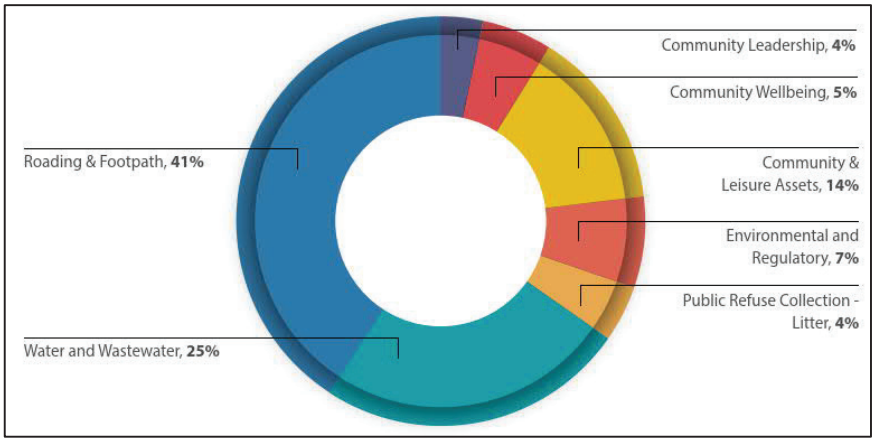

Figure 12 RDC Operating Expenditure by Activity 2020-2021

Looking at the waste and recycling component of the Annual Plan, RDC receives $45,000 of funds from the Government waste levy to help support waste minimisation activities. As reported by the Annual Plan, two waste and recycling projects have been identified for 2020-2021 and focus on containment of the historic Putorino landfill and to investigate other identified historic closed landfills not currently monitored. It is also reported that the waste and recycling targets for 2020-2021 are:

- Lower quantities to landfill than the previous year - 4,720 t in 2018-2019
- 25% of waste diverted from landfill

4.1.3 Draft Strategic Vision

The Rangitīkei District Council Strategic Vision 2020[59] is a draft document last updated in February 2021. The intent of the 30-year strategic vision is a document for discussion by elected members prior to the LTP public consultation period with the document's future use to inform:

- Visitors to the Rangitīkei to understand the future of our district, for example, content of this document, when finalised, will be advertised on the RDC website
- Residents to understand where RDC's broad priorities sit
- Elected members to consider when making decisions
- Staff to enable the strategic vision and to prioritise accordingly.

The strategic vision is built on the four wellbeing pillars, namely economic, social, cultural and environmental. Of relevant to the development of this strategic waste roadmap is the environmental pillar, with a 30-year environmental vision of 'the Council is recognised as having the lead facilitation role as *kaitiaki*[60] of the Rangitīkei District'. This means RDC will demonstrate a willingness to invest in infrastructure and work with a range of partners to adapt to the challenges of climate change. As part of this vision, RDC has also noted a carbon neutral business model will be followed when procuring services with financial incentives for sustainable construction initiatives to underpin RDC's commitment to working with the community, for the community.

Alongside RDC's commitments to providing safe and clean potable water and the removal of treated wastewater discharges to the district's rivers, RDC is also committed to sustainable waste management, while maximising opportunities for recycling and diversion from landfill. Specific sustainable waste management initiatives over 2021-2022 mentioned in the Strategic Vision 2020 include:

- Review the WMMP to determine the community appetite for landfill diversion options recognising costs are likely to be higher than landfill disposal
- Investigate kerbside recycling collections - if there are appropriate channels for landfill diversion
- If recycling is achievable, investigate glass and comingle management options in the Rangitīkei District and with neighbouring local authorities.

4.1.4 Overview of the Current Waste Management and Minimisation Plan 2018

As part of RDC's obligations under the WMA 2008 a WMMP is required at least every six years to enable effective and efficient management and minimisation of waste in the District. The intent of the WMMP is to follow the waste hierarchy. The 2018 WMMP focussed on the following activity areas:

- Waste minimisation education and behaviour change
- Commercial waste reduction
- Waste transfer stations – recycling services
- Commercial waste recycling
- Organic waste recovery (greenwaste)
- Treatment of hazardous waste
- Litterbin servicing

[59] https://www.rangitikei.govt.nz/files/general/LTP-2021-31/RDC-Strategic-Vision-2020-Updated-February-2021.pdf
[60] Guardian of the environment

- Collection and disposal of illegal dumping
- Closed landfill monitoring
- Farm dumps.

Acknowledging the broader RDC vision and objectives, the goals of the 2018 WMMP specific to waste management and minimisation are:

- Progressively reduce waste to landfill - Population specific and affordable targets
- Increase waste diverted from landfill - Consumption specific
- Discourage illegal disposal of solid waste and other non-sustainable waste practices.

To progress each of these goals, RDC has established several initiatives and targets as follows:

Waste Management and Minimisation Initiatives

- Recycling available at most transfer stations for glass, paper, metal, plastics, textiles, greenwaste and e-waste
- Waste education programmes available to encourage waste reduction, reuse and recycling
  - Accomplished by the delivery of waste education programmes that promote reduce, reuse and recycling by making available to those district schools who request waste education programs
  - Working with rural landowners to encourage them to look and accept the benefits of off farm waste disposal. For example removal of single use plastic wrap and agri-chemical containers.
- You can expect cost effective solid waste services
  - We will measure this by monitoring solid waste charges and costs, comparing these with neighbouring communities on a 'like for like' basis.

Waste Management and Minimisation Targets

- A progressive reduction in waste to landfill - Population specific
- To increase waste diversion from landfill to 27%. Possible only if new types of collection methods introduced.

As a result, the WMMP goals, initiatives and targets will help to inform and shape the strategic waste roadmap including the respective focus areas and proposed work programmes.

4.1.5 Other Relevant Action Plans and Strategic Objectives

The following action plans and strategies will help influence and shape the development of the strategic waste roadmap for the Rangitīkei District.

4.1.5.1 Manawatū-Whanganui Economic Action Plan

The Manawatū-Whanganui Economic Action Plan, Accelerate 25, was developed to provide a roadmap to 2025 to accelerate social and economic growth in the region, including the Rangitīkei District. The location of the districts in the region are shown in **Figure 13**.

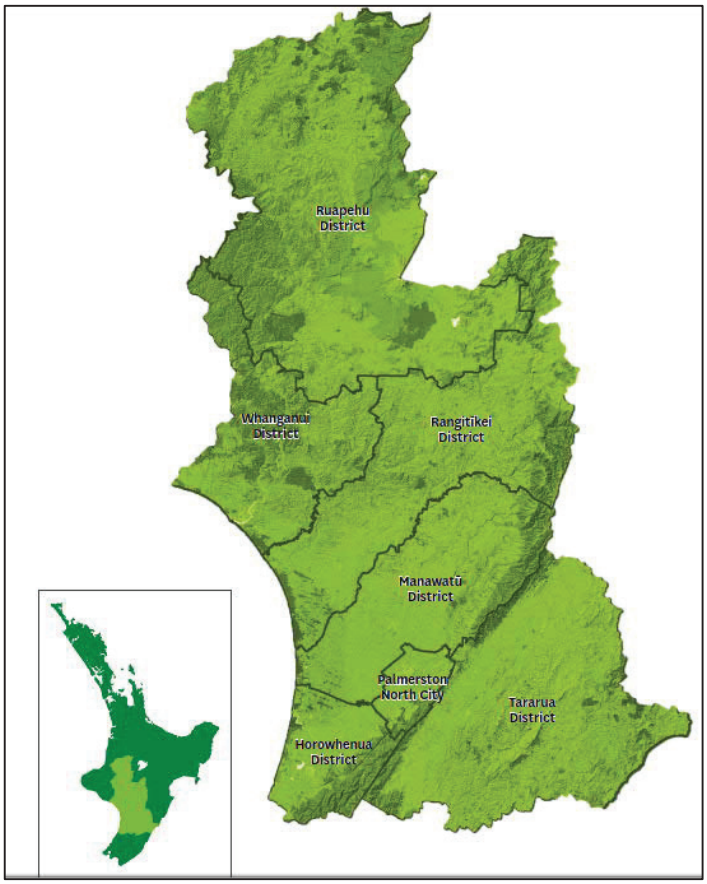

Figure 13 Map of the Manawatū-Whanganui Region

Building on the outcomes of the 2015 Growth Study, the Manawatū-Whanganui Economic Action Plan identified ten action areas each with a series of immediate priorities (green), medium-term priorities (amber) and future prospects (blue) associated with respective delivery timelines.

Each of the ten action areas are briefly summarised below with detailed information in the Action Plan.

- Tourism and Visitor Services
  - Simultaneous development of destination, market, commissionable product and infrastructure
- Land Use Optimisation
  - Advancing practice further towards precision and intelligent farming by speeding up the adoption of emerging knowledge and technical innovation
- Mānuka Honey
  - Manage industry growth
- Poultry Meat Production
  - Establish a new and sustainable Asian market
- Quality Care and Lifestyle for Older People
  - Using currently available technologies to enable older people top remain within supportive communities and have ready access to support
- Business Process Outsourcing: Contact Centres

- Targeting an under-utilised labour resource in provincial towns and cities
- Business Process Outsourcing: Food HQ
  - Accessing advanced technical and scientific intellectual priority to add value to the products of the region
- Fresh Vegetables
  - Increase grower confidence to expand into new export markets through robust collective marketing and logistics for the industry to achieve its potential
- Realising Māori Potential
  - Growing Māori enterprise and encouraging participation in regional growth as partners, facilitators, investors and business people
- Enablers
  - Growing Business, Skills and Talent, Distribution and Transport and Digital Connectivity.

While it is not the intent of this report to detail each of the above listed action areas, 'Realising Māori Potential' and 'Enablers' are the two action areas of most relevance to the development of this strategic waste roadmap. As a result, the Rangitīkei District strategic waste roadmap will acknowledge the broader regional opportunities presented by working alongside the District's neighbours and will highlight potential areas of collaboration.

4.1.5.2 *Te Pae Tawhiti* Manawatū-Whanganui Māori Economic Development Strategy (2016-2040)

Te Pae Tawhiti is a strategy for Māori economic development across the Manawatū-Whanganui region, including Ngā Rauru Kītahi (Southern Taranaki), Rangitīkei (Rangitīkei-Marton), Horowhenua (Levin-Ōtaki) and Tamaki-Nui-A-Rua (Dannevirke regions). The vision of *Te Pae Tawhiti* is for a future where economic growth can be realised as a conduit to the sustainability and wellbeing of whanau, lands, waterways, marae, language and future generations. To achieve successful Māori economic development in the region, *Te Pae Tawhiti* recognises three key elements to support success, being:

- Creating alliances – recognises the importance of regional alliances between iwi, industry, councils, marae, government while still exercising Māori autonomy and self-management. *Te Pae Tawhiti* recognises that the main competitors are in the global marketplace and that for Māori to succeed globally Māori will need alliances that deliver economies of scale, collective value and impact.
- Alignment – recognises the need for alignment between Māori and Government.
- Future focus – recognises that unless the priorities that Māori pursue are sustainable and that *Te Pae Tawhiti* has future generations in mind.

As with the Manawatū-Whanganui Economic Action Plan, *Te Pae Tawhiti* comprises five overarching goals, ten priority areas and 10 pathways. These are shown in **Table 9** below.

Table 9 Strategic Elements of *Te Pae Tawhiti*[61]

Goals – *Ngā ihi o te rā*	Priorities – *Ngā tihi taumata*	Pathways – *Ngā ara taumata*
Oranga tangata (Human potential)	*Ahuwhenua* (Land utilisation)	*Hanga whare* (Housing)
Oranga whānau (Successful whānau)	*Kaimoana* (River and seafood)	*Te taituara* (A centralised support organisation)
Oranga whenua (Thriving environment)	*Mahi tāpoi* (Tourism)	*Takitini* (Alignment with iwi and government plans)
Oranga mauri (Flourishing mauri)	*Mīere* (Honey)	*Mahi tahi* (Partnerships with government and industry)
Oranga mō āpōpō (Future wellbeing)	*Te ngāhere* (Forestry and plant-based products)	*Ngā kaihoe* (Human capability and capacity)
	Pakihi matahiko (Māori ditigal enterpise)	*Mātauranga* (Data and knowledge)
	Te piringa whānau (Whānau co-operatives)	*Te pūtea tautoko* (Financial capital)
	Whai ōhanga (Entrepreneurship and innovation)	*He tautoko* (Non-financial assistance)
	Oranga kaumātua (Older Māori vitality)	*Te hau hapori* (Community hubs)
	Hanga whare (Housing)	*He whare* (A place to operate)

Te Pae Tawhiti also recognises that there are several critical success factors for Māori economic development in the region:

- Capability and capacity building – the core role of leadership, recruiting talent, increasing landowner participation, supporting *hapū*-based *kaitiakitanga* practices, improving capability and capacity of Māori governance and management.
- Relationships and collaboration – maintaining relationships, collaboration and collectivism, building international relationships for economic return, increasing opportunities for general interaction among iwi members, maintaining and developing partnerships with outside organisations, co-investing and collaborating with others.
- Decision-making and knowledge systems – the need for an integrated approach, improving knowledge systems, increasing knowledge around alternative food and energy security systems.

While it is not the intent to discuss in detail *Te Pae Tawhiti*, it is important to set the context of how Māori economic development will help shape and inform the development of the Rangitīkei District strategic waste roadmap.

4.2 Overview of Rangitīkei District Councils Waste Management and Minimisation Profile

This section provides a high-level overview of the Rangitīkei District's waste profile to provide the foundation on which to develop the strategic waste roadmap and implementation plan.

[61] *Te Pae Tawhiti* Manawatū-Whanganui Māori Economic Development Strategy (2016-2040)

4.2.1 Rangitīkei District Waste Management Facilities and Infrastructure

Rangitīkei District Council provides a range of waste management services including collection, recycling, processing and disposal. These services are funded through a combination of targeted rates, user-pays and funds from the waste levy. Supporting RDC operated services are commercial operators, including kerbside collection of waste.

To support waste diversion, RDC operates six waste transfer stations located at:

- Marton
- Bulls
- Taihape
- Hunterville
- Ratana
- Mangaweka.

Of the recyclables collected at each of these facilities the majority of Council collected recyclables are then transported to the Fielding MRF for processing and consolidation.

RDC's collected waste is disposed of at the privately-owned Bonny Glen Landfill which is in the Rangitīkei District. Community cleanfill is disposed of at privately owned landfills including Gillespie's Quarry and the Taihape closed landfill.

4.2.2 Waste Quantities and Types

In 2017, RDC commissioned a waste assessment to provide a stock-take of the waste activities including quantities and types of waste managed within the District. A follow-up waste assessment will be required in the coming years to update the 2017 assessment and inform the development of the next WMMP. The development of the strategic waste roadmap will be informed by the 2017 waste assessment data until such time more up-to-date data is available.

During 2016-2017, kerbside collections and district waste transfer stations were the main source of waste, followed by recyclables collected from transfer stations and greenwaste collected for composting. Compared to quantities in 2012-2013 it is clear quantities of waste generated in the district have increased. This data is shown in **Table 10.** The reason for this could be attributed to a range of factors including population growth, ease of access to services and willingness to use services.

Table 10 Annual quantities of waste and diverted materials in the Rangitīkei District

Source of Waste	2012-2013 WMMP (t)	2016-2017 WMMP (t)
Kerbside collections and transfer stations	4,991.3	6,214.5
Recyclables collected from all sources	497.6	668.2
Greenwaste collected for composting	36.2	402.8

Of the waste collected from kerbside waste bags, the SWAP[62] survey carried out in 2017 reported a wide range of waste types, including putrescibles and materials that could be considered recyclable. **Table 11** below shows a summary of the 2017 RDC SWAP survey results.

[62] Solid Waste Analysis Protocol

Table 11 Rangitīkei District Council 2017 SWAP Survey Outcomes[63]

Waste Type	Percent Composition
Paper	17
Plastics	22
Putrescibles	39
Ferrous Metals	3
Non-Ferrous Metals	1
Glass	6
Textiles	3
Nappies and Sanitary	8
Concrete	1
Timber	0.1
Rubber	0.1
Potentially Hazardous	0.2

The results show that the largest proportion of waste is putrescible waste at almost 40%, followed by plastics at 22% and paper at 17%. The data does not show whether the plastics and paper were clean and uncontaminated and so acceptable for recycling, but it suggests that there is an opportunity to recover a greater proportion of recyclable material from the kerbside bags. An opportunity to facilitate this may be through additional waste minimisation activities such as community engagement and behaviour change initiatives or to implement a kerbside recycling collection in the District. A range of opportunities to increase the amount of waste diverted from landfill will form an important part of the Phase 2 strategic waste roadmap.

Of the recyclables collected from across RDC's six waste transfer stations, the combined quantities of greenwaste and glass contribute the greatest to the total amount followed closely by paper, cardboard and metals. Acknowledging that there is a considerable quantity of recyclables in the kerbside collected waste bags, there is an opportunity to further increase the capture of recyclable materials, by, for example, implementing a kerbside recycling collection. **Figure 14** below shows the quantities of recyclable materials collected by RDC from all six transfer stations.

[63] Rangitīkei District Council Draft Waste Management and Minimisation Plan 2018-2016

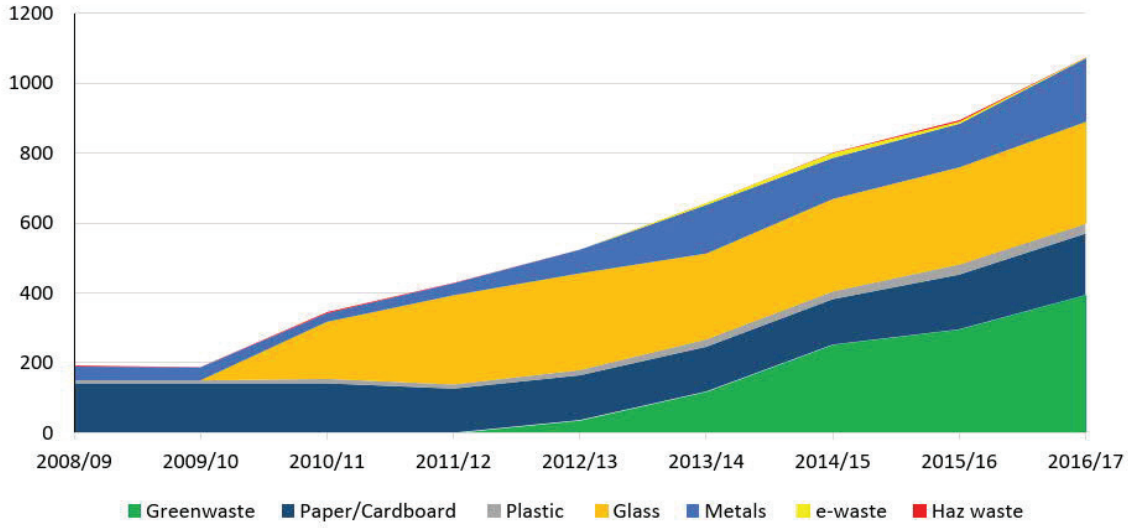

Figure 14 Quantities of Recyclable Materials from all Transfer Stations

4.2.3 Waste Work Programme Overview

In addition to providing waste management services, RDC also makes available educational resources for waste minimisation projects. The funding for these projects is provided through the Waste Levy Fund administered by *Manatū Mō Te Taiao* – Ministry for the Environment. To support RDC's waste minimisation projects, funds are provided to both Enviroschools and Zero Waste Education with schools in the district able to request either or both providers to support school-based waste education initiatives.

4.2.4 Overview of Rangitīkei District Council Waste Funding

Revenue and expenditure are relatively consistent each year. **Table 12** below shows the project LTP expenditure up to 2030-2031.

Table 12 Waste and Recycling Sources and Application of Operating Funding 2021-2022 to 2030-2031 - $000s[64]

Source	2020-2021 Annual Plan	2021-2022 LTP Year 1	2022-2023 LTP Year 2	2023-2024 LTP Year 3	2024-2025 LTP Year 4	2025-2026 LTP Year 5	2026-2027 LTP Year 6	2027-2028 LTP Year 7	2028-2029 LTP Year 8	2029-2030 LTP Year 9	2030-2031 LTP Year 10
Sources of Operating Funding											
General rates, uniform annual general charge, rates penalties	132	141	151	161	172	187	197	205	213	218	222
Targeted rates	871	932	1,000	1,066	1,136	1,235	1,304	1,353	1,405	1,440	1,470
Fees and charges	566	649	669	689	709	731	753	775	799	822	847
Total Operating Funding	**1,569**	**1,723**	**1,821**	**1,916**	**2,017**	**2,153**	**2,254**	**2,333**	**2,416**	**2,481**	**2,539**
Applications of operating funding											
Payment to staff and suppliers	1,297	1,463	1,509	1,542	1,577	1,616	1,655	1,701	1,750	1,802	1,850
Finance costs	5	1	1	1	1	1	2	1	1	1	1

[64] Rangitīkei District Council Framing Our Future: Long Term Plan 2021-31

Source	2020-2021 Annual Plan	2021-2022 LTP Year 1	2022-2023 LTP Year 2	2023-2024 LTP Year 3	2024-2025 LTP Year 4	2025-2026 LTP Year 5	2026-2027 LTP Year 6	2027-2028 LTP Year 7	2028-2029 LTP Year 8	2029-2030 LTP Year 9	2030-2031 LTP Year 10
Internal charges and overheads applied	143	195	245	307	372	464	526	559	586	600	610
Total Applications of Operating Funding	**1,445**	**1,659**	**1,754**	**1,850**	**1,950**	**2,081**	**2,182**	**2,262**	**2,337**	**2,402**	**2,461**
Surplus (deficit) of Operating Funding	**124**	**64**	**66**	**66**	**66**	**72**	**72**	**72**	**78**	**78**	**78**

Broadly, the management of waste in the Rangitīkei District is funded through a targeted rate which is set to increase each year along with an increase in uniform rates to provide services to a projected growing regional population. Annual projected surplus (deficit) funding is relatively consistent, between $64,000 (2021-2022) to $78,000 (2030-2031) each year.

4.2.5 Current Constraints and Future Opportunities for the Rangitīkei District

Considering the current Rangitīkei District waste profile, there are several areas which will help to inform and shape the strategic waste roadmap:

- Existing SWAP data suggests there is a quantity of recyclables and organic material in the kerbside waste bags that could be recovered and diverted from landfill. Under the new waste strategy, RDC is required to implement an urban kerbside collection service for food scraps by 2030.
- There is a central government directive for a kerbside recycling collection service to be in place by 2027 in all urban areas, accepting a standardised set of materials.
- Population growth in the District and wider region may place more pressure on existing RDC services and waste infrastructure. Investigate during Phase 2 the opportunity for additional and/or upgraded and/or expanded waste management facilities and infrastructure.
- Current central government product stewardship initiatives, including the potential implementation of a container return scheme may present opportunities for RDC, including the establishment of container return facilities. Although implementation has been deferred,[65]per c a future container return scheme may also have an impact on the quantity of recyclables dropped off to waste transfer stations and/or presented at kerbside.
- A council pre-implementation Waste Minimisation Fund (WMF) funding package is available for options assessments and/or business case development to support the development of a new kerbside organics collection service, funding up to 50 % of costs for a single council or public/private partnership, or 75 % for collaboration between two or more councils.
- Once the type of collection service is agreed, targeted WMF funding is available to councils for bin purchase. This provides a set amount per bin, increased by collaboration with other councils, and a per property contribution towards communication, marketing and education materials. It also allows for up to $50,000 towards coordination and project management costs for rollout.
- Investigation of the establishment of a network of Resource Recovery Centres throughout the Rangitīkei District with a connection throughout the Manawatu-Whanganui Region.

[65] In March 2023 the Prime Minister announced that the beverage container return schemed would be deferred, to allow further work to be done on the scheme and to delay imposing the small cost it would create for households.
https://www.beehive.govt.nz/release/freeing-more-government-bandwidth-and-money-focus-cost-living

- WMF funding is available towards planning, including feasibility and business case development, and implementation, including capital expenditure, of facilities for organic waste processing, and construction and demolition waste sorting. Transfer station upgrades that enable increased resource recovery are also eligible to apply. Unlike the targeted organic waste collection council funding, these types of projects would follow the contestable funding application pathway.

5 Overview of Other Aotearoa New Zealand Council Waste Management Models

5.1 Introduction

This section provides a high-level desk-based review of several Aotearoa New Zealand local government authorities and how each is managing current waste quantities, working towards recovering and recycling a larger proportion of waste and reducing waste to landfill.

The intent of this section is to provide a high-level summary, to identify opportunities and constraints of the respective models, lessons learned and key areas for RDC consideration.

The councils included in this high-level summary are Tauranga City Council, Hamilton City Council and Christchurch City Council.

5.2 Tauranga City Council Overview

The following list provides a high-level summary of Tauranga City Council's waste management model:[66]

- Four-bin rates-funded kerbside collection system, from 1 July 2021, approximately $230 including GST including cost of glass recycling:
  - Food scraps bin – collected weekly
  - Glass bin – collected fortnightly for glass bottles and jars, targeted rate $32.47 per 45 L bin for 2020-2021[67]
  - Recycling bin – collected fortnightly for plastics, steel, aluminium, paper and cardboard
  - Waste bin – collected fortnightly for materials that can't be reused, recycled or donated.
- Commercial green waste collections. Households can opt-in to a rates-funded monthly garden waste collection for $60 including GST for the first year
- The 2016-2022 WMMP noted the following proportions of waste being disposed of to landfill:
  - C&D waste 10%
  - Garden and food waste 32%
  - Recycling 17%
  - Residual waste 41%.
- Implementation of a kerbside mobile app for residents and ratepayers to access waste and recycling information easily
- Rates-funded service to enable Council to more effectively reduce waste to landfill through behaviour change and education initiatives. Council recognised that a large proportion of waste that could have been diverted and/or recycled was being disposed of to landfill
- Council is looking at opportunities to divert more C&D waste from landfill.

[66] Tauranga City Council Waste Management and Minimisation Plan 2016-2022
[67] https://www.tauranga.govt.nz/Portals/0/data/council/annual_plans/2020-2021/files/annual-plan-2020-2021.pdf

5.3 Hamilton City Council Overview

The following list provides a high-level summary of Hamilton City Council's (HCC) waste management model:[68]

- Four-Bin rates-funded kerbside collection system:
  - Food scraps bin – collected weekly
  - Glass bin – collected fortnightly for glass bottles and jars
  - Recycling bin – collected fortnightly for plastics, tins, cans, paper and cardboard
  - Waste bin – collected fortnightly for materials that can't be reused, recycled or donated
- Current waste management issues in the city and as reported in the WMMP include:
  - HCC directly manages less than a quarter of the waste generated in Hamilton with the limited ability to manage the remaining three quarters
  - Landfilling of waste is increasing
  - Recycling is decreasing
  - Lack of information and data
  - Need to develop infrastructure to cater for future growth
  - Design of new housing to meet storage and collection requirements
  - Illegal dumping and litter
  - Growth in specific waste streams, for example, e-waste and C&D
  - Central Government to provide greater clarity and direction for waste management and minimisation.
- Key future waste management challenges include:
  - Population growth and intensification
  - Economic growth
  - Increased C&D activity
  - Changes in lifestyle and consumption habits
  - Changes in the collection service or recovery of materials.

5.4 Christchurch City Council Overview

The following list provides a high-level summary of Christchurch City Council's waste management model:

- Three-Bin rates-funded collection system:
  - Organics bin – food and garden waste collected weekly
  - Waste bin – collected fortnightly for materials that can't be reused, recycled or donated. No hazardous material is accepted which can be dropped off free at the city EcoDrop location
  - Recycling - collected fortnightly for plastics, steel, aluminium, paper and cardboard. Container lids are disposed of in the waste bin

[68] Hamilton City Council Waste Management and Minimisation Plan 2018-2024

- Implementation of a 'Bin Good' mobile app for residents and ratepayers to access waste and recycling information easily
- Current MRF not designed to meet the strict contamination thresholds required internationally. In August 2020, *Manatū Mō Te Taiao* – Ministry for the Environment announced $16.8 million in funding to update the optical and mechanical sorting machines at the facility to support the collection of quality plastic and fibre materials
- A key challenge for the city is the discrepancy between public expectation and delivery
- Transition challenges including:
  - Planning waste under uncertainty, for example, international recycling markets and central government waste work programme
  - Climate change adaptation and ongoing management of closed landfills
- Operational challenges include:
  - The low price of glass and the transportation costs associated with moving material to the North Island for processing. At present glass collected from Christchurch is used locally by the construction industry
  - Contamination issues of recyclable material collected from kerbside and the ability for users to engage correctly with the three-bin system
  - Impacts of COVID-19 and the ability to maintain waste management facility functionality and maintain the quality of kerbside collected materials
- Rates to cover waste management, transfer stations, kerbside collection, processing and disposal costs, waste minimisation and education activities, landfill aftercare, are as follows:
  - Uniform annual general rate $132 per year
  - Waste minimisation targeted rate $203.85 per year
  - Residual waste is part-funded by the uniform charge while recycling and organics are funded by the targeted rate
  - Consideration is being given to differential charging, including the user pays
  - Christchurch City Council currently receive approximately $1.4 million annually from the Waste Levy to promote waste minimisation in line with the WMMP.
- Key WMMP objectives include:
  - Ensure waste management facilities and services maximise resource recovery and avoid adverse effects to people and the environment
  - Minimal contamination in kerbside recycling and organics collections
  - Greater collaboration with industry operators and central government
  - Reduce reliance on overseas markets for recyclable materials
  - Ensure waste management facilities support Council's climate change targets.

6 Recommendations

The following list provides several high-level recommendations to support the implementation of the Rangitīkei Waste Roadmap and update the WMMP 2018-2026:

- To increase ongoing awareness of Central Government legislative developments, establish and maintain relationships with Ministry staff through measures such as, informal and formal meetings and attendance and membership at working groups, including the Ministry updates and engagement opportunities run through WasteMINZ webinars and conference sessions.
    - The benefit of this is an ongoing relationship with Ministry staff and awareness of work programme developments and potential influences on the RDC waste work programme.
- A feasibility investigation to assess opportunities for establishing one or more community resource recovery centres in the Rangitīkei District.
    - The benefit of this is to determine if such an approach would support RDC's strategy to manage and minimise waste. The feasibility study would also assess factors such as financial viability, contracting options, location and available sites and end markets.
- Comprehensive review and assessment of the Rangitīkei District waste profile to identify a suite of future-focussed kerbside waste servicing options that will be efficient and effective in advancing 'zero waste' outcomes for residents and ratepayers in the Rangitikei District, while meeting national requirements for the rollout of standardised recycling and food scrap collections.
    - The benefit of this approach is the provision of model scenarios and outputs that assess the range of waste servicing models providing comprehensive information for Council decision making and detail the financial investment needed to underpin implementation and provision of enhanced waste services.

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