



Gisborne District Council Waste Assessment

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1 Introduction

This Waste Assessment has been prepared for Gisborne District Council (Council) by Eunomia Research & Consulting in accordance with the requirements of the Waste Minimisation Act 2008 (WMA). This document provides background information and data to support the Council's waste management and minimisation planning process.

1.1 Structure of this Document

This document is arranged into a number of sections designed to help construct a picture of waste management in Tairāwhiti (Gisborne Region). The key sections are outlined below.

Introduction

The introduction covers a number of topics that set the scene. This includes clarifying the purpose of this Waste Assessment, its scope, the legislative context, and key documents that have informed the assessment.

Tairāwhiti

This section presents a brief overview of key aspects of the region's geography, economy, and demographics that influence the quantities and types of waste generated and potential opportunities. It also provides an overview of regional waste facilities, and initiatives that may be of relevance to how the district manages its waste.

Our District

This section presents a brief overview of key aspects of the district's geography, economy, and demographics that influence the quantities and types of waste generated and potential opportunities.

Waste Infrastructure, Services, Data and Performance Measurement

These sections examine how waste is currently managed, where waste comes from, how much there is, its composition, and where it goes.

Gap Analysis and Future Demand

This section provides an analysis of what is likely to influence demand for waste and recovery services in the district and region and identifies key gaps in current and future service provision, and in the Council's ability to promote effective and efficient waste management and minimisation.

Statement of Options & Council's Proposed Role

These sections develop options available for meeting the forecast future demand and identify the Council's proposed role in ensuring that future demand is met, and that Council is able to meet its statutory obligations.

Statement of Proposals

The statement of proposals sets out what options are available to meet the projected demand or address the key issues. The proposals will be assessed against the strategic direction of Council, and preferred options will be carried forward into a new or revised Waste Management and Minimisation Plan (WMMP).

Appendices

The appendices include the consultation response from the Medical Officer of Health as well as additional detail on the national context.

1.2 Purpose of this Waste Assessment

This Waste Assessment is intended to provide an initial step towards the development of a WMMP and sets out the information necessary to identify the key issues and priority actions that will be included in the draft WMMP.

Section 51 of the WMA outlines the requirements of a waste assessment, which must include:

- a description of the collection, recycling, recovery, treatment, and disposal services provided within the territorial authority's district;
- a forecast of future demands;
- a statement of options;
- a statement of the territorial authority's intended role in meeting demands;
- a statement of the territorial authority's proposals for meeting the forecast demands; and
- a statement about the extent to which the proposals will protect public health, and promote effective and efficient waste management and minimisation.

1.3 Legislative Context

The principal solid waste legislation in New Zealand is the Waste Minimisation Act 2008 (WMA). The stated purpose of the WMA is to:

- “encourage waste minimisation and a decrease in waste disposal in order to
- (a) protect the environment from harm; and
 - (b) provide environmental, social, economic, and cultural benefits.”

To further its aims, the WMA requires territorial authorities (TAs) to promote effective and efficient waste management and minimisation within their district. To achieve this, the WMA requires that all TAs adopt a WMMP.

The WMA requires every TA to complete a formal review of its existing waste management and minimisation plan at least every six years. The review must be consistent with WMA sections 50 and 51.

Section 50 of the WMA also requires all TAs to prepare a ‘waste assessment’ prior to reviewing its existing plan. This document has been prepared in fulfilment of that requirement. The Council’s existing Waste Assessment was produced in 2017, and the resulting WMMP was adopted in 2018 with a review required by May 2024.

Further detail on key waste-related legislation is contained in Appendix A.4.0.

1.4 Scope

1.4.1 General

As well as fulfilling the statutory requirements of the WMA, this Waste Assessment will build a foundation that will enable Council to review and/or update its WMMP in an informed and effective manner, as required. In preparing this document, reference has been made to the Ministry for the Environment's 'Waste Management and Minimisation Planning: Guidance for Territorial Authorities'¹, while noting that this guidance dates back to 2015 and has, to an extent, been superseded through practice.

A key aspect of this Waste Assessment will be forming a clear picture of waste flows and management options in the district. The WMA requires that a waste assessment must contain:

"A description of the collection, recycling, recovery, treatment, and disposal services provided within the territorial authority's district (whether by the territorial authority or otherwise)".

This means that this Waste Assessment must take into consideration all waste and recycling services carried out by private waste operators as well as Council's own services. While the Council has reliable data on the waste flows that it controls, data on those services provided by private industry is limited. Reliable, regular data on waste flows is important if the TA chooses to include waste reduction targets in their WMMP. Without data, targets cannot be readily measured.

The New Zealand Waste Strategy 2023 also repeatedly refers to central and local councils as being the key agencies by which many goals could be achieved.

1.4.2 Period of Waste Assessment

The WMA requires WMMPs to be reviewed at least every six years, but it is considered prudent to take a longer-term view. The horizon for the WMMP is not fixed but is assumed to be centred on a 10-year timeframe, in line with council long term plans (LTPs). For some assets and services, it is necessary to consider a longer timeframe and this is taken into account where appropriate. Therefore, the period of the Waste Assessment looks forward over at least the next ten years, and sometimes longer (in the case of facilities, e.g. landfill consenting).

1.4.3 Consideration of Solid, Liquid and Gaseous Wastes

The guidance provided by the Ministry for the Environment on preparing Waste Management and Minimisation Plans states that:

"Councils need to determine the scope of their WMMP in terms of which wastes and diverted materials are to be considered within the plan".

¹ Ministry for the Environment (2015), Waste Management and Minimisation Planning: Guidance for Territorial Authorities

The guidance further suggests that liquid or gaseous wastes that are directly managed by a TA, or are disposed of to landfill, should be seriously considered for inclusion in a WMMP.

Other wastes that could potentially be within the scope of the WMMP include gas from landfills and the management of biosolids from wastewater treatment plant (WWTP) processes.

The nearest municipal disposal point to Tairāwhiti is the Hastings District Council's Omarunui landfill. Waste Management's Tirohia Landfill in Paeroa, which has a landfill gas capture system in place, is currently used for waste disposal from Tairāwhiti. The northern part of the district has access to the Waiapu Landfill in Ruatōria, which is consented until 2025.

In line with the Council's previous WMMP, this Waste Assessment is focused on solid waste that is disposed of to land or diverted from land disposal, including solid waste collected and disposed of by commercial enterprise as well as waste collected by the council.

1.4.4 Public Health Issues

Protecting public health is one of the original reasons for local authority involvement in waste management. Te rautaki para, the new Waste Strategy, refers to protection of human health as one of the outcomes from successful recovery of resources.

Protection of public health is currently addressed by a number of pieces of legislation. Discussion of the implications of the legislation is contained in Appendix A.4.0.

1.4.4.1 Key Waste Management Public Health Issues

Key issues that are likely to be of concern in terms of public health include the following:

- Population health profile and characteristics
- Meeting the requirements of the Health Act 1956
- Management of putrescible wastes
- Management of nappy and sanitary wastes
- Potential for dog/seagull/vermin strike
- Timely collection of material
- Locations of waste activities
- Management of spillage
- Litter and illegal dumping
- Medical waste from households and healthcare operators
- Storage of wastes
- Management of biosolids/sludges from WWTP
- Management of hazardous wastes (including asbestos, e-waste, etc.)
- Private on-site management of wastes (i.e. burning, burying)
- Closed landfill management including air and water discharges, odours and vermin
- Health and safety considerations relating to collection and handling.

1.4.4.2 Management of Public Health Issues

From a strategic perspective, the public health issues listed above are likely to apply to a greater or lesser extent to virtually all options under consideration. For example, illegal

dumping tends to take place ubiquitously, irrespective of whatever waste collection and transfer station systems are in place.

Some systems may possibly exacerbate the problem (infrequent collection, user-charges, inconveniently located facilities etc.) but, by the same token, the issues can be managed through methods such as enforcement, education and by providing convenient facilities. It is also known that illegal dumping continues to be a problem even in areas where disposal is free of charge.

In most cases, public health issues will be able to be addressed through setting appropriate performance standards for waste services. It is also important to ensure performance is monitored and reported on and that there are appropriate structures within the contracts for addressing issues that arise.

There has been an observed added emphasis on workplace health and safety under the Health and Safety at Work Act 2015. This legislation can impact on, for example, the choice of collection methodologies and working practices and the design of waste facilities.

In addition, public health impacts will be able to be managed through consideration of potential effects of planning decisions, especially for vulnerable groups. That is, potential issues will be identified prior to implementation so they can be mitigated for.

1.5 Strategic Context

1.5.1 New Zealand Waste Strategy

The 2023 New Zealand Waste Strategy is the first time New Zealand's national strategic direction for waste has been reviewed since 2002, and unsurprisingly takes quite a different approach to the previous Strategy.

The vision of the 2023 New Zealand Waste Strategy, Te rautaki para, is:

“By 2050, Aotearoa New Zealand is a low-emissions, low-waste society, built upon a circular economy.

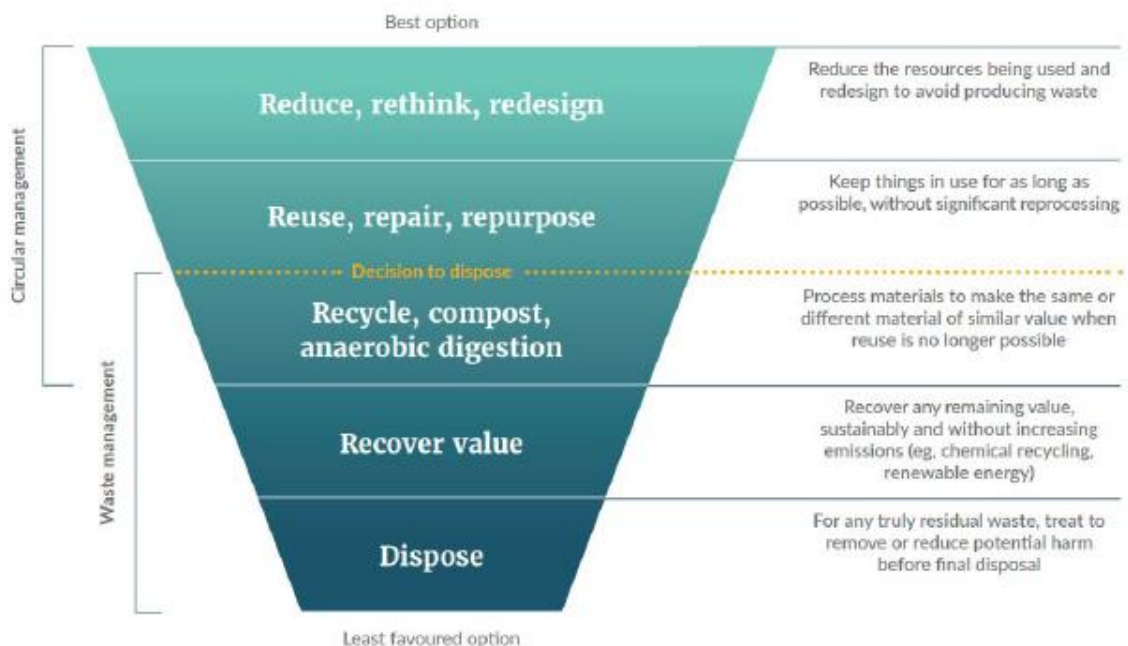
We cherish our inseparable connection with the natural environment and look after the planet's finite resources with care and responsibility”

This vision is supported by six guiding principles:

- 1) Take responsibility for how we make, use, manage and dispose of things
- 2) Apply the waste hierarchy preferences to how we manage materials
- 3) Protect and regenerate the natural environment and its systems
- 4) Deliver equitable and inclusive outcomes
- 5) Ensure our systems for using, managing and disposing of materials are financially sustainable
- 6) Think across systems, places and generations

A revised waste hierarchy is set out (shown below), intended to illustrate which options are the best, and which are least favoured. While many versions of the waste hierarchy exist, the one in the strategy is intended to be simple and easy to understand.

Figure 1: Revised Waste Hierarchy



The strategy has three phases:

- 1) Embedding circular thinking into systems (by 2030)
- 2) Expanding to make circular normal (to 2040)
- 3) Helping others do the same (by 2050)

Each of the three phases has associated goals, some of which are particularly relevant to a Waste Assessment and WMMP process; others more relevant to central government, the wider public, the community/private sector, or other local government roles such as contaminated land management.

The key role for local government is described in the Strategy as:

- getting involved in implementing the strategy and the process of developing the action and investment plan – using the strategy as a starting point for WMMPs;
- looking for opportunities to work with other councils, particularly on facilities and services that support a ‘national circular resource management network’;
- supporting local community groups and non-governmental organisations with waste reduction initiatives;
- incorporating national behaviour change programmes in local activity;
- ensuring planning and consenting processes consider the need for waste management infrastructure and services; and
- planning and resourcing contaminated land management including vulnerable landfills.

The Strategy has three targets to be achieved by 2030:

- 1) Reduce waste generation by 10% per person
- 2) Reduce waste disposal by 30% per person
- 3) Reduce biogenic methane emissions from waste by at least 30%

However, at this point no baseline has been set.

Further detail on the implications of the Waste Strategy is set out in Appendix A.4.1.

Section 44 of the WMA requires councils to have regard to the NZWS when preparing their WMMP. For the purpose of this Waste Assessment, we have given regard to Te rautaki para and Council's current WMMP.

These sections are discussed in more detail in Appendix A.4.0.

1.5.2 Emissions Reduction Plan

The Climate Change Commission (CCC) was established to provide impartial expert evidence to government to support initiatives that would reduce greenhouse gas emissions and address climate change mitigation and adaptation, contributing towards the goals set out in the Climate Change Response Act 2002.

The CCC reviewed the waste sector as part of its work during 2020 and 2021 and has provided its final advice to government with respect to this sector, amongst others, in the Emissions Reduction Plan (May 2022)².

The advice of the CCC is that unless waste management practices and policy settings in New Zealand change significantly, we will not meet the targets set in the 2002 Act – *“current policies will not deliver the emissions reductions we must achieve.”* Comprehensive action is required to reduce waste overall, divert waste from landfill disposal, and improve/extend landfill gas capture systems.

The main source of biogenic methane emissions from the waste sector is the anaerobic decomposition of organic wastes in landfill (94% in 2019).

The key actions for the waste sector are:

- enable households and businesses to reduce organic waste (reduction of food scraps at home and in businesses, and participation in improved kerbside collections);
- divert more organic waste from landfill (improve household kerbside collections of food and garden waste, invest in processing and recovery infrastructure for organics, require organic waste to be separated);
- reduce and divert construction and demolition waste (minimisation, sorting and processing infrastructure, separation of material);
- bans or limits for organic waste to landfill – potentially by 2030;
- increase gas capture from Class 1 landfills (regulations requiring gas capture, investigate additional gas capture); and
- improve waste data including a national operator licensing scheme (which will improve information on greenhouse gas emissions).

The Plan includes a 'waste pathway to 2035' which is highly consistent with the New Zealand Waste Strategy. Key actions over the next ten years include:

- 2023: organic waste prevention programmes and increased investment in resource recovery

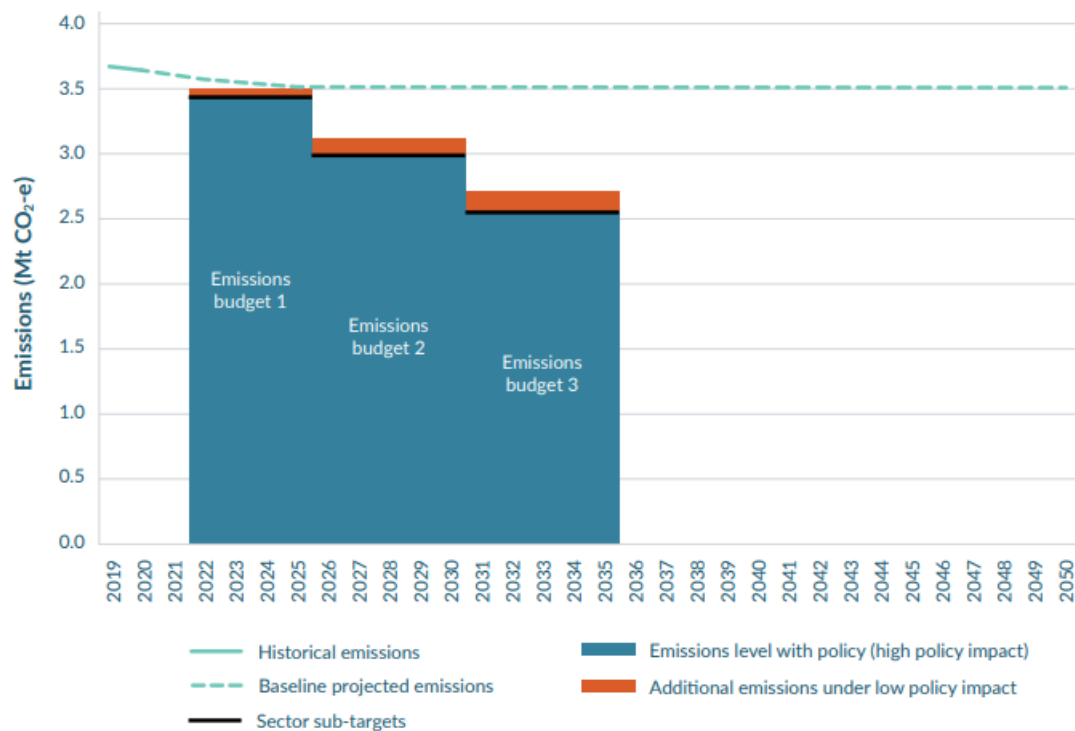
² <https://environment.govt.nz/assets/publications/Aotearoa-New-Zealands-first-emissions-reduction-plan.pdf>

- 2024: new waste legislation, national waste reporting, wider coverage of kerbside organics collections, more organics recovery/processing
- 2025: new regulations to drive emissions reduction, national waste licensing, all Class 1 landfills capturing gas
- To 2030: possibly organic waste landfill limits or bans
- To 2035: target of 40% reduction in biogenic methane (from 2017 levels)

New Zealand has a long-term target of net zero greenhouse gases by 2050, and a specific target for biogenic methane of 24 – 47% reduction by 2050 under the Climate Change Response Act (2002 Act).

It is worth noting that even with all of the initiatives proposed this would still fall short of achieving the first sub-target for the waste sector (2022 – 2025) but will come very close to the target in the period 2026 – 2035, as shown in the chart below:

Figure 2: Total projected methane emissions from waste showing the impact of proposed combined waste policy options



Source: Ministry for the Environment. 2022. *Te hau mārohi ki anamata | Towards a productive, sustainable, and inclusive economy*. Wellington: Ministry for the Environment. This assumes 40% of food waste diverted to composting and 60% to anaerobic digestion and 100% of green waste to composting.

1.5.3 Waste Minimisation Act 2008

As signalled during consultation and in the recently released *Te rautaki para | New Zealand Waste Strategy*, MfE is also currently working on a review of the WMA to improve or amend provisions and consider new provisions. The provisions for use of landfill levy funds and the administrative and decision-making processes around this use will also be reviewed and improved. As for the waste strategy, consultation on possible changes took place during November/December 2021.

This review will also consider whether, and how, the Litter Act (1979) could be reviewed to better integrate with and support the WMA. In July 2023, MfE proactively released cabinet papers, a regulatory impact statement, and minutes of decisions for the initial stages of this process (occurring during March 2023). These proposals include the intention to replace the WMA and the Litter Act with a new single Act.

The WMA has been amended by the 2021 waste disposal levy regulations³, which set out the progressive increase and expansion of the landfill levy starting 1 July 2021; and supplemented by regulations banning specific items, including microbeads⁴ (2017), plastic shopping bags⁵ (2018), and numerous tranches of plastics packaging during 2022 and 2023, as described in section 1.5.6.5

Currently, the WMA provides for half of the revenue from the waste levy to be distributed to territorial authorities (TAs). These funds are provided pro rata, based on population, and must be spent on waste minimisation and in accordance with each authority's WMMP.

The waste disposal levy is outlined further in the following subsection.

1.5.4 Waste Disposal Levy and Information Reporting

In April 2021 the government introduced regulation to expand the scope of the levy from Class 1 landfills to also include classes 2-4,⁶ and to require operators of industrial Class 3 monofills and Class 5 fills to report data on the quantity of waste received. Section 2.1 defines the different types and classes of fills.

The table below shows the timetable and rates for the new levy regime:

Table 1: Levy Rates by Disposal Facility Type and Year

DISPOSAL FACILITY CLASS	1-Jul-21	1-Jul-22	1-Jul-23	1-Jul-24
Municipal landfill (class 1)	\$20	\$30	\$50	\$60
Construction and demolition fill (class 2)		\$20	\$20	\$30
Managed fill (class 3)			\$10	\$10
Controlled fill (class 4)			\$10	\$10

<https://www.mfe.govt.nz/waste/waste-and-government>

As the landfill levy is expanded and raised, there will be an impact on the quantity of material going to the different destinations; however, the extent to which this occurs, and

³ <https://www.legislation.govt.nz/regulation/public/2021/0068/latest/LMS474556.html#LMS474591>

⁴ https://www.legislation.govt.nz/regulation/public/2017/0291/latest/DLM7490715.html?search=ts_act%40bill%40regulation%40deemedreg_microbeads_resel_25_a&p=1

⁵ <https://www.legislation.govt.nz/regulation/public/2018/0270/6.0/whole.html>

⁶ <https://www.legislation.govt.nz/regulation/public/2021/0069/latest/whole.html>

for which materials, depends on a number of other factors. The potential impacts are explored further in appendix A.4.0.

The requirement for all fills to at least report data on the quantity of waste received will provide much greater understanding of the role that all types of facilities play in waste management. These requirements take effect from the beginning of 2023 at the latest with Class 3/4 disposal facilities, cleanfills, transfer stations, and industrial monofills the last to start reporting (from 1 January 2023).

Anecdotally, there is evidence that some facilities are choosing to close rather than comply with the requirements to register and pay the levy and/or report waste quantities.

1.5.5 Emissions Trading Scheme (ETS)

Since 2013, Class 1 landfill owners have been required by the Climate Change (Emissions Trading) Amendment Act 2008 to surrender emission units to cover methane emissions. If any solid waste incineration plants are constructed, this act would also require emission units to be surrendered to cover greenhouse gas emissions from the incineration of household wastes.

The number of emissions units that need to be surrendered is based on a calculation of how much methane is generated from a tonne of waste. As a starting point, landfills use a default emissions factor for waste (DEF). This is the methane assumed to be generated by each tonne of waste and is currently set at 0.91 tonnes of CO₂-e (CO₂ equivalent) per tonne of waste.

However, landfill operators can reduce their liabilities under the ETS through use of a unique emissions factor (UEF). The UEF is a calculation of methane released by the specific landfill. This can be done by either capturing the methane that is generated or showing (based on the type of waste going into the landfill) that the landfill generates a different amount of methane to the default.

1.5.5.1 Carbon Price

The other component of the calculation of a landfill's liability under the ETS is the price of carbon. New Zealand units (NZU)⁷ currently change hands for between \$70 and \$85, with prices at \$77.50 at the time of writing⁸.

The cost of NZUs has been increasing steadily for the last couple of years, due largely to changes made to the types of offsets that are eligible under the ETS. Class 2-5 landfills and closed landfills (along with certain other excluded landfills) are not currently covered by the ETS.

The implications of the ETS and carbon prices are explored further in appendix A.4.8

⁷ NZUs are carbon credits that are officially accepted to offset liabilities under the NZETS

⁸ Accessed from <https://www.carbonnews.co.nz/tag.asp?tag=Carbon+prices>

1.5.6 Other Relevant Initiatives

1.5.6.1 Container Return Scheme

Container return schemes (CRS) place a deposit on all containers when sold. This deposit can then be redeemed by consumers when they return the containers. These schemes are in wide use worldwide including Australia and are designed to promote higher rates of recovery of containers and reduce littering by providing an incentive to consumers.

In 2019, a WMF-funded project led by Auckland Council and Marlborough District Council embarked on the research and design of a potential container return scheme for New Zealand. The outcomes from this project were reported to MfE, who have analysed the information and produced advice for ministers.

MfE consulted on a detailed implementation proposal for a container return scheme in New Zealand. This was included in the 'Transforming Recycling' consultation document.

The consultation document proposed a deposit of 20c per container for a wide range of beverage containers, excluding 'fresh milk' (the logic being that this product is rarely consumed outside the home). Depending on the details of the eventual CRS, and the extent to which containers may be captured in the scheme, two key effects on household kerbside recycling collections are likely:

- The quantity of containers collected in a kerbside collection would reduce; and
- The value of containers that are part of the CRS, but are still collected in a kerbside collection, will likely result in income for the 'owner' of the items. Usually, the owner is either the Council and/or its contractor.

Possible implications for Councils may be that the frequency of recycling collections could be reduced due to lower volumes of material.

In early 2023, government announced that the CRS development would be put on hold. This position has since been softened to a 'delay' but it remains unclear when, or how, a CRS would be introduced for New Zealand.

1.5.6.2 Kerbside Standardisation

In 2019, WasteMINZ was commissioned by MfE to complete a national review of kerbside collections and make recommendations as to how to achieve consistency across the country. The report was completed in 2020⁹, and MfE then considered implementing the three main recommendations:

1. A standard set of items accepted in kerbside recycling collections
2. Glass collected separately to other material streams
3. A weekly kerbside food scraps collection service for households.

⁹ <https://www.wasteminz.org.nz/wp-content/uploads/2020/08/Final-1.0-Standardising-Kerbside-Collections-in-Aotearoa.pdf>

MfE consulted on a detailed implementation proposal for kerbside standardisation in New Zealand. This was included in the 'Transforming Recycling' consultation document¹⁰.

The proposals included, alongside the points above from the original review, options to achieve the diversion of food scraps from businesses. The three possible options set out in the consultation document are:

- Phasing in source-separation of food scraps only from businesses that produce or sell food;
- Phasing in source-separation of food scraps from all businesses; or
- Prohibiting the disposal of food scraps to landfill entirely (which would also preclude disposal of food scraps from household sources).

In March 2023, MfE announced its decisions regarding kerbside standardisation alongside the release of Te rautaki para | New Zealand Waste Strategy. The key aspects are:

- Standardising materials in existing council kerbside recycling collections by 1 February 2024 to glass bottles and jars, paper and cardboard (including pizza boxes), plastic bottles and containers grades #1, #2, and #5, and aluminium/steel tins and cans.
- Requiring council kerbside recycling to be provided to households in urban areas (defined as those with more than 1000 people¹¹) by 2027
- Council food scraps collections to be provided to households in urban areas (defined as above) by 2030, or earlier if a nearby processing option is available¹²

MfE advise it will also be working on business food scrap diversion by 2030.

Kerbside standardisation excludes gabletop/liquid paperboard containers, foil, aerosols, soft plastics, polystyrene, and plastic bottles and containers other than those mentioned above. Councils will have the discretion to choose whether or not to include compostable bin liners in organics collections, and can also choose whether to collect glass separately or comingled with other materials.

Kerbside standardisation will only apply to council-provided services (either in-house or via a contractor) for now, with the hope that the private and community sector will choose to align their kerbside services with these requirements. However, MfE have indicated that they intend to provide for kerbside standardisation to be regulated more widely through the new version of the WMA.

The kerbside standardisation changes also include performance standards for household waste kerbside diversion, and reporting requirements for private waste companies.

The performance standards relate to kerbside recycling and food waste, and set an increasing proportion of all household kerbside waste (including that handled by private collections) diverted from landfill:

- 30% by July 2026

¹⁰ <https://environment.govt.nz/assets/publications/Transforming-recycling-consultation-document.pdf>

¹¹ As defined by StatsNZ as 'small urban areas', and shown on the StatsNZ Arc GIS system based on 2022 data.

¹² Defined as within 150km of a 'main centre'.

- 40% by July 2028
- 50% by July 2030

Councils that do not comply with the requirements to collect a standard set of kerbside recycling materials, and/or meet the minimum diversion requirements, can have all or part of their waste levy allocation withheld. Once withheld, this is not available at a later date (i.e. even if the council becomes compliant shortly after the due date, the levy funds will not then be released). Councils and private collectors will report their diversion figures to MfE, and MfE will advise the overall performance for the district or city.

Councils that do not comply with the requirement to provide a kerbside recycling and food scraps collection service to householders in applicable urban areas will not, at this point, have waste levy funds withheld; however, it is likely that there will be regulatory requirements introduced for these aspects at a later date, and it would be very difficult for a council to achieve the minimum diversion requirements without having these services in place.

The performance requirements will be enacted by a gazette notice under the WMA, and the two household kerbside collection provisions will be enacted by a regulation issued by the Governor-General.

Tairāwhiti's recycling collection service is fully aligned with kerbside standardisation requirements; however, Council does not currently offer a food scraps collection service and this service will need to be offered by 1 January 2030. The only area that kerbside collections must be provided to in the district, under the government's requirements, is Gisborne city itself.

1.5.6.3 TA Performance Reporting

In addition to the proposals for a container return scheme and the standardisation of kerbside recycling, the MfE's consultation also covered a number of related issues.

One of these was the requirement for TAs to report to MfE on a number of performance standards/targets; including a minimum 50% diversion standard for dry recyclables and food scraps in kerbside collections. This is supported by a 70% high performance 'stretch target' which would be non-enforceable, but is intended to further encourage and motivate TAs.

The proposal was that the minimum standard would need to be achieved by 2030, to align with timeframes proposed in the draft New Zealand Waste Strategy and the ERP.

Some TA performance targets have now been confirmed in the outcomes from the kerbside standardisation, as discussed in the section above.

1.5.6.4 Priority Products

The WMA enables a product to be named as a 'priority product'. Once a product has been named such, an extended producer responsibility approach must be taken and a regulated product stewardship scheme development.

The first six priority products were named under the WMA in 2020 (shown below) and subsequently single-use packaging has been added. The first seven priority products named are:

1. Plastic packaging

2. Tyres
3. Electrical and electronic products (e-waste including large batteries)
4. Agrichemicals and their containers
5. Refrigerants
6. Farm plastics
7. Single-use plastic packaging

MfE has taken a 'co-design' approach, which involves industry developing and operating product stewardship schemes with central government oversight. Progress on the schemes, and parties involved, are summarised below.

Table 2: Product Stewardship Schemes

Priority product	Progress made	Lead agency/ies
Tyres	Consultation on proposed regulations late 2021 Scheme accredited October 2020 Regulation in effect from late 2023 The waste minimisation regulations for tyres come into effect from March 2024	Tyrewise
Large batteries	Consultation on proposed regulations late 2021 Accreditation expected late 2023 Regulation in effect from 2024	Battery Industry Group
Refrigerants (and other synthetic greenhouse gases)	Consultation on regulations in late 2022 Scheme accreditation mid 2023 Regulation in effect from 2024	Synthetic Refrigerant Stewardship group
Farm plastics, agrichemicals and containers (farm waste)	Consultation on regulations planned late 2023	The Agrecovery Foundation
Electrical and electronic products (e-waste)	Scheme design in 2023 Consultation on regulations in 2024	TechCollect
Plastic packaging	Co-design underway	Packaging Forum and Food & Grocery Council

1.5.6.5 Product Bans

In April 2022, MfE announced that regulations had been passed to enable the implementation of the first tranche of bans for problematic plastic items. These regulations include:

- Plastic cotton buds;
- Plastic drink stirrers;
- Oxo- and photo-degradable plastic products;
- Certain PVC food trays and containers (pre-formed and rigid);
- Polystyrene takeaway packaging; and
- Expanded polystyrene food and beverage packaging.

The bans took effect from 1 October 2022.

From 1 July 2023, the following plastic items have been banned:

- Single-use plastic produce bags;
- Single-use plastic tableware and cutlery;
- Plastic straws¹³; and
- Non-home compostable plastic produce labels (phase-out by 2030)¹⁴.

One more 'tranche' of bans is planned. From mid-2025, all other PVC and polystyrene food and beverage packaging will also be banned.

1.5.6.6 Infrastructure Investment Strategy

With the increased and expanded landfill levy comes an increased pool of funds that can be invested in waste management and minimisation initiatives.

MfE is developing a proactive strategic investment plan for waste infrastructure, supported by a detailed stocktake of current infrastructure and prioritisation of possible new infrastructure. The goal of this work is to give a national view of the waste investment New Zealand needs over the next 15 years.

The outcomes will be incorporated into the action and investment plan that will supplement Te rautaki para, and will be released in the first half of 2024.

In April 2023, MfE released a summary report of the infrastructure assessment carried out by Eunomia in 2021¹⁵.

1.5.6.7 Data and Monitoring

Alongside the increase and expansion of the waste levy, MfE is developing protocols to collect data from the additional facilities that will now be paying the landfill levy (Class 2-4 landfills).

¹³ Apart from sales to disabled people and those with health conditions

¹⁴ Produce labelled before 1 July 2023, and already in the supply chain, is not affected. Label adhesive, and labels on imported produce, must be home compostable by 1 July 2025.

¹⁵ Eunomia (2023) "Waste and Resource Recovery Infrastructure and Services Stocktake Summary Report", available at www.mfe.govt.nz

MfE has also adopted regulations that enable the collection of some data from Class 5 fills and transfer stations¹⁶, and has proposed an approach for performance reporting by TAs in the current consultation. These protocols will be included in the revised National Waste Data Framework, which will be completed in mid-2023.

MfE has also indicated that it is likely the new Waste Minimisation Act will also include requirements for waste operators to be licensed by a central agency, and to report data on the quantities of waste handled; and that requirements for construction site waste management plans (SWMP) will be included in a revision of the Building Act. It is not clear what the timeframes or specific requirements will be for these.

1.5.7 Resource Management Act Review

Government has resolved to replace the Resource Management Act (RMA) with two new Acts; the Spatial Planning Act, and the Natural and Built Environment Act. These are currently making their way through Parliament as Bills.

The increased abilities and requirements for spatial planning will have a positive impact on waste management; in particular infrastructure, as demand and supply of waste infrastructure will be an essential consideration under a spatial planning approach.

However, there is no specific reference to waste in the Bills, and so the extent to which waste planning will be undertaken successfully for Tairāwhiti (by the applicable Regional Planning Committee) will depend on local implementation of the provisions.

The Bills both propose a more significant role for iwi in regional-scale planning, which could result in an approach that is more aligned with te ao Māori principles and a circular economy approach to waste management and minimisation.

1.5.8 International Commitments

New Zealand is party to the following key international agreements:

- 1) Montreal Protocol – to protect the ozone layer by phasing out the production of numerous substances
- 2) Basel Convention – to reduce the movement of hazardous wastes between nations
- 3) Stockholm Convention – to eliminate or restrict the production and use of persistent organic pollutants
- 4) Waigani Convention – bans export of hazardous or radioactive waste to Pacific Islands Forum countries.

These agreements are explained in more detail in appendix A.4.0.

1.6 Local and Regional Planning Context

This Waste Assessment and the resulting WMMP will have been prepared within a local and regional planning context whereby the actions and objectives identified in the Waste Assessment and WMMP reflect, intersect with, and are expressed through other planning

¹⁶ <https://www.legislation.govt.nz/regulation/public/2021/0069/latest/whole.html>

documents. Key planning documents and waste-related goals and objectives are noted in this section.

1.6.1 Long Term Plan

Council's current LTP was adopted in June 2021, with Council's purpose stated as *"Tairāwhiti rise up! It all starts here. Let's navigate our opportunities and challenges together to make our community proud"*.

The LTP includes a number of community outcomes, which describe how Council aims to meet the needs of the community:

- The community becomes part of and shares with Council the responsibility for service provision
- Clean public places and amenities are maintained to enhance community and visitors' enjoyment of the city and townships
- A strong focus on sustainability; working with community groups to promote increased waste minimisation and diversion from landfill

The LTP highlights a few demographic factors with particular impacts on solid waste management, such as:

- a faster-growing population than predicted could mean demand exceeds planned expansion in services and infrastructure;
- an increase in organic waste due to over-catering at age care facilities;
- urban growth will invariably put pressure on existing Council services and infrastructure within Tairāwhiti; and
- rural population decline may affect the viability of Council services in townships.

Several waste-related projects are planned during the term of the LTP:

- continue remediation of the Pāōkahu closed landfill and Awapuni lagoon waterways;
- continue with maintenance and ongoing remedial work to maintain consent compliance at the closed Pāōkahu landfill site;
- increase infrastructure capacity within the district in order to 'best deal with waste and promote healthy competition at tender time'; and
- works to remediate land at the Waiapu landfill pending decisions on the long-term viability of the site.

The principal goal for solid waste management is "to provide an effective and efficient service for households and businesses to dispose of waste at an affordable cost, and encourage practices that minimise waste generation". This is strongly aligned with the goals of the previous New Zealand Waste Strategy.

1.6.2 Gisborne District Council

The Gisborne Tairāwhiti Resource Management Plan (TRMP) became operative on 30 August 2023. The TRMP provides an overview of the resource management issues in Tairāwhiti, and the objectives, policies and methods to achieve integrated management of natural and physical resources. Other Regional Plans and District Plans cannot be inconsistent with the TRMP.

Part B5, Waste Management and Hazardous Substances, contains objectives and policies for waste management in the region and methods to achieve them.

Part B5.3, Producers and consumers generate excessive waste, contains objectives and policies for waste minimisation.

Objective B5.3.1 – Minimise the generation of waste

Adverse effects on the environment are avoided by minimising the generation of solid, hazardous and liquid waste.

Policy B5.3.2 – Waste management hierarchy

To apply the principles of the 5Rs (Reduce, Reuse, Recycle, Recover, Residual waste management) hierarchy to the management of all waste streams.

This policy implements the following objective: Objective B5.3.1

Methods:

The Gisborne District Council:

Will: (1) Develop performance standards as a part of its regional plan provisions dealing with waste management. (2) Collect solid waste stream data in a manner consistent with the Ministry for the environment waste analysis protocol. (3) Establish criteria which describe how the adequacy of waste treatment or disposal activities will be assessed. (4) Take into account and rely on, wherever possible, national legislation, national guidelines, industry codes of practice and other relevant documents.

Part B5.4, The transportation, treatment, disposal and storage of solid waste.

Objective B5.4.1 – Minimise adverse effects of waste

Adverse effects on the environment caused by residual waste and its management are avoided, remedied or mitigated.

Policy B5.4.2 – Waste management

To provide for collection and disposal of solid wastes for those communities where an adverse effect on their environment would result, or has resulted, through non-collection of solid wastes.

This policy implements the following objective: Objective B5.4.1

Methods:

The methods for this issue are the same as the methods in section B5.3.2.

Part B5.5, The disposal of hazardous waste without damage to the environment.

Objective B5.5.1 – Protection of human health and the environment

Protection of human health and the environment from the actual and potential adverse effects arising from storage, transport, treatment and disposal of hazardous wastes.

Policy B5.5.2 – Hazardous waste management

Ensure that all hazardous wastes are disposed of in a manner and facility approved by the Council and to provide effective facilities for recording, managing and disposing of hazardous wastes.

Methods:

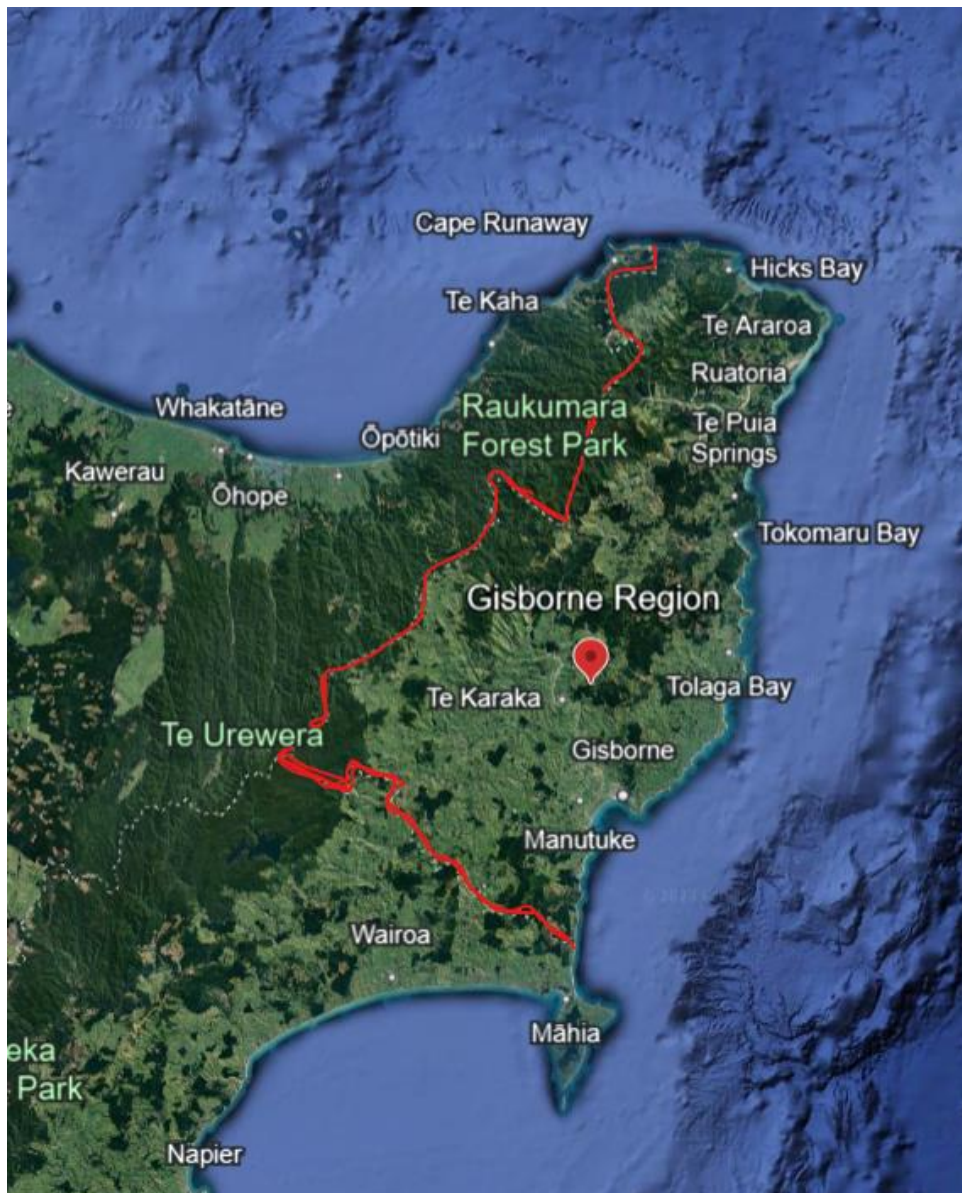
The methods for this issue are the same as the methods in section B5.3.2.

1.7 Tairāwhiti

This section presents a brief overview of key aspects of the district's geography, economy, and demographics. These key aspects influence the quantities and types of waste generated and potential opportunities for the Council to manage and minimise these wastes in an effective and efficient manner.

The figure below shows Tairāwhiti - the Gisborne region.

Figure 3: Tairāwhiti - The Gisborne Region



Source: Google Earth Pro

Gisborne city is the district's principal settlement, and along with other townships such as Hicks Bay, Manutūkē, Patutahi, Ruatōria, Tikitiki, Te Puia Springs, Te Araroa, Te Karaka,

Tokomaru Bay and Tolaga Bay accounts for more than 80% of the population. The district also has a number of smaller villages and coastal settlements.

The 2021 LTP estimated the 2021 population of the district to be 50,243 (around 16,509 households), with the population expected to be approximately 58,000 by 2033.

The average household size is currently 2.8, and slightly higher than the national average of 2.7 people per household.

Tairāwhiti's population have the highest proportion of under 25s in New Zealand, with 39% being under 25, compared to the overall New Zealand count of 33% and 16.2% of people are over the age of 65; compared to the New Zealand average of 15.2%.

1.7.1 Tangata Whenua

Tairāwhiti has seven recognised iwi in the region; Ngāti Porou, Te Aitanga-a-Māhaki, Rongowhakaata, Ngai Tāmanuhiri, Te Whānau-a-Kai, Ngā Ariki Kaipūtahi, and the iwi and hapū of Te Rohe o Te Wairoa; with more than 60 operational marae across Tairāwhiti.

A Council priority is to promote effective and meaningful engagement with tangata whenua to ensure iwi and hapū have a long-term role in the future planning and decision-making for the region.

There are multiple policies council uses to consider and provide for tangata whenua; iwi and hapū. These include; Te Tiriti o Waitangi Te Tiriti Compass and the Tairāwhiti Piritahi Policy.

Through Te Tiriti Compass we want to develop effective and meaningful engagement with mana whenua. We want to ensure Iwi and hapū have a long-term role in the future planning and decision making for the region. While this can occur in many ways, Te Tiriti Partnership is an ultimate end state for shared decision making, and key to the success of Council's long term vision.

'Tairāwhiti Piritahi' Policy is a formal framework for promoting and facilitating Māori participation in Council decision-making processes, including a framework for building organisational capability and additional opportunities for Māori to contribute to Council's decision-making processes. 'Tairāwhiti Piritahi' is the coming together of Tairāwhiti - representing how all work together, inclusive of Māori. This policy outlines Council's approach and plans to achieve sustainable Tairāwhiti outcomes in partnership with Māori.

1.7.2 Tropical Cyclone Gabrielle

Tropical Cyclone Gabrielle occurred in February 2023, causing significant damage to Tairāwhiti's land, infrastructure, economy and community. Cyclone Gabrielle began affecting Tairāwhiti on the 13th of February 2023. For only the third time in New Zealand's history, a National State of Emergency was declared on the 14th of February 2023.¹⁷

Gabrielle had a significant impact on Tairāwhiti's waste systems, and some of the effects included:

¹⁷ <https://www.gdc.govt.nz/search?query=cyclone+Gabrielle>

- large amounts of woody debris generated which overwhelmed waste collection and disposal systems;
- disruption of waste collection services and transfer due to road blockages;
- an increase in waste volumes and types of waste generated due to clean-up efforts; and
- damage to infrastructure which lead to operational disruptions and delays in waste management processes.

As an immediate action, Council focused on cleaning up silt and debris from beaches, waterways and residential properties. Council also enacted a temporary law change, where open burning of cyclone and flood-related mixed waste was permitted on commercial properties.

1.7.3 Forestry Slash

Forestry slash is recognised as a significant national and regional issue. While forestry slash may be seen as a waste stream, it has not been included in this report as the material does not enter the solid waste management system. Management of forestry slash is best approached through consent enforcement and reviews of forestry practices nationally.

2 Waste Infrastructure

The main waste disposal facility in Tairāwhiti is the Gisborne refuse transfer station (RTS). The facility is privately owned, and operated by Waste Management New Zealand Ltd (WMNZ). All material collected in Council's kerbside collections is disposed of at the facility, and it also receives waste from urban Tairāwhiti and the rural transfer stations at Whatatutu, Matawai, Te Karaka, and Tolaga Bay. All residual waste from the Waste Management Gisborne RTS is bulk hauled to the Tirohia Landfill in Hauraki district in the Waikato.

This inventory is not to be considered exhaustive, particularly with respect to the commercial waste industry as these services are subject to change. It is also recognised that there are many small private operators and second-hand goods dealers that are not specifically listed. However, the data is considered accurate enough for the purposes of determining future strategy and to meet the needs of the WMA.

2.1 Disposal Facilities

In 2021, MfE adopted regulations to extend the landfill levy and apply information requirements to facilities that do not pay the landfill levy. These regulations also established legal definitions for disposal facilities.

Previously, disposal facilities had been categorised according to the 2016 Waste Management Institute of New Zealand (WasteMINZ) Technical Guidelines for Disposal to Land.¹⁸ As there are differences, albeit slight, between the two; the legal definitions take precedence¹⁹.

The definitions of the six classes of disposal facilities in the regulations are summarised below.

Class 1 - Municipal Disposal Facility

Accept any of the following:

- Household waste
- Waste from commercial or industrial sources
- Waste from institutional sources
- Green waste
- Waste that is not accepted at Class 2-5 disposal facilities.

Class 2 – Construction and Demolition Disposal Facility

Accepts waste from construction and demolition activities. Does not accept Class 1 waste.

Classes 3 and 4 – Managed or Controlled Fill Disposal Facility

Accepts any of the following:

¹⁸ www.wasteminz.org.nz/pubs/technical-guidelines-for-disposal-to-land-april-2016/

¹⁹ www.legislation.govt.nz; It is likely that the Technical Guidelines will be revised so it is aligned as closely as possible with the MfE definitions.

- Inert waste material from construction and demolition activities
- Inert waste material from earthworks or site remediation

Does not accept Class 2 waste.

Class 5 – Cleanfill

Accepts only virgin excavated natural material (such as clay, soil, or rock) for disposal

Industrial Monofil

A facility that accepts disposal waste that:

- Discharges or could discharge contaminants or emissions
- Is generated from a single industrial process (e.g. steel or aluminium making, or pulp and paper making) carried out in one or more locations.

The actual wording used in the regulations and examples of types of waste accepted at each facility is provided in appendix A.4.0.

The regulations also define a transfer station as a facility that receives waste and where waste is then transferred to a final disposal site or for further processing. Significantly, if a site does not accept waste that is then transferred to a final disposal site (i.e. residual waste), it is not a transfer station (but is instead a recycling drop-off site or similar) and isn't required to report data.

2.1.1 Class 1 Disposal Facilities

There are two Class 1 disposal facilities in Tairāwhiti; Waiapu Landfill near Ruatōria, and Tonlyn Holdings in Ormond.

The Waiapu Landfill in Ruatōria, provides a critical service for the rural community and receives waste from the rural transfer stations at Tokomaru Bay, Te Puia Springs, Ruatōria, Tikitiki, and Te Araroa as well as Council's Ruatōria, kerbside waste collection. The Waiapu Landfill is consented until 2025.

Tonlyn Restricted Waste Disposal Site, operated by M E Jukes & Son, receives a wide range of materials; a minority of which are inert. It does not accept municipal waste. Tonlyn Landfill is consented for 30 years until 2034.

2.1.2 Transfer Stations and Recycling Drop-off Points

Refuse transfer stations (RTS) or resource recovery parks (RRPs) and recycling drop-off points (RDOPs) provide for those that can't or choose not to make the journey to a disposal facility. Waste can be dropped off at these sites by the public and commercial collectors after paying a gate fee, and the waste is subsequently compacted before transport to a Class 1 disposal facility.

Gisborne is well represented by rural RTS (nine in total) which provide an effective option for waste disposal and recycling. The main waste disposal facility in Tairāwhiti is the Waste Management Gisborne RTS located in the city at 75 Innes St, Awapuni.

All rural RTS operate a sticker system for disposal and are funded through a combination of rates and user pays; i.e. should a resident need more than their 52 sticker allocation per annum, further stickers may be purchased. The nine rural RTS enable easy access to

facilities for the rural community in Tairāwhiti. All waste from the Gisborne RTS is transferred to a Class 1 landfill in Tirohia (near Paeroa, in the Bay of Plenty).

The RTS are well laid-out and maintained sites and a wide range of materials are accepted for diversion, including:

- usual household kerbside recyclables;
- whiteware and scrap metal;
- electronic and electrical equipment (charges apply);
- greenwaste (at a charge) - available at the city RTS and rural transfer stations; and

There is also an environmental hub available, Tairāwhiti Environment Centre (TEC), located at 386 Palmerston Road that offer free recycle drop off for:

- household batteries; single use, rechargeable, coin lithium and silver oxide batteries;
- light bulbs, energy efficient light bulbs and fluorescent tube (\$2 per tube);
- coffee pods; Nescafe Dolce Gusto, L'OR, Moccona, illy and Jed's coffee capsules;
- soft plastics, containers and dispensers;
- disposable razors, refill blades and packaging;
- writing instruments; pens, mechanical pencils, markers, highlighters, twink;
- oral care products; Colgate brand only toothbrushes, tubes, dental floss packaging;
- mobile phones;
- ink and toner cartridges;
- e-waste through Tech Collect NZ; laptops, desktop computers, tablets, notebooks, palmtops, computer monitors, printers, scanners and multifunction devices, computer accessories (mice, modems, keyboards, USBs, modems, cables);
- liquid paperboard; and
- aerosol cans.

All ten of the RTS are registered with MfE as regulated waste facilities, and report data accordingly.

2.1.3 Closed Landfills

Council manages 26 closed landfills in the district. Being close to a surface water body such as a river or the sea, these sites are potentially at risk of being affected by a tsunami or a flood. A risk factor has been assigned to each site based on the likelihood of being affected by these natural risks. Furthermore, current site risks include the potential to cause adverse effects to human health and the natural environment. For example, the Tokomaru Bay site recently has been eroded by a river, with waste being distributed into the environment, and therefore poses a high risk to both human health and the environment. Four of the 26 closed landfills have been assessed by Council as posing a high risk to the environment, eight a moderate and the rest low risk²⁰. The four closed landfills that pose a high risk to the environment also present a high risk to human health. Council are taking measures such as installing final covers to prevent water infiltration, monitoring gas emissions and implementing programs for long-term maintenance and surveillance to manage these

²⁰ Confidential information provided by Council officers.

closed landfills. Mitigation and clean-ups are employed where waste is distributed into the environment at sites such as Tokomaru Bay.

A government grant of \$6.6 million was made available in February 2024 to remediate four historic closed landfill sites in low-lying coastal areas in New Zealand. These sites are vulnerable to extreme weather events, with exposed waste posing a significant risk to the environment and human health. Gisborne have been included in the Contaminated Sites Remediation Fund to ensure mitigation of closed landfill and dump sites in the region.

2.1.4 Class 2-5 Landfills

Research estimates that waste disposed of to land other than in Class 1 landfills accounts for approximately 70% of all waste disposed of, and these operators are not required currently to pay the waste levy to central government, and some have only recently started reporting waste quantity data.²¹ Other disposal sites include Class 2-5 fills and farm dumps.

Class 2-5 landfills can be an issue for effective and efficient waste management as, for some materials, these disposal sites are competing directly with other options such as composting sites and Class 1 landfills. However, Class 2-5 landfills are much less costly than Class 1 landfills to establish and require much lower levels of engineering investment to prevent discharges into the environment. Class 2-5 landfills also have much lower compliance costs than Class 1 landfills and are not required to pay the waste levy at this time. Because of these differing cost structures, Class 2 landfills charge markedly less for disposal than Class 1 landfills.

From 1 July 2022, Class 2 disposal facilities have been required to pay the levy at a rate of \$20 per tonne (going up to \$40 per tonne in 2024). Class 3 and 4 disposal facilities will be required to pay the levy from 1 July 2023 at a rate of \$10 per tonne. True Class 5 disposal facilities (accepting VENM only) will not be required to pay the levy, but have been required to report on quantities from 1 January 2023.

Class 2 disposal sites and RTS were required to start reporting data on waste quantities from 1 January 2022.

Following these changes, MfE now holds data on the quantities of waste disposed of at these sites and are building a database of Class 2-5 facilities around the country.

Class 2 landfills accept non-putrescible wastes including C&D (construction and demolition) wastes, inert industrial wastes, managed fill material, and cleanfill material. There are no Class 2 facilities listed in Tairāwhiti.

The Matokitoki Restricted Waste Disposal Site, operated by Stoney Horse Ltd is a Class 3-4 facility and accepts mainly construction and demolition waste, but also accepts greenwaste from contractors.

²¹ Ministry for the Environment (2014) Review of the Effectiveness of the Waste Disposal Levy. The report estimates 56% of material disposed to land goes to non-levied facilities, 15% to farm dumps and 29% to levied facilities.

2.2 Hazardous Waste Facilities and Services

The hazardous waste market comprises both liquid and solid wastes that, in general, require further treatment before conventional disposal methods can be used. The most common types of hazardous waste include:

- Organic liquids, such as those removed from septic tanks and industrial cesspits
- Solvents and oils, particularly those containing volatile organic compounds
- Hydrocarbon-containing wastes, such as inks, glues and greases
- Contaminated soils (lightly contaminated soils may not require treatment prior to landfill disposal)
- Chemical wastes, such as pesticides and agricultural chemicals
- Medical and quarantine wastes
- Wastes containing heavy metals, such as timber preservatives
- Contaminated packaging associated with these wastes.

A range of treatment processes are used before hazardous wastes can be safely disposed.

Most disposal is either to Class 1 landfills or through the trade waste system. Some of these treatments result in trans-media effects, with liquid wastes being disposed of as solids after treatment. A very small proportion of hazardous wastes are 'intractable' and require exporting for treatment.

These include polychlorinated biphenyls, pesticides, and persistent organic pollutants.

Some outlets exist for the recovery of paint through the Resene Paintwise scheme and for some chemical disposal through the Agrecovery chemical collection for which charges apply. Council has also facilitated a collection for household hazardous waste in 2013.

Council also contributed financially in 2019 to a one-off drop-off collection, primarily for agri-chemicals, facilitated by Agrecovery. To use this collection, people needed to register their products in advance and then take them to the collection location.

When Council receives inquiries for the disposal of household hazardous waste, residents are generally advised to keep the material stored in a shed or similar at home until a collection is organised or provide information on alternatives.

There are no scheduled drop-off events or collections planned at the moment due to a lack of appropriate storage facilities and cost implications; however, Council opened conversations with a potential collection provider late in 2023. Council officers will continue to develop this option, which will require a suitable material handler and storage facilities.

2.3 Wastewater Treatment

As outlined earlier in this report, wastewater treatment is considered where it results in waste being managed through solid waste systems.

Council manages, own, and operates a network of pipes and pump stations that carry wastewater for treatment to the treatment plant. It also owns and administers four biosolid/sludge disposal sites at Te Araroa, Tikitiki, Ruatōria (Waiapu) and Te Puia Springs. Council manages one wastewater treatment plant (WWTP), located in Banks Street. The

remainder of the properties in the district largely manage their wastewater through domestic septic tank systems, which can be serviced by one of a number of operators based in or near the district.

2.4 Recycling and Reprocessing Facilities

There are some reprocessing facilities available within the district for timber and greenwaste. There are also a number of recycling and reprocessing facilities outside the district that accept material from Tairāwhiti. The key facilities are listed below.

Table 3: Recycling and Reprocessing Facilities

Name/Operator	Key services/waste streams	Location
OJI Fibre Solutions	Recovered paper/cardboard fibre	Auckland, Kinleith
Judds Ltd	Green waste, bark products, compost mixes, landscaping products	Matawhero, Gisborne
Trading Post Recyclers	Untreated and reusable timber	Awapuni, Gisborne
Neil Andrew Timber Recycling	Native and exotic timber, building materials	Matawhero, Gisborne
EnviroNZ	Industrial wastes, hazardous and commercial recycling bulking and transfer	Awapuni, Gisborne
Gisborne MetalCo Ltd	Wide range of scrap metal, aluminium accepted for recycling	Awapuni, Gisborne
M E Jukes and sons	Whiteware, concrete and bricks, metal, soil, dirt, topsoil	Gisborne
Gisborne Autoelectrics and Bensons Auto Electrical	Vehicle batteries	Gisborne
Various e-waste recycling providers	Wide range of electronic and electrical waste	Auckland,
Product stewardship	Agricultural plastic, containers, and chemicals	Various locations

In addition, there are a large number of charity shops, second-hand stores, and smaller scrap metal recyclers that have a role in diverting material from landfill disposal.

While many material types are transported out of the district for recycling and reprocessing, this is not an unusual situation in New Zealand.

2.5 Assessment of Infrastructure

There is a reasonable level of transfer infrastructure available to the district, with Council providing multiple rural transfer stations and Waste Management NZ providing the Gisborne RTS. Council also provides the Waiapu landfill, which meets the disposal needs of the remote coastal communities.

There are also two private landfills in the district (one Class 1 and one Class 3/4) and some reprocessing, mainly for timber and organic material.

However, the district is otherwise reliant on infrastructure located outside the district. In some cases this infrastructure is a significant distance from the district and material is largely transported by road, resulting in exposure to transport cost increases and vulnerability to any roading network disruptions.

The majority of residual waste from the district is disposed of to Tirohia landfill near Paeroa. This facility is operated by Waste Management NZ Ltd, which has submitted a resource consent application to extend the capacity of the landfill. This application has recently been rejected by the Environment Court. It was not clear at the time of this Waste Assessment what the next steps will be with this project.

This means the district may be faced with finding another disposal point by 2028 or earlier – with the nearest options being EnviroNZ's North Waikato Regional Landfill (which would involve additional distance travelled) or Hastings District Council's Omarunui landfill (which currently has restricted access for locations other than Hastings district and Napier city). This is a significant area of risk for waste management in the district.

Comingled recyclables from the district are currently transported to the Waste Management MRF at Te Maunga in Tauranga. Waste Management lease this site from Tauranga City Council, and the lease expires at the end of 2025. At this point, EnviroNZ Ltd can take over the site and may construct a MRF of their own to process kerbside-collected recyclables from Tauranga city and Western Bay of Plenty district. Waste Management have the option of transporting recyclables to the Smart Environmental Ltd MRF currently located at Kopu, which Waste Management are using for kerbside-collected material from its Eastern Waikato (Hauraki, Matamata-Piako, and Thames-Coromandel) service contracts (commenced in 2023). However, from 1 January 2026 Waste Management will need to identify a MRF for kerbside-collected material from Whakatāne and Kawerau districts, as well as Gisborne. It may negotiate with EnviroNZ to use any new Tauranga facility; or it may develop a new/relocated facility closer to these areas. If it does negotiate with EnviroNZ, there will still be a gap in infrastructure availability while EnviroNZ build a new MRF on the Te Maunga site.

Standardised kerbside collection of organic waste and recyclables in urban areas will become mandatory under new waste legislation following on from government's decision to require standardised collections by councils. Council will need to introduce a kerbside food scraps collection to Gisborne city by 1 January 2030, and will need to identify the best processing option for the kerbside-collected materials. Existing options include the local composting facility operated by Jukes (depending on material types); MyNoke in Taupō, and Ecogas in Reporoa.

3 Waste Services

3.1 Council-provided Waste Services

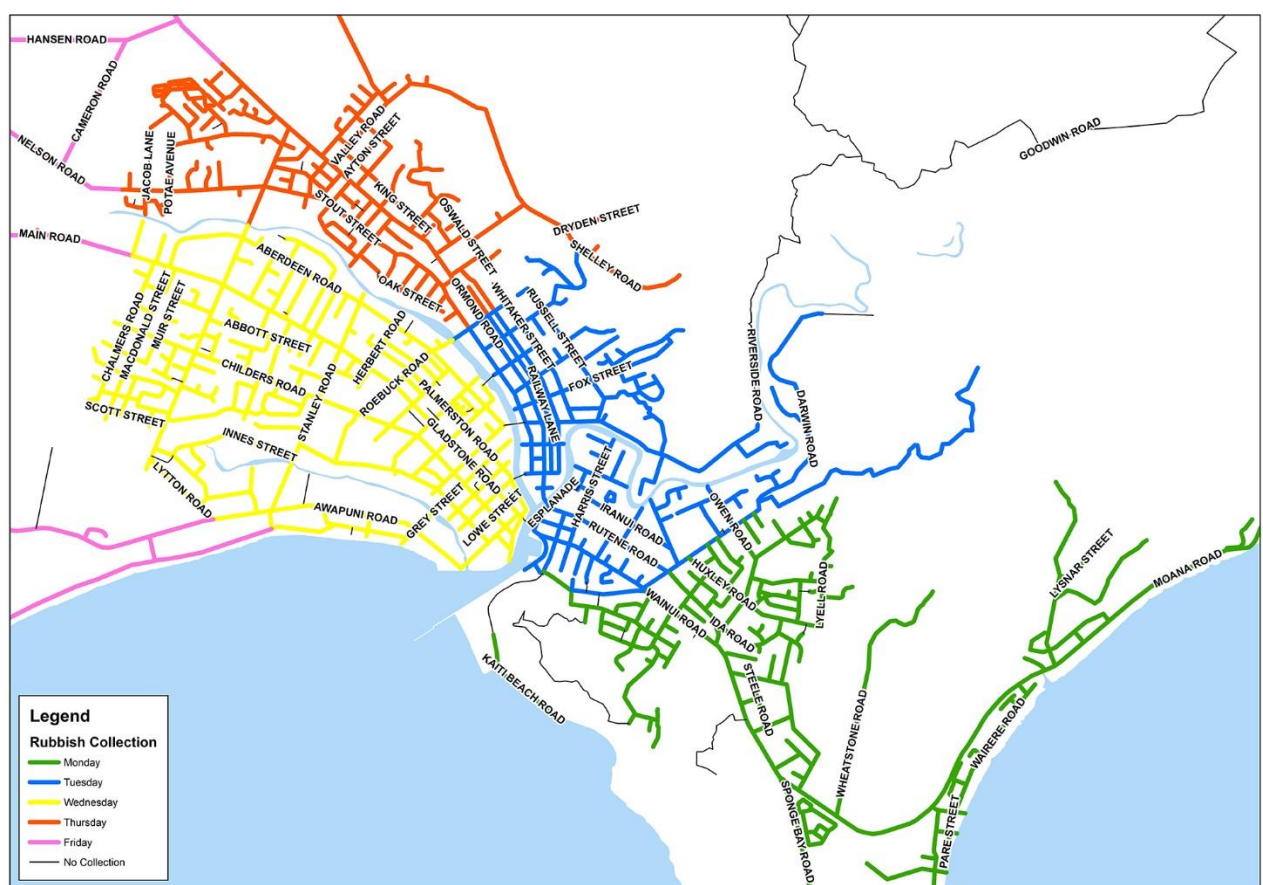
A range of services are provided by Council to residents and businesses in the district.

3.1.1 Collection Services

Council provides collection services to just over 90% of occupied households in the district. These households are located in Gisborne (14,605 properties) and Ruatōria (241 properties).

The maps below show the parts of the district that are provided with a kerbside collection service.

Figure 4: Council Kerbside Collection Coverage in Gisborne



Source: Gisborne District Council www.gdc.govt.nz

Figure 5: Council Kerbside Collection Coverage in Ruatōria



Source: Gisborne District Council www.gdc.govt.nz

The charges for these services for the 2023/24 financial year are shown in the table below, along with accepted materials.

Table 4: Council Collection Services

Service Type	Cost per Service
Refuse – weekly collection	One sticker required for up to 5kg, with a maximum weight per bag of 20kgs Council provide a sheet of 13 stickers per quarter to households, rates-funded Additional stickers can be purchased. Council’s RRP is \$2.80 per sticker, however, retailers are free to set their own price. Rural properties – Council’s RRP is \$10 per rural sticker (up to 5kg) however, retailers are free to set their own price.
Recycling – weekly collection	One 55L crate – rates-funded One additional bin available from Council to purchase for \$20 each (one off)

Maximum of two bins per property

Materials accepted: plastic containers grades #1, #2 and #5; paper and cardboard; glass jars and bottles; aluminium steel tins and cans

The services are provided in Gisborne on behalf of Council by Waste Management NZ Ltd. In Ruatōria, the kerbside collection service is managed by Chaffey Contractors, located in Tokomaru Bay. Council does not provide waste or recycling collection services to the commercial sector.

3.1.2 Other Council Services

3.1.2.1 Communication and educational services

Council provides a range of communication and education initiatives to inform ratepayers, schools and services users of the available waste services and to promote waste minimisation. Key communication and education initiatives that Council supports include:

- Support education for sustainability activities for schools, homes and businesses
- Provides the Enviroschools Programme to schools and early childhood centres/kindergartens
- Delivering and funding programmes such as Second-Hand Sunday, e-waste collection, and events recycling
- Operation of the 'Rethink Centre' at the local Tairāwhiti Environment Centre in Palmerston Road, Gisborne to promote waste minimisation
- Website and pamphlet education media

3.1.2.2 Community refuse services

Additionally, Council offers public place litter bins and remove illegally dumped rubbish. Litter bins are available in recreational reserves as well as in Gisborne. Furthermore, seven sets of SMART bins have been installed at Waikanae Beach and Gisborne I-Site, the summit of Titirangi/Kaiti Hill, the Botanical Gardens and outside public toilets at Te Araroa, Tolaga Bay and Matawai. Each set has bins for recycling, glass and rubbish.

3.1.3 Solid Waste Bylaw

In addition to key strategic waste infrastructure assets, Council also has responsibilities and powers as regulators through the statutory obligations placed upon them by the WMA. The Council operates in the role of regulator with respect to:

- management of litter and illegal dumping under the Litter Act 1979
- trade waste requirements
- nuisance-related bylaws

Council does not have a specific bylaw for solid waste matters; restricting their ability to influence waste diversion, have control over waste operations, and limiting access to data.

However, Council have a bylaw specifically relating to freedom camping ²². This bylaw came into force on 30 June 2021 and one of the conditions is, that solid waste must be disposed of in Council rubbish bins or at facilities marked for waste management.

3.1.4 Summary of Council Services

Council's kerbside services are a combination of a weekly collection of rates-funded stickered bags and small 55L recycling crates. Additionally, Council offers waste-related education programmes and services such as the EnviroSchool Programme, the removal of illegal dumping, and provision of public place litter bins.

A food scraps service will need to be implemented for Gisborne (city) by 1 January 2030 to comply with the government's kerbside standardisation requirements.

3.2 Non-Council Services

There are a number of non-council waste and recycling service providers operating in the district such as Gizzy Waste, TLC (trimming, lawn mowing, clearing), EnviroNZ and Waste Management New Zealand.

All waste from the commercial sector is either self-hauled to the transfer stations, including rural transfer stations, or collected by a private waste operator and taken to the Gisborne RTS; from where it is then bulk hauled to Tirohia landfill. Services using wheelie bins, gantry skips, and front-loader bins are available. A substantial proportion of the commercial refuse market is controlled by Waste Management NZ Ltd and EnviroWaste Services Ltd (as shown by waste audits carried out at the RTS).

Bay Waste Services offers user-pays garden bag or bin collections.

3.3 Assessment of Services

Council's kerbside recycling collection is provided to most of the residents in the district (with those in more isolated or rural areas having access to rural transfer stations). Coverage exceeds that which is required by government's kerbside standardisation policy, which only applies to Gisborne city.

The kerbside recycling service capacity is somewhat limited compared to many other councils, with 110L of capacity available each week compared to (for example) the 150L or so available through a fortnightly 240L wheeled bin and 55L crate service. However, residents do have the ability to place paper/cardboard separately beside the crates, and there is a comprehensive network of drop-off sites available.

The more significant potential issue with the kerbside recycling service is the ability for households to fully commingle the material, meaning glass bottles/jars are collected alongside all other material. This has been a key factor in lost recyclables in other areas.

Council's kerbside rubbish collection service is a user-pays service with a fairly unique approach enabling households to apply variable payments to a rubbish bag, depending on

²² <https://www.gdc.govt.nz/council/plans-policies-and-bylaws/bylaws/tairawhiti-freedom-camping-bylaw-2021>

weight (currently, RRP of \$2.80 per 5kg is recommended by Council; however, retailers set their own price). This service is also available to some rural householders albeit with a different rate.

The refuse collection sticker system provides a resolve for both urban and rural customers; for those making use of the rural transfer stations and those using the kerbside collection service.

Council does not offer a collection service to commercial customers but there are several companies that do such as Gizzy Waste, EnviroNZ and Waste Management New Zealand. Alternatively, commercial companies can self-haul refuse and recycling to transfer stations. A substantial proportion of the commercial market is dominated by Waste Management NZ Ltd and EnviroNZ.

4 Situation Review

4.1 Quantities of Waste to Class 1-5 Disposal

The terminology that is used in this section to distinguish sites where waste is disposed of to land are taken from the relevant MfE regulations, as discussed earlier in section 2.1.

4.1.1 Waste to Class 1 Disposal

Figure 6 below shows the historical waste to landfill in Tairāwhiti, based on Council's records²³.

Figure 6: Tairāwhiti Waste to Tirohia Class 1 Landfill (Tonnes per Annum)

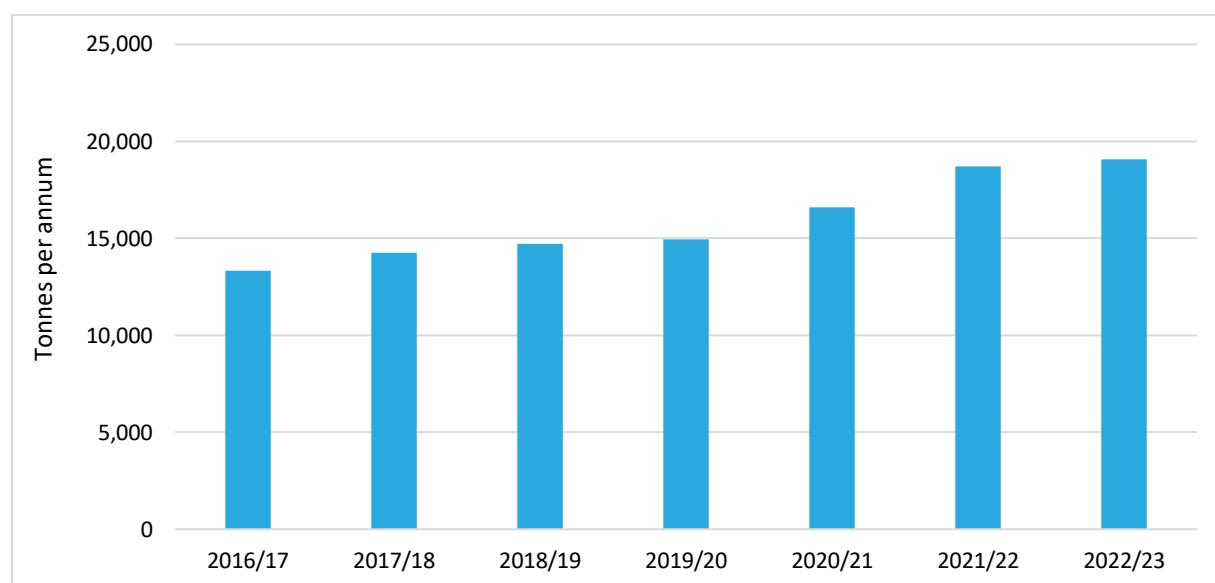


Table 5: Tairāwhiti Waste to Landfill

Financial Year	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Waste to Tirohia Landfill (tonnes)	13,328	14,245	14,713	14,959	16,608	18,713	19,054
Total	17,256	18,306	18,318	18,983	20,366	22,565	22,716
Estimated population	46,745	47,517	48,500	49,300	50,243	51,300	52,400

²³ Note: unknown quantity of waste going to Tonlyn disposal facility, therefore these numbers don't include waste disposed of at Tonlyn Landfill.

Waste to landfill per capita	0.369	0.385	0.378	0.385	0.405	0.440	0.434
Increase	NA	4.4%	-2.0%	2.0%	5.3%	8.5%	-1.4%

The analysis of waste to landfill per capita shows that this increased notably from 2019/20 through the next two years, before dropping again. The quantities for 2022/23 are likely to be unreliable, given Cyclone Gabrielle occurred in February 2023. This change suggests that increasing quantities of waste are being brought into the formal waste management system that may previously have been dealt with in other ways (such as burial or burning).

4.1.2 Waste to Class 2-5 Fills

The Matokitoki Restricted Waste Disposal Site, operated by Stoney Horse Ltd, is a Class 3-4 disposal facility.

There may also be a number of informal/non-consented Class 5 fills around the district. These sites are only supposed to accept VENM (virgin excavated natural material). A 2011 MfE report on non-levied disposal facilities stated:²⁴

No information about cleanfill quantities was compiled for this report because the few sites with available data are unlikely to be indicative of what is happening around the country.

Several other studies have attempted to quantify the disposal of waste to Class 2-5 fills, often on a per capita basis, with widely varying results. In practical terms, the lack of precise data about disposal of waste to Class 2-5 landfills makes it impossible to reliably monitor any changes over time in the disposal of major waste streams, such as construction and demolition waste.

4.2 Composition of Waste to Class 1 Landfill

In May 2023, Gisborne's waste was surveyed on behalf by Waste Not Consulting Ltd (Waste Not). The composition data presented here is largely taken from the report presenting the results of the survey, completed in May 2023.

4.2.1 Composition to Class 1 Disposal

The composition of the overall waste stream being disposed of at Tirohia Landfill from Tairāwhiti (via Gisborne Transfer Station) is shown below.

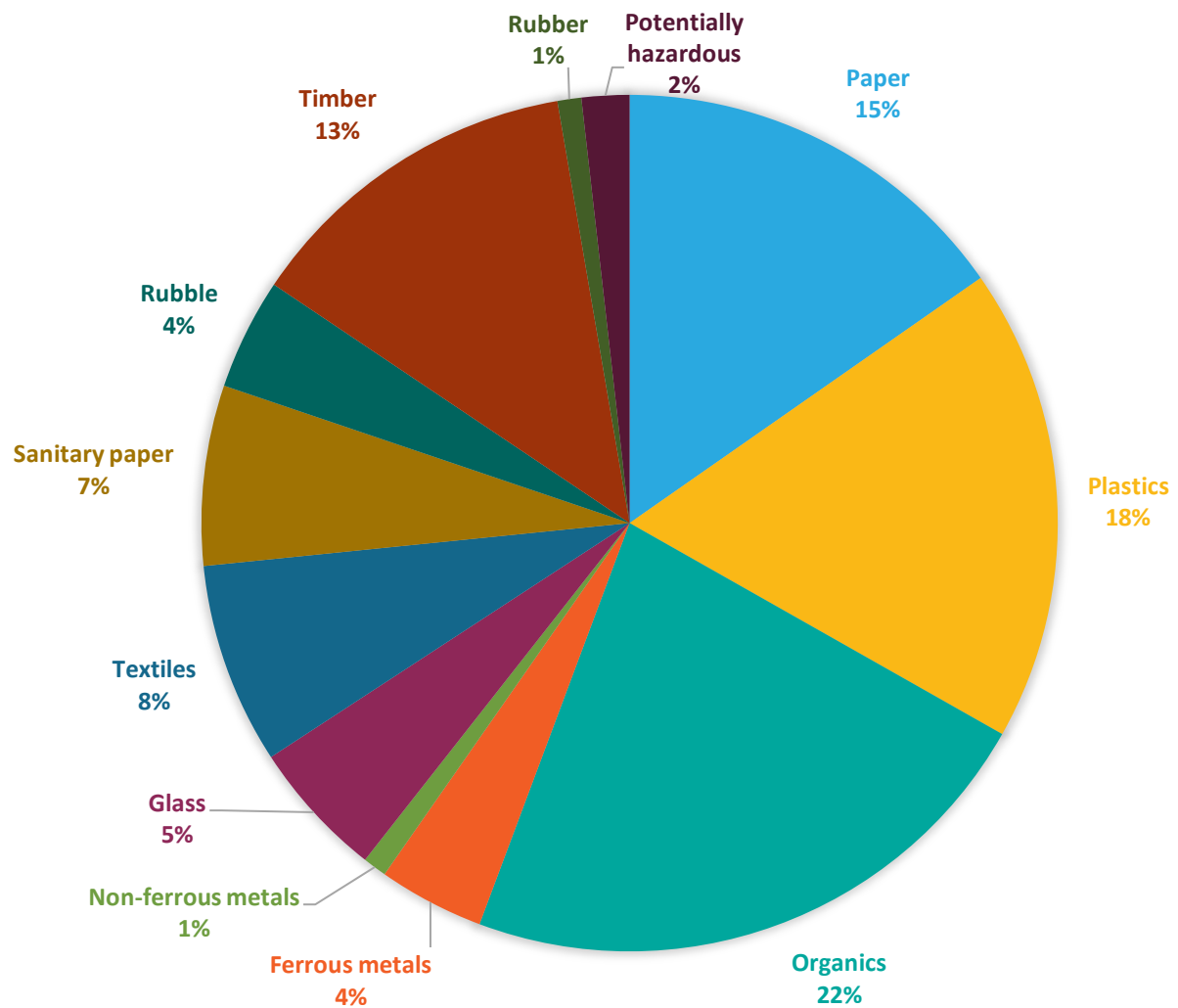
²⁴ Ministry for the Environment (2011) *Consented Non-levied Cleanfills and Landfills in New Zealand: Project Report*. Wellington: Ministry for the Environment

Table 6: Composition of All Waste to Class 1 Landfill (Surveyed April/May 2023)

Material type	Proportion of weight (%)	Quantity per week (tonnes)	
Paper	15.3	64	3,328
Plastics	17.9	74	3,882
Organics	22.5	93	4,875
Ferrous metals	4.0	17	862
Non-ferrous metals	0.9	4	185
Glass	5.2	21	1,119
Textiles	7.6	32	1,651
Sanitary paper	6.8	28	1,481
Rubble	4.2	18	917
Timber	12.9	54	2,800
Rubber	0.9	4	205
Potentially hazardous	1.8	7	390
TOTAL	100.0	416	21,694

The annual composition is an estimate only, as it does not take into account any possible seasonal variations in waste composition.

Figure 7: Composition of All Waste to Class 1 Landfill



4.3 Kerbside Waste

The figure/table below shows quantities of waste picked up in the Council kerbside rubbish collection.

Figure 8: Council-Collected Kerbside Waste (Financial Year: 1 July – 30 June)

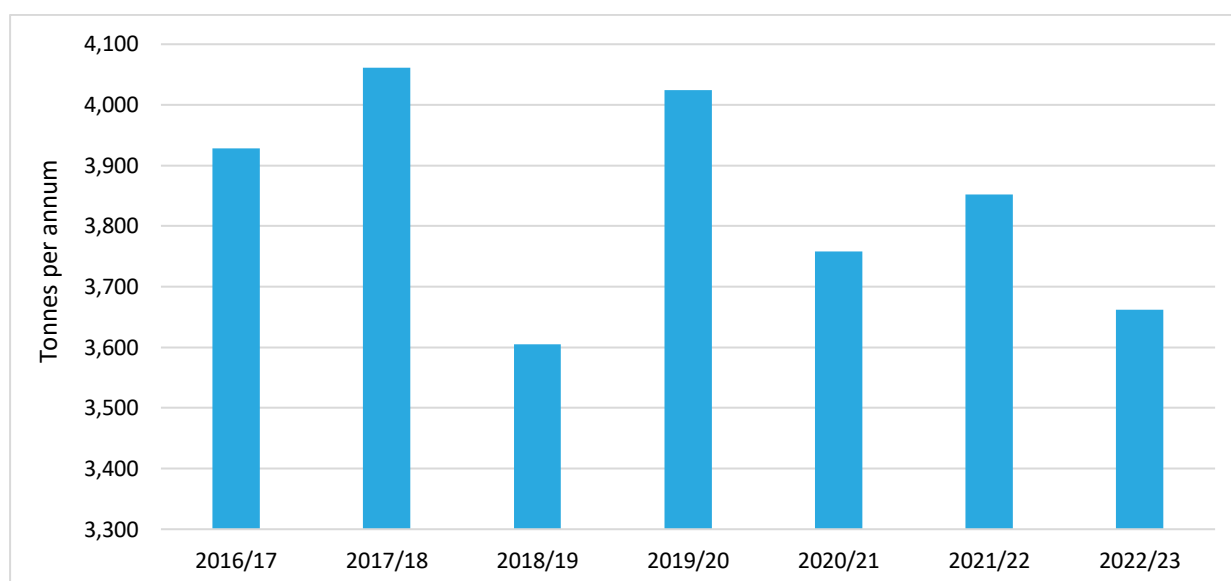


Table 7: Council-collected Kerbside Waste (by Financial Year)

Financial Year	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Kerbside Waste (tonnes)	3,928	4,061	3,605	4,024	3,758	3,852	3,662
Estimated population	46,745	47,517	48,500	49,300	50,243	51,300	52,400
Kerbside waste per capita (kg)	84	85	74	82	75	75	70
Increase (%)		1.7%	-13.0%	9.8%	-8.4%	0.4%	-6.9%

The per-capita data shows that this decreased notably from 2017/18 through the next year, before increasing again in 2019/20. Another decrease is observed from 2020/21 through the next year. The quantities for 2022/23 are likely to be unreliable, given Cyclone Gabrielle occurred in February 2023. The notable 13.0% decrease in per capita waste generation in 2018/2019 suggests a shift towards different waste management methods, given that the overall waste to landfill figure did not reflect this decrease; for example, more rubbish may have been delivered directly to the Gisborne RTS rather than being put out for kerbside collection.

4.3.1.1 Composition of Council-collected kerbside rubbish

The composition of kerbside waste collected in the council collection was also surveyed.

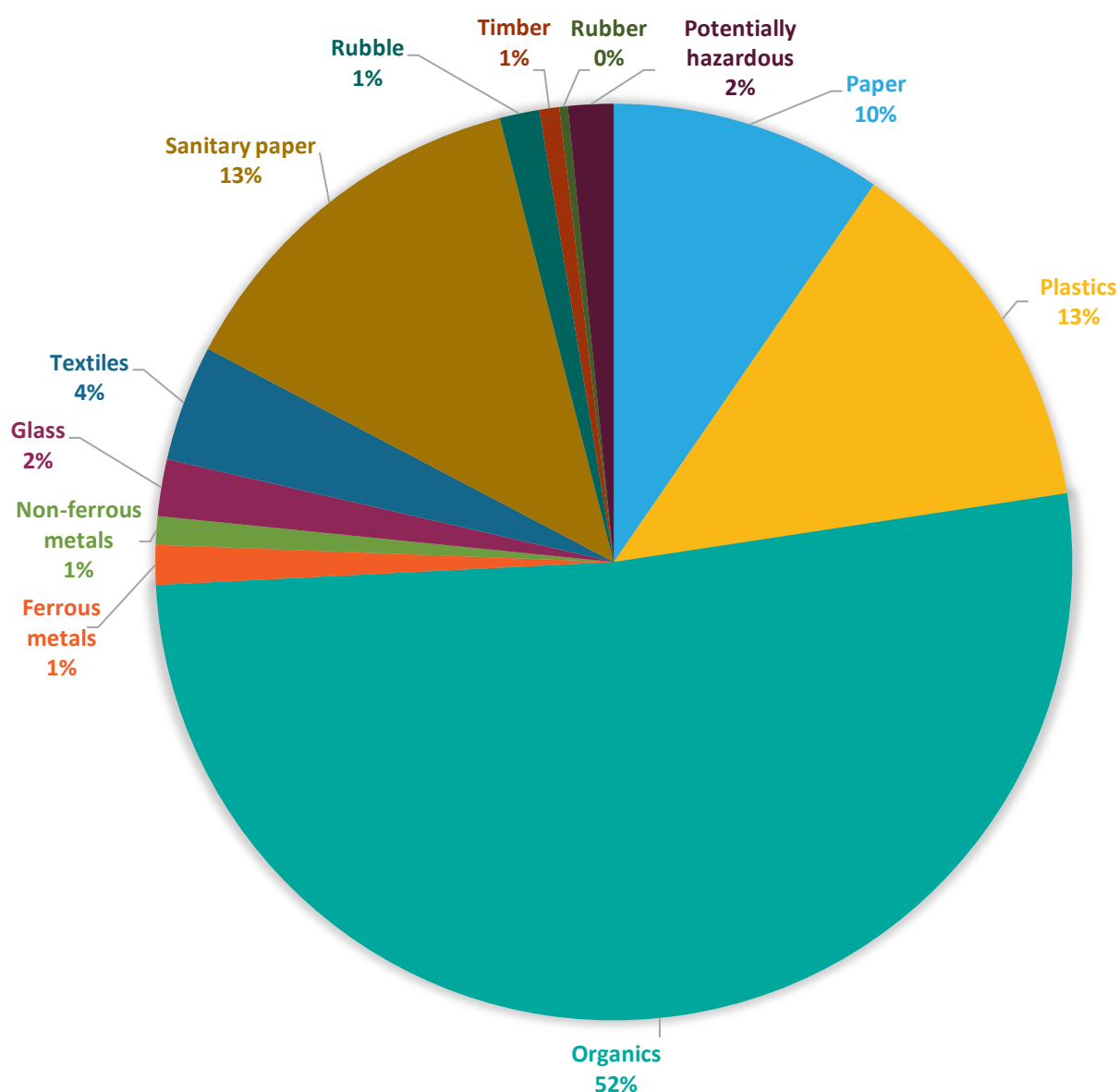
The table below shows the relatively weights of materials in a bag (in kg). On average, each bag weighed 5.02 kg and each household set out 1.21 bags, giving an average household set out weight of 5.83 kg.

Table 8: Composition of residual waste bags

Material type	% of total weight (%)	Average weight per bag (kg)	Average weight/household set out (kg)	Tonnes per week
Paper	9.6	0.46	0.56	8.4
Plastics	13	0.63	0.76	11.4
Organics	51.6	2.48	3.01	45.1
Ferrous metals	1.4	0.07	0.08	1.3
Non-ferrous metals	1.0	0.05	0.06	0.9
Glass	2.0	0.10	0.12	1.8
Textiles	4.1	0.20	0.24	3.6
Sanitary paper	13.3	0.64	0.77	11.6
Rubble	1.4	0.07	0.08	1.2
Timber	0.7	0.03	0.04	0.6
Rubber	0.3	0.01	0.01	0.2
Potentially hazardous	1.6	0.08	0.10	1.4
TOTAL	100	4.82	5.83	87.5

Organic material was the largest single component of Council kerbside rubbish bags, comprising 51.6% of the total weight. Sanitary paper, 13.3%, was the second largest component and plastics, 13.0%, the third.

Figure 9: Composition of Council Kerbside Collected Bags



These categories can be broken down further to show potentially divertible material.

Table 9: Diversion Potential of Council Kerbside Bags

Material type	% of total (%)	Weight per bag (kg)	Weight per household set out (kg)
Recyclable paper	6.7	0.32	0.39
Plastics	3.0	0.14	0.17
Steel cans	0.8	0.04	0.05

Aluminium cans	0.8	0.04	0.05
Glass bottles/jars	1.1	0.05	0.06
Food scraps	42.8	2.06	2.49
Green waste	5.5	0.26	0.32
Total	60.6	2.92	3.53

Food scraps are the highest material stream that is potentially divertible from landfill with 42.8%, second is recyclable paper 6.7% and third green waste 5.5%. Food scraps and green waste together make up nearly 50% of the material that's divertible from landfill.

4.3.2 Composition of General Waste at Gisborne RTS

Waste Not Consulting used the data from the five-day survey and Gisborne RTS weighbridge records to estimate the activity source and composition of the general waste stream (which excludes kerbside, special, and rural transfer station wastes) to Tirohia landfill.

The general waste by activity source is shown in Table 10 below.

Table 10: General Waste by Activity Source

General waste activity source	% of loads surveyed	% of total weight	Tonnes per week
Construction and demolition	12	15	41
Industrial/commercial/institutional	35	56	147
Landscaping	2	2	4
Residential	51	27	73
Total	100	100	265

ICI waste was the largest component of general waste with 56%, or 147 tonnes per week (around 7,644 tonnes per annum). The greatest proportion of general waste loads (51%) were from residential activities but, as the average load weight was smaller than that of the other materials, residential waste accounted for only 27% of the total weight of general waste, or 73 tonnes per week (around 3,800 tonnes per annum). Landscaping waste accounted for just 2% of the total weight of general waste.

4.3.2.1 Composition of general waste from Gisborne RTS

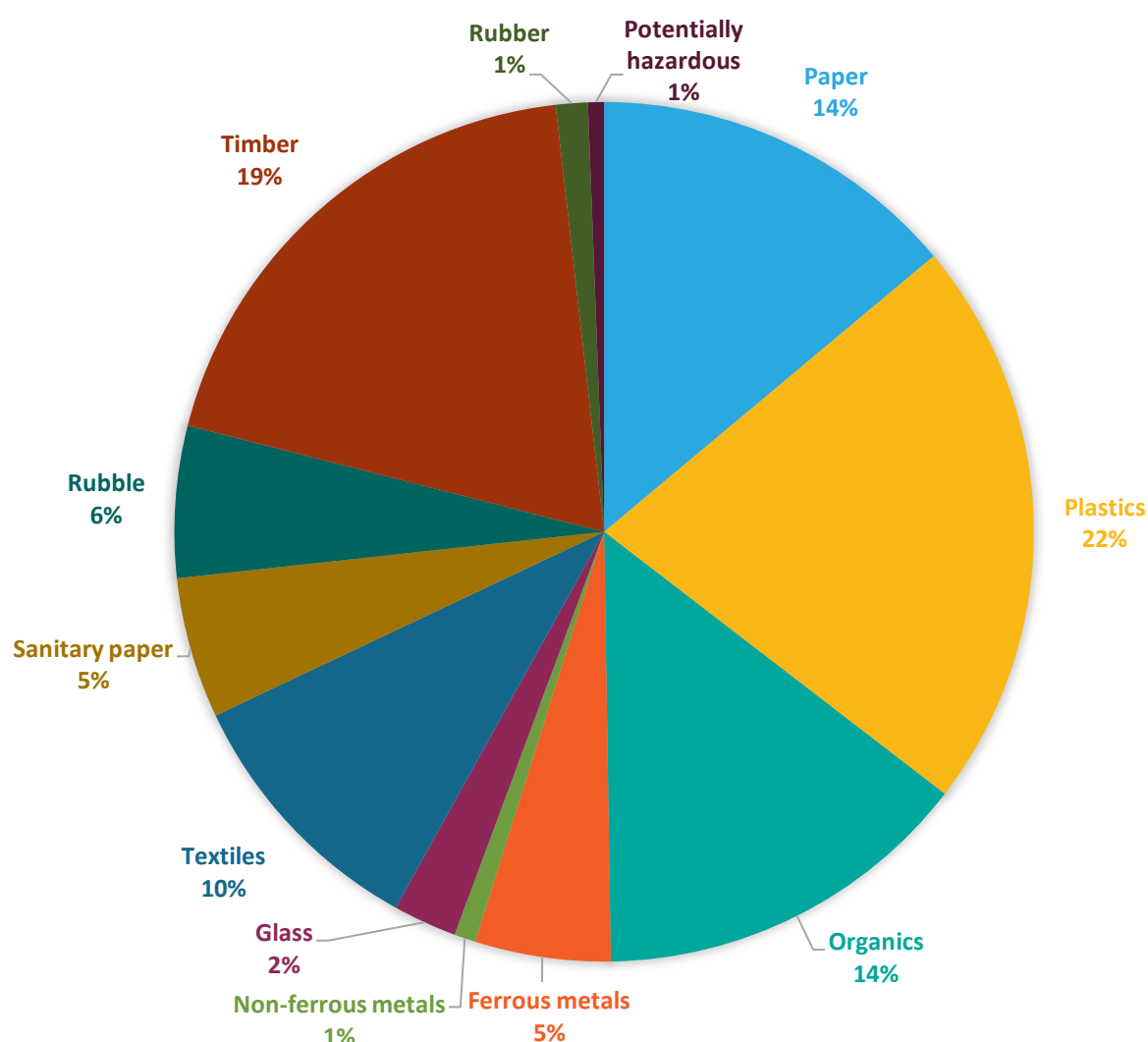
The composition of the general waste stream is shown in the table below (excludes kerbside refuse, special wastes and rural transfer stations).

Table 11: Primary Composition of General Waste from the Gisborne RTS

Material type	proportion of total (%)	Tonnes per week (tonnes)	Tonnes per annum (tonnes)
Paper/card	13.9	37	1,924
Plastics	21.5	57	2,964
Organics	14.3	38	1,976
Ferrous metals	5.1	14	728
Non-ferrous metals	0.8	2	104
Glass	2.4	6	312
Textiles	9.9	26	1,352
Sanitary paper	5.3	14	728
Rubble	5.7	15	780
Timber	19.2	51	2,652
Rubber	1.2	3	156
Potentially hazardous	0.6	2	104
TOTAL	100	265	13,780

Plastics and timber made up the largest proportion of the general waste stream at Gisborne RTS at 21.5% and 19.2% respectively. Organics (14.3%) and paper/card (13.9%) were the third and fourth greatest material streams counted respectively.

Figure 10: Primary Composition of Waste from the Gisborne Transfer Station



4.3.3 Overall Diversion Potential

Various materials are diverted from landfill in Tairāwhiti through recycling, reuse, and recovery. Services available include Council's kerbside recycling collection, recycling drop-off points, and the Gisborne RTS as well as nine rural transfer stations.

As well as the various drop-off options, greenwaste and food scraps can also be composted at home, or collected in a private green waste collection service.

Table 12 below shows the proportion of the waste currently disposed of to landfill that could potentially be diverted using existing systems and available options. The table also shows the tonnes per week of each material that could have been diverted. The data on the individual materials has been taken from the Waste Not SWAP surveys.

Table 12: Diversion Potential of Gisborne's Landfill Waste Stream – 2023 (by Activity Source)

Activity Source	C&D	ICI	Landscaping & earthworks	Residential	All kerbside rubbish
Tonnes per week					
Recyclable paper	0.1	8.2	0	2.7	5.3
Recyclable cardboard	1.5	15	0	2.7	0.6
Recyclable plastic	0	1.8	0	0.8	2.6
Food scraps	0	9.7	0	12.5	37.4
Compostable greenwaste	0.7	2.1	2.4	3.2	4.3
Iron/steel	2.9	5.9	0.1	4.6	1.3
Aluminium	0	1.7	0	0.4	0.9
Recyclable glass	0	3.4	0	0.8	0.9
Clothing	0	2.9	0	2.6	1.5
Cleanfill	0.3	1.1	0	0.1	0
New plasterboard	1.3	0	0	0.1	0
Reusable timber	1	0.1	0	0.2	0
Untreated/unpainted timber	0.9	4.9	0.1	1.3	0
TOTAL	8	52	2	31	55

As can be seen from the 'heat map' analysis, food scraps is a very significant proportion of the potentially divertible materials, and the majority of this reaches landfill through the household kerbside rubbish collections. A fairly high proportion of food scraps also reaches landfill from the residential stream (household waste delivered directly to the transfer stations) and ICI – industrial, commercial or institutional. This is consistent with data from most other areas in the country that do not already have a food scraps collection service in place.

There is also a significant proportion of recyclable cardboard reaching landfill from the ICI sector. This suggests that any recycling services available to this sector is not effectively diverting cardboard and presents another significant opportunity to reduce waste to landfill.

4.3.4 Comparison with Previous Surveys

The overall waste stream composition disposed of to Tirohia Landfill from Gisborne Transfer Station in 2023 is compared with that of the 2004, 2010 and 2017 SWAP audits carried out by Waste Not.

Table 13: Comparison of Overall Composition Over Time

Comparison of overall waste composition – 2004, 2010, 2017, and 2023	Tairāwhiti 2004 (%)	Tairāwhiti 2010 (%)	Tairāwhiti 2017 (%)	Tairāwhiti 2023 (%)
Paper	9.8	10.6	12.6	15.3
Plastics	12.3	15	19.9	17.9
<i>Food scraps</i>	21.6	21.9	20.9	16.2
<i>Greenwaste & other organics</i>	16.6	9.2	5.2	6.3
Organics – subtotal	38.2	31.1	26.1	22.5
Ferrous metals	5.4	3.9	3.8	4
Non-ferrous metals	1.9	0.7	1.1	0.9
Glass	2.3	3.5	2.7	5.2
Textiles	4.2	6.4	8.2	7.6
Sanitary paper	9.7	8.1	10.1	6.8
Rubble	4.6	8.4	5.7	4.2
Timber	9.3	10.7	7.6	12.9
Rubber	1	0.6	1.1	0.9
Potentially hazardous	1.3	0.8	1.2	1.8
TOTAL	100	100	100	100
Tonnes per annum to landfill	14,444	12,776	13,409	21,694

A few trends to note:

- The proportion of plastics have decreased from 19.9% in 2017 to 17.9% in 2023 but the high proportion of plastics in 2017 may be attributed to seasonal changes, probably relating to the fruit packing industry, which (anecdotally) disposes of considerable quantities of plastic packaging;
- The proportion of paper/card in the overall waste stream increased somewhat between the first three surveys from 9.8% to 12.6%, and noticeably to 15.3% in 2023. This is possibly due partially to kerbside recycling material being

contaminated and disposed of to landfill. However, without sufficient data, it was not possible to quantify the amount of kerbside-collected recycling being sent to landfill.

- While the proportion of food scraps remained constant for the first three surveys; 38.2% in 2004, 31.1% in 2010 and 26.1% in 2017 it decreased notably in the 2023 survey to 22.5%. This is concurrent with kerbside waste being a lower proportion of overall waste in 2023, as food scraps comprises a high proportion of kerbside waste.

4.4 Kerbside Recycling

At the time of the SWAP audit (6 April to 31 May 2023), it was noted that a large proportion (up to 75%) of Gisborne's kerbside recycling collection was being landfilled. During the audit period, a total of 42 tonnes per week was collected; however, 31 tonnes was then landfilled leaving 11 tonnes diverted per week during the period of the survey.

This is believed to be an ongoing issue primarily due to driver shortages and contamination; although data provided by the contractor doesn't enable this proportion to be calculated on an ongoing basis. Council is aware of this and working with the contractor to reduce the impact by:

- reducing bulking,
- postponing collections to the following morning,
- recruiting additional staff, and
- reviewing collection routes to increase efficiency.

4.5 Current Performance Measurement

This section provides comparisons of several waste metrics between Tairāwhiti and other territorial authorities. The data from the other districts has been taken from a variety of research projects undertaken by Waste Not and Eunomia.

The total quantity of waste disposed of at Class 1 landfills in a given area is related to a number of factors, including:

- the size and levels of affluence of the population
- the extent and nature of waste collection and disposal activities and services
- the extent and nature of resource recovery activities and services
- the level and types of economic activity
- the relationship between the costs of landfill disposal and the value of recovered materials
- the availability and cost of disposal alternatives, such as Class 2-5 fills
- seasonal fluctuations in population (including tourism).

By combining Statistics NZ population estimates and the Class 1 landfill waste data in section 4.1.1, the per capita per annum waste to landfill in 2022/23 and 2021/2022 financial years from Tairāwhiti can be calculated as in Table 14 and Table 15 below. The estimate includes special wastes but excludes non-levied cleanfill materials.

Table 14: Waste Disposal per Capita for 2022/2023 Financial Year

Calculation of per capita waste to Class 1 landfills	
Population (2023)	52,400
Total waste to Tirohia Landfill (tonnes/annum)	19,054
Waste to Waiapu Landfill (estimate) (tonnes/annum)	1,000
Tonnes/capita/annum of waste to Class 1 landfills	0.383 tonnes/capita/annum

Table 15: Waste Disposal per Capita for 2021/2022 Financial Year

Calculation of per capita waste to Class 1 landfills	
Population (2022)	52,100
Total waste to Tirohia Landfill (tonnes/annum)	18,714
Waste to Waiapu Landfill (estimate) (tonnes/annum)	1,000
Tonnes/capita/annum of waste to Class 1 landfills	0.378 tonnes/capita/annum

This figure varies significantly throughout New Zealand. The table below compares the 2023 figure for Tairāwhiti with other local authorities, and with the result for Gisborne from Waste Not's previous surveys.

Table 16: Comparative Per Capita Disposal Rates²⁵

Overall waste to Class 1 landfills including special wastes	Kg per capita per annum
<i>Tairāwhiti 2017</i>	296
<i>Tairāwhiti 2010</i>	305
Waimakariri district 2017	325

²⁵ Estimate provided by Waste Not Consulting based on a number of datasets held

Overall waste to Class 1 landfills including special wastes	Kg per capita per annum
Tairāwhiti 2023	383
Invercargill city 2018	528
Palmerston North 2017	545
Kapiti Coast district 2017	546
Dunedin city 2018	554
Tauranga and Western Bay 2020	560
Napier/Hastings 2022	595
New Zealand (2021)	685
Taupō district 2022	716
Hamilton city 2017	718
Queenstown Lakes district 2020	833
Hutt Valley 2022	899
Auckland region 2016	1,053

Areas with lower per capita waste generation tend to be rural areas, or urban areas with relatively low levels of manufacturing activity. The areas with the highest per capita waste generation are those with significant primary manufacturing activity and/or with large numbers of tourists.

Tairāwhiti has a consistently low rate of waste disposal to landfill. The accuracy of these estimates relies greatly on how accurately the non-council-controlled waste quantities have been estimated.

Table 17: Kerbside Waste per Capita

Calculation of per capita waste in kerbside collections	
Number of Gisborne city properties – bag stickers	14,605
Mean number of residents per household ²⁶	2.66
Gisborne city population provided with Council bag stickers	38,849

²⁶ As per Statistics New Zealand

Kerbside rubbish (both Council and private collections) disposed of at Gisborne Transfer Station (tonnes/week)	88
Council-stickered bags dropped off at Gisborne Transfer Station (tonnes/week)	17
Total tonnes per week - Kerbside rubbish and Council rubbish bags to Gisborne Transfer Station	105
Tonnes per annum (enumerated from weekly figures)	5,475
kg/capita/annum of kerbside waste	141 kg/capita/annum

Table 18: Kerbside-Collected Rubbish per capita

District and year of survey	Kg/capita/annum	Kerbside rubbish services used
Christchurch city 2011	110	Rates-funded fortnightly 140-litre wheelie bins (with weekly organic)
<i>Gisborne city 2017</i>	<i>122</i>	<i>Rates-funded stickered rubbish bags</i>
<i>Gisborne city 2020</i>	<i>141</i>	<i>Rates-funded stickered rubbish bags</i>
Whangarei district 2017	153	User-pays rubbish bags + private wheelie bins
Auckland Council 2016	156	User-pays rubbish bags + rates-funded wheelie bin + private wheelie bins
Bay of Plenty region 2020	160	Various
Taupo district 2022	183	User-pays rubbish bags + private wheelie bins
Dunedin city 2018	187	User-pays rubbish bags + private wheelie bins
Tauranga/WBOP 2019	192	User-pays rubbish bags + private wheelie bins
Hastings District/Napier City 2022	197	Rates-funded 120-litre wheelie bins + private wheelie bins
Hamilton city 2017	197	Rates-funded bags (2 per h/h max)
Wellington region 2014/15	206	User-pays rubbish bags + private wheelie bins

Palmerston North 2022	215	User-pays rubbish bags + private wheelie bins
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The per capita disposal rate of kerbside rubbish from Gisborne city in 2017 and 2023 are in the lower end of the range of the districts shown in the table. The disposal rates shown include kerbside rubbish from both residential and commercial properties.

The rates of kerbside rubbish disposal are associated with the nature of waste collection services available and their uptake, the type and usage of kerbside recycling services, and the uptake of wheelie bin rubbish collection services by the commercial sector relative to other waste services.

Although identical methodologies have been used for calculating Tairāwhiti's 2023 and 2017 disposal rates in the Waste Not SWAP audit, the results show a 16% increase in the per capita disposal rate. The tonnage of kerbside rubbish (including drop-offs) increased 20% over the six year period while the population provided with Council rubbish bag stickers only increased 4%.

In Table 19 below it appears that the increase could be attributed to bags dropped directly to the transfer station with a notable 24.4% recorded in 2019/20.

Table 19: Bag drop-in to Transfer Station per capita

Financial Year	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Drop centre in (tonnes)	1,142	1,116	1,185	1,498	1,874	2,156	2,609
Estimated population	46,745	47,517	48,500	49,300	50,243	51,300	52,400
Drop Centre in per capita (kg)	24	23	24	30	37	42	50
Increase (%)		-3.9%	4.0%	24.4%	22.8%	12.7%	18.5%

4.6 Compliance with MfE Requirements

MfE have introduced a number of requirements that TAs will be required to comply with or meet. These include kerbside standardisation requirements, with a specified range of materials able to be collected in kerbside recycling and organics collections, and diversion targets for kerbside collections. MfE's kerbside diversion targets are 30% by 1 July 2026, 40% by 1 July 2028, and 50% by 1 July 2030; and these include all household kerbside waste – i.e. including privately-collected household rubbish.

It is not known how much (if any) kerbside waste is diverted through private collections in Tairāwhiti.

Gisborne city's kerbside diversion rate can be calculated by dividing the total recycling collected by the total waste collected at kerbside, displayed in the table below. Note that this number excludes any household waste or recycling from private collection services.

Table 20: Kerbside Collection Diversion (2022/23 Financial Year, Council Only)

Waste stream	Quantity (2022/23 financial year, tonnes)	Percentage of total
Kerbside rubbish	3662.24	62
Kerbside recycling	2260.74	38
TOTAL	5922.98	100

Tairāwhiti is compliant with the requirements of kerbside standardisation for recycling, but needs to introduce a household kerbside food scraps collection service to Gisborne city by 2030.

As explained earlier, in section 4, Tairāwhiti appeared to be losing a large proportion of recycling to landfill at the time Waste Not conducted the SWAP audit. Council recognise that this is an ongoing situation and is collaborating with contractors to continuously improve performance and address contamination issues. If the contamination loss from the kerbside recycling collection was reduced to zero (as an example, rather than a practical outcome), the diversion rate would increase to around 36%.

5 Review of the 2018 - 2024 Waste Management and Minimisation Plan

As required by the WMA, Council has carried out a review of their last WMMP, which was adopted in May 2018. This followed a Waste Assessment which was adopted as complete in August 2017, and MfE have requested that the review of the current WMMP is completed by May 2024.

This WMMP had a vision for the future of “a prosperous region, where each person takes responsibility for using resources wisely so that we can reduce harm to the environment”. This vision was supported by two goals, which are closely linked to those in the previous New Zealand Waste Strategy, with further detail in objectives and policies.

Goal	Objectives
G1: To Improve waste and recycling performance	O1: To continually reduce the total quantity of waste we send to landfill O2: To provide environmental, social, economic, and cultural benefits by increasing the amount of waste diverted from landfill via reuse, recovery and/or recycling O3: To investigate the use of social enterprise initiatives and alternative waste technologies for environmental and economic benefit O4: To improve data collection and reporting systems across both the district and nationally
G2: Doing the best by the community and environment	O5: To actively engage the community and provide information, education and resources to support community actions O6: To work with local businesses and organisations to actively promote waste reduction at a local level O7: To use council influence to advocate for increased or mandatory producer responsibility for problematic wastes i.e., tyres, e-waste, plastic bags O8: To work with service providers to identify efficiencies while maintaining or improving service levels O9: To consider both the environmental and health and safety impacts of all options and ensure that these impacts are taken into account in council’s decision making process O10: Gisborne District Council is a leader by example in minimising waste

The following district-wide waste minimisation targets were set:

1. A 20% reduction in the total waste sent to Class1 landfills by 2024;
2. A 40% decrease in organic waste by 2024 (kerbside collections); and

3. A 20% increase in recycling by 2024.

The targets are simple, easy for the public to understand, and reflect both disposal and diversion; however there was not a clear baseline set.

The issues identified for waste management and minimisation in the district were:

- improvement is needed in the quality and management of waste data;
- need for a solid waste bylaw to influence waste diversion through regulatory measures;
- transport and disposal of waste at Tirohia landfill is out of district (310km away) and, unless consent is received to extend, is likely to close around 2028;
- need to improve information received on the two operating Class 2 Landfills including the tonnage and type of materials accepted;
- maximise the efficiencies of the existing kerbside collections and ensure best health and safety practice;
- increased generation of rubbish and decreased diversion of recyclables;
- biggest opportunity to achieve increased diversion is through organic waste collection; and
- viability of a social enterprise in recovering value from waste thus creating employment and youth development;

More detail on the issues and a high-level assessment of all options to address the issues was included in the Waste Assessment.

Council intends to oversee, facilitate and manage a range of programmes and interventions to achieve effective and efficient waste management and minimisation within the Tairāwhiti.

The table below comments on the vision, goals, objectives, and target.

2018 Plan	Commentary
Vision	The previous vision reflected some zero waste principles and te ao māori, in treating 'waste' as a valuable resource, and was very reflective of the New Zealand Waste Strategy at the time. Recent years have seen a focus on the concept of a 'circular economy' for waste which incorporates most of the zero waste principles but goes a step further to raising the importance of 'circularity' in waste systems. This is closely linked to a growing awareness of the environmental impacts (especially GHG emissions) of waste management practices. Te rautaki para, released in March 2023, includes a vision based on circular economy principles. For these reasons, it is proposed that the vision be reviewed for the next WMMP to align with the direction of the national waste strategy.
Goals	The goals are heavily reflective of the previous New Zealand Waste Strategy, and with Te rautaki para adopted, these should be revised.

2018 Plan	Commentary
Objectives	Similarly, the objectives need reviewing if the goals change alongside Te rautaki para. Additional goals could be added to reflect the wider circular economy approach to waste management and minimisation.
Target	The targets should be revised to reflect the anticipated outcomes of the agreed actions. The metrics on which the targets are based are considered appropriate. An additional target could be added to reflect the government's kerbside diversion targets.

5.1 Actions

The table below shows the key actions from the previous WMMP, and a brief comment on the extent to which each has been achieved.

Table 21: Review of the Previous WMMP Action Plan (actions with contribution towards targets)

Action	Existing, enhanced or new action, timeframes, funding	Progress
GDC is a leader by example in minimising waste – influencing the waste stream		
1. Resource recovery network - investigate and if feasible, develop a region-wide resource recovery/social enterprise to extract value from waste and provide employment	New, by 2020 General rate Targeted rate User charges Waste levy	Feasibility study completed in 2022. The study concluded that the region would benefit from a resource recovery network. The next step is to secure funding and establish the resource recovery centre/network. MfE pilot project in 2024.
2. Collaborate, lobby, research and trial - council will work collaboratively with local government organisations, non-government organisations and other key stakeholders to undertake research and actions to advance solutions to waste management issues such as, but not limited to e-waste, plastic bags, and the need for a container deposit system	Ongoing General rate Targeted rate User charges Waste levy	E-waste – November 2021 trialled a pilot programme for drop off of E-waste in collaboration with Tech Collect and the Tairāwhiti Environment Centre. Collections are continuing to date. Soft plastics – established soft plastic drop off locations in October 2022. Liquid paperboard – established a drop off location in August 2022. Here is a complete list of what can be recycled that is not offered at kerbside.

Action	Existing, enhanced or new action, timeframes, funding	Progress
		What to do with unwanted items Gisborne District Council (gdc.govt.nz)
3. Review council waste minimisation resource - the council will undertake a review of the existing waste team capability to ensure sufficient resource exists to implement this plan	New, by 2018 Rates Existing	Increased the waste minimisation team by one FTE – this covers waste minimisation education and Enviroschools facilitation.
4. Council may exercise its right In accordance with s46 (2) of the Waste Minimisation Act 2008 - to charge fees for a particular facility or service provided by council that are higher or lower than required to recover the costs to provide the service, providing the incentives or disincentives will promote waste minimisation	New, ongoing Existing	I can only think of plasback with GDC covering the cost for transport the past few collections. No drop off fees for e-waste, liquid paperboard, etc.

To improve data collection and reporting systems - regulation and data		
5. Waste Operator Licensing - implement waste licensing for operators and collectors as part of bylaw implementation	New, pending development of Solid Waste Bylaw Licensing fees	A bylaw was investigated however the planning team recommended not to establish one due to the lack of enforcement capacity BOPLASS is currently working through a tender process to have Licenced operators and to ensure capture of data for waste stream disposal is captured
6. Actively enforce, control and reduce littering and illegal dumping - ensure systems and resources are in place to actively enforce, control and reduce littering and illegal dumping	Enhancement, ongoing Licensing fees General rate Across Council approach	Ongoing work with the compliance team to issue infringement fines to offenders – Solid Waste Advisor also warranted which will increase the ability to infringe offenders. Increased coordination with litter bin collection contractors and illegal dumping collection contractors to increase the ability to search waste for evidence to identify offenders. Game cameras trialled, but ineffective in operation. Looking into better technology to assist with monitoring hotspots. This includes ongoing issues outside of transfer stations after hours Addressing as an ongoing issue with Waste Management at the city site
7. Implement Waste Data Framework - collect and manage data in accordance with the National Waste Data Framework	New, 2017 General rate Existing Staff Resource	BOPLASS is currently working through a tender process to have Licenced operators and to ensure capture of data for waste stream disposal is captured. Data has been captured for our controllable waste streams. Data captured from Rural transfer stations on volumes of waste and recycling disposed of. Data for kerbside collections and drop off

		centre. Also data for the residential and commercial drop off to the city transfer station along with volumes dispatched out of region.
8. Improve reporting on recyclables end destination - capture information on where recyclables are sent and recycled. The information will be used to inform future contract decisions	New, ongoing Waste levy	Info provided on monthly basis. Gaps recently identified – need to ensure we get better understanding and confirmation of the destination for recyclable products
9. New building recycling facilities - work with key internal and external stakeholders to ensure new multi-unit residential and commercial buildings include allocated space for appropriate waste facilities and servicing	New, ongoing General rate Existing Staff Resource	Ongoing korero with internal consenting teams around the requirement for areas for waste collections. MUDS - where there is a private road on entry, the team is having the conversations around waste disposal and areas for bin placements. It is in the consent process, but there is a small gap in the private road MUDS that is being addressed.
To actively engage the community - education and behaviour change		
10. Deliver a comprehensive waste minimisation programme promoting the waste hierarchy - support information and education programmes that raise awareness and promote waste minimisation. Develop targeted waste minimisation information and education programmes that included, but are not limited to: Second Hand Sunday, reusable nappies, textile recycling	Existing, enhanced, ongoing Existing staff resource Existing budget Waste Levy	WasteEd with Kate, education at TEC, waste minimisation comms, engagement with MfE waste minimisation comms workshops, Enviroschools Kaupapa, upcycling competitions etc. Second hand Sunday continues to be a popular avenue for residents to dispose of usable items.
11. Continue to encourage and support household composting - household	Enhanced, ongoing	Compost workshops at TEC and Tolaga

composting avoids creation of methane and transport emissions. We will endeavour to encourage and support home composting whenever possible. Increase monitoring of participants	Existing budget Waste levy (Depending on outcome of Action 3)	
12. Increase kerbside recycling tonnages per capita - large quantities of recyclable packaging is taken to landfill, instead of being recycled. If we can reverse this trend, we should be able to increase recycling tonnages per capita	Enhanced, ongoing Waste levy Existing staff resource Contractors	Refer to waste assessment.
13. Undertake community recycling awareness campaigns - Council will promote recycling awareness with the aim of increasing recycling rates across the city	Existing, enhanced, ongoing Waste levy	Video published in 2021. Waste minimisation comms on FB, in Panui, Herald etc., internal recycling week quiz etc. Community caretakers promote separation on site at rural transfer stations. Assist residents where required and provide advice on disposal options. Funded waste education in March 2024, with Kate Fenwick delivering waste minimisation workshops to schools and the community
14. Support food recovery and food waste prevention programmes - Council will support food waste recovery and food waste prevention programmes such as: Love Food Hate Waste	Enhanced, ongoing Existing staff resource Existing Budget Waste Levy	Support of Gizzy Kai Rescue, Love Food Hate Waste membership etc.

15. Provide Waste Minimisation support for public events - improve waste minimisation at events held at council sites. Support event organisers to implement waste minimisation at events	Enhanced, ongoing Existing staff resource Waste levy (Depending on outcome of Action 3)	Council bins are available to event organisers of small events. Our resource does not cater for a large event. Provide feedback to events and event organisers.
16. Support marae and iwi groups to minimise waste - support iwi and marae to promote and undertake waste minimisation by the provision of (but not limited to), support for the Para Kore programme	Existing, ongoing Waste levy	Annual funding towards Para Kore
17. Continue to support schools waste minimisation education initiatives - continue to provide funding for the Enviroschools programme to local schools	Existing budget, ongoing Existing budget Waste levy	Enviroschools, ECE waste audits, visits to TEC for waste minimisation education, teacher PD etc.
18. Professional development and subscriptions - to ensure Council can provide leadership, it will have appropriate memberships (e.g. WasteMINZ and undertake relevant professional development and networking opportunities (e.g. WasteMINZ conference, TA Sector Group)	Enhanced, ongoing Existing budget Waste levy where applicable	WasteMINZ, sector groups, Zero Waste Network, Keep New Zealand Beautiful etc.

19. Household hazardous waste disposal - Council to provide an annual household hazardous waste collection and actively promote existing disposal options for materials such as paint and oil	Enhanced, annually Waste levy	The last collection was approx. 2021 (that was for more than just households). Currently in talks to get annual household collection going by tying in with neighbouring regions collections.
20. Internal waste - implement best practice waste avoidance, reduction and minimisation within council sites and operations; and share knowledge and experience gained from such activities	Enhanced, ongoing Existing staff resource Existing budget	Bins and information provided internally, soft plastic and liquid paperboard collection spot at GDC, information provided to new staff, recycling week and regular waste minimisation communication through the staff blog.
21. Waste management practices in rural and holiday areas - encourage and where practicable support good waste management practices in rural areas and holiday communities	Enhanced, ongoing User pays and targeted rates Waste levy	Campers, holiday makers or day trippers are encouraged to take waste to the nearest transfer station for disposal. Hotspots are monitored, Enforcement team provide educational korero. City beaches are supported over the busy Christmas / new year period with additional bins provided to reduce beach litter. Rural transfer stations move to extended hour through mid-December to mid-January to assist with increased users
To continually reduce the total quantity of waste we send to landfill - Service and facilities		
22. Household recycling collection - continue to deliver and optimise the household recycling service	Existing, ongoing GDC Waste levy	Wheelie bins will be established by 2025. Holding off collections to the next day if the contractor are down drivers to ensure recycling is not bundled.
23. Household waste collection - continue to deliver and optimise household waste collection service that supports increased	Existing, 2020 User charges	Missed collections and bundling has been addressed with the contractor. Changes to collection days/times have been made to increase the service and confidence to households.

diversion and a cost-effective service for households		
24. Household food /green waste collection - consider possible options for a household food/green waste collection service or other alternatives that deliver similar outcomes	New, 2020 GDC Waste levy	This will be implemented in a new contract
25. Composting of Green Waste - work with existing contractor to improve capacity for the processing of organic waste into high value compost. Without increased capacity further organic diversion may be prevented i.e. green waste/food waste collection	Enhancement, ongoing GDC Waste levy	Council funds regular composting workshops, and participants are provided with a free 400L compost bin. Continue to back and support home composting or small composting initiatives. Recently opened locally owned and operated commercial composting facility will support the region further for commercial outlets for food waste, this facility will be an available option for disposal of a city FOGO collection.
26. Gisborne Resource Recovery Transfer Station - work with existing contractor to continually improve diversion rates from the transfer station This includes drop-off facilities for general waste, green waste (diverted), household recycling and other waste streams as per the contract	Enhancement, ongoing User charges GDC waste budget/ Waste levy Waste minimisation fund application	Monthly hui with contractor. Addressing missed collections and recycling being bundled. Change in collection days to reduce bundling. Caretakers continue to support rural transfer station users to encourage separation of recyclable materials. City transfer station. Improvement made to the public drop off, enabling better access to the drop off point.

27. Support of Tairawhiti Environment Centre to deliver waste awareness education programme - support of Tairawhiti Environment Centre to deliver waste awareness education programme Invest in the reach of this facility to grow awareness of waste minimisation and meet the needs of the community and council	Enhancement, 2017-19 GDC waste budget/ Waste levy	Waste education programmes have been ongoing with schools and community attending. Increase in rates provided to TEC to grow the Kaupapa.
28. Public place recycling and rubbish bins - review the effectiveness of public place recycling bins and current locations in order to optimize performance. Develop a policy for public place recycling and the location of bins. Consider compactor bin technology	Enhancement, 2017-18 Revenue GDC Waste levy for Capex only	Compacting bins introduced in some locations in 2019/2020. These compacting bins have been welcomed by contractors. Locations were chosen for the remoteness of the area and the accessibility. Other bins were proven to be an invite to dump or place excessive waste. These were moved to better suited areas. Public place recycling rates are low.
29. Closed landfills - continue to manage closed landfills to ensure relevant environmental and safety standards are met and are in accordance with all relevant policies and plans	Existing, ongoing Rates	Ongoing. Continue to work on the consent conditions to ensure these are meet
30. Support community groups and the business sector - provide support to businesses and community groups to develop waste minimisation initiatives and opportunities	Existing, ongoing GDC Waste levy	Provide advice when required. Contestable waste minimisation fund.
GDC is a leader by example in minimising waste - Gisborne City leadership and management		

31. Develop a robust procedure for the provision of grants for community and business waste minimisation projects develop a robust procedure for the provision of grants for community and business waste minimisation projects - using a percentage of council waste levy funds, provide grants for stakeholder groups and individuals to develop waste minimisation initiatives. Grants are allocated under a contestable process and guided by the council strategic priorities as described in the WMMP	Enhancement, ongoing Existing staff resource	GDC contestable waste minimisation fund – have increased the funding amount for 2024 from \$10,000 to \$15,000.
32. Collaborate with private sector and community - work with local groups to investigate opportunities to enhance economic development through waste minimisation (eg circular economy initiatives)	New, ongoing Existing staff resource GDC Waste levy	Collaboration with Walter Findlay, JJ Smallwoods etc. to enable recycling services (soft plastic recycling and liquid paperboard recycling).
33. Waste levy funding from MfE - investigate and support applications for contestable waste levy funding from MfE for both council and community waste reduction and minimisation initiatives	Ongoing, continue as part of waste minimisation role, existing Waste levy	Annual GDC contestable waste fund.

It is recommended that Council's vision, goals and objectives are reviewed to be reflective of Te rautaki para; with a greater emphasis on a wider circular economy approach.

Council completed most of their planned actions, with some still ongoing, and in some cases the outcomes of such planned actions have been implemented. An example is the implementation of a data capture framework for Council's controllable waste streams.

Considering this progress, the significant new requirements that have been set by central government, and the adoption of Te rautaki para with a new strategic direction of the circular economy; it is considered appropriate that Council agree to progress with development of a new WMMP, revoking and replacing the 2018 Plan.

6 Future Demand and Gap Analysis

6.1 Future Demand

There are a wide range of factors that are likely to affect future demand for waste minimisation and management. The extent to which these influence demand could vary over time and in different localities. This means that predicting future demand has inherent uncertainties. Key factors are likely to include the following:

- Overall population growth
- Economic activity
- Changes in lifestyle and consumption
- Changes in waste management approaches

In general, the factors that have the greatest influence on potential demand for waste and resource recovery services are population and household growth, construction and demolition activity, economic growth, and changes in the collection service or recovery of materials.

6.1.1 Population

Population projections are shown in the following table:

Table 22: Population Projections to 2048²⁷

Projection	2018	2023	2028	2033	2038	2043	2048	Change 2018–2048: number	Change 2018–2048: average annual percent
Low		50,700	50,500	49,900	48,900	47,600	45,900	-3,600	-0.3
Medium	49,500	52,000	53,200	54,000	54,500	54,700	54,700	5,200	0.3
High		53,300	55,800	58,100	60,200	62,000	63,700	14,200	0.8

The district's estimated population in 2021 was 50,243. For planning purposes Council uses a population forecast that sits somewhere between the StatsNZ medium and high projections. Growth area planning is under review by Council to ensure sufficient housing supply and affordability, and is part of the Council's Future Development Strategy²⁸ which sets out anticipated growth trends and geographical areas for future development.

²⁷ <https://www.stats.govt.nz/information-releases/subnational-population-projections-2018base2048-update/>

²⁸ [Future Development Strategy | Tairāwhiti Council \(gdc.govt.nz\)](#)

6.1.2 Economic Activity

Table 23 below shows annual GDP (per capita) figures and growth for the last twelve years. Tairāwhiti's economy grew by an average of 1.9% per annum in the period between 2010 and 2020, compared to a GDP growth rate of 2.7% per annum nationally²⁹. However, there are signs that economic growth in the region has gained momentum; between 2019 and 2020, GDP grew by 1.6% in the region compared to 1.5% at a national level and GDP growth in 2021 and 2022 has exceeded national growth. In 2023, Cyclone Gabriele had a significant economic impact in the Tairāwhiti, however, this is not quantifiable.

Figure 11: Gisborne GDP; Gisborne and National Growth



Table 23: Gisborne Annual GDP per capita (2010 – 2022)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
GDP per capita (NZD)	31,004	32,540	33,432	33,421	34,490	35,548	37,301	38,578	41,172	44,032	43,837	47,640	51,833

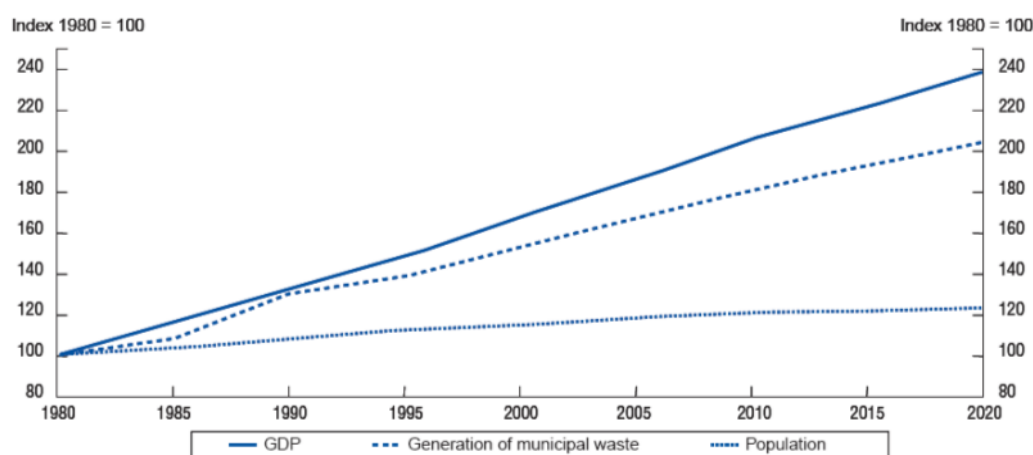
²⁹ [Regional Economic Profile | Overview \(infometrics.co.nz\)](https://infometrics.co.nz/regional-economic-profile/overview)

Growth (%)	2.4	-0.2	1.9	1.4	2.0	2.0	3.1	3.9	3.7	5.7	2.6	2.1	4.7
New Zealand (%)	-0.1	1.4	2.2	2.3	2.8	3.8	3.7	3.7	3.4	3.5	2.4	-0.4	4.5

GDP has a strong relationship with waste generation, and so periods of growth are likely to result in corresponding increases in consumption and hence waste generation.

For reference, Figure 12 below shows the growth in municipal waste in the OECD plotted against GDP and population.

Figure 12: Municipal Waste Generation, GDP and Population in OECD 1980 - 2020



Source: OECD 2001.

Research from the UK³⁰ and USA³¹ suggests that underlying the longer-term pattern of household waste growth is an increase in the quantity of materials consumed by the average household and that this in turn is driven by rising levels of household expenditure.

The relationship between population, GDP, and waste seems intuitively sound, as an increased number of people will generate increased quantities of waste and greater economic activity is linked to the production and consumption of goods which, in turn, generates waste.

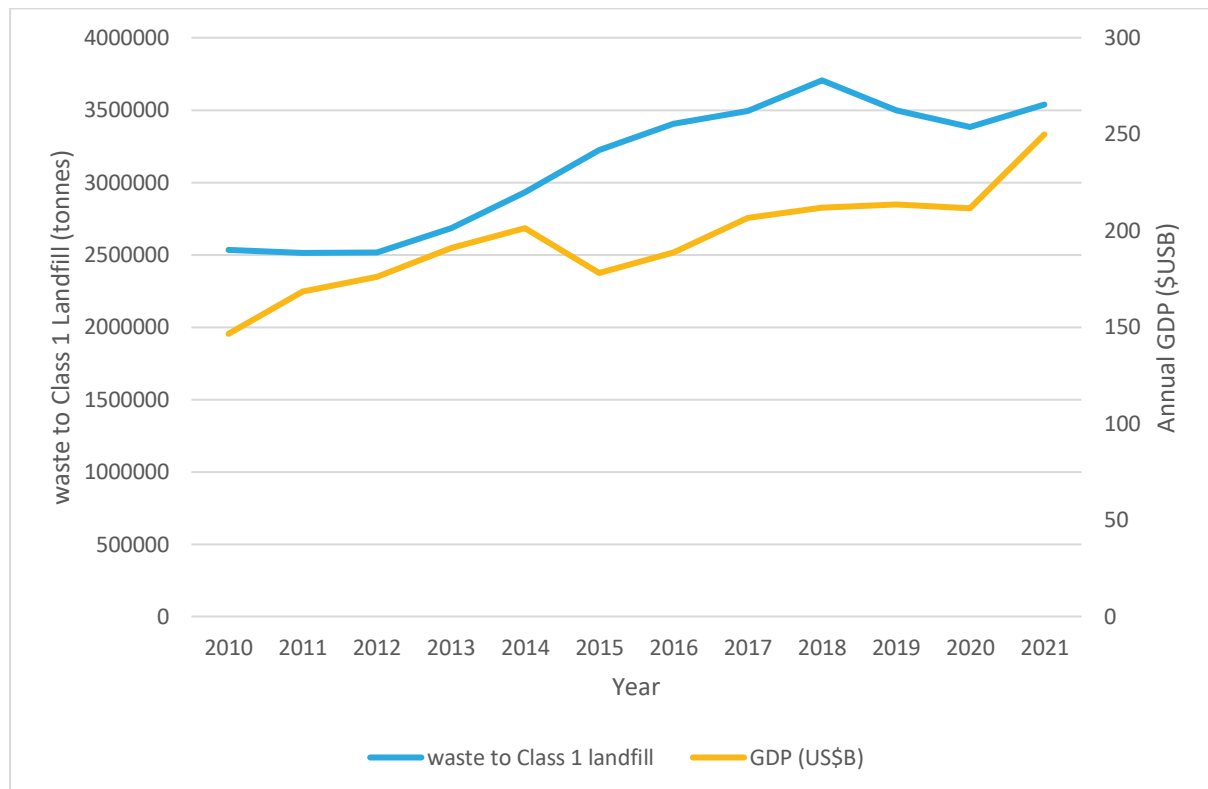
Total GDP is also a useful measure as it takes account of the effects of population growth as well as changes in economic activity. The chart suggests that municipal solid waste growth tracks above population growth but below GDP. The exact relationship between GDP, population, and waste growth will vary according to local economic, demographic, and social factors.

³⁰ Eunomia (2007), *Household Waste Prevention Policy Side Research Programme*, Final Report for Defra, London, England

³¹ EPA, 1999. National Source Reduction Characterisation Report For Municipal Solid Waste in the United States

Figure 13 below shows the annual tonnes sent to Class 1 landfill disposal, against the annual GDP of New Zealand (in billions of US\$). This relationship is not a complete picture, as Class 1 landfills tonnes are a subset of all waste disposed of in New Zealand, and this further does not represent waste produced, but only waste disposed of to Class 1 landfills. This data also can only be shown from 2010, as this was the first time that waste to Class 1 landfill disposal was measured accurately.

Figure 13: Waste to Class 1 Disposal and GDP (2010 - 2021)



As Tairāwhiti's population is anticipated to experience strong growth, alongside ongoing economic growth, it is likely that the district will experience a similar increase in waste generated assuming no change to waste behaviour or resource recovery rates. However, historical data from the district suggests that waste quantities managed through formal channels (e.g. kerbside collections and transfer stations) is increasing faster than either population or economic growth. This is likely due to an ongoing trend towards more formal management of waste, which is preferable to some other options such as home burning or burial; regardless, this is still a growth trend that will need to be accommodated into the future.

6.1.3 Changes in Lifestyle and Consumption

Consumption habits affect the waste and recyclables generation rates. For example, there has been a national trend related to the decline in newsprint. In New Zealand, the production of newsprint has been in decline since 2005, when it hit a peak of 377,000

tonnes, falling to 276,000 tonnes in 2011.³² Anecdotally, this has been accompanied by an increase in the use of printed direct mail ('junk mail') both in real terms and proportionally. This presents challenges for fibre recycling as this is a less desirable recycling commodity.

The ongoing growth in electronic devices will ensure that e-waste continues to be a growing waste stream, with (for example) data showing that households now tend to access the internet through multiple devices within the home and out, rather than a single home computer³³.

6.1.4 Changes in Waste Management Approaches

There are a range of drivers that mean methods and priorities for waste management are likely to continue to evolve, with an increasing emphasis on diversion of waste from landfill and recovery of material value. These drivers include:

- Te rautaki para / New Zealand Waste Strategy – with a strong focus on reducing emissions and waste, to achieve a more circular economy.
- New Zealand's first Emissions Reduction Plan with a number of actions for the waste sector including reducing the amount of organic going to landfill, including C&D, and a potential ban or limits on organic waste to landfill; along with improving waste data and landfill gas capture.
- Infrastructure investment - an increased landfill levy and other funding sources will drive increased investment in waste infrastructure. MfE are currently working a long-term strategic waste infrastructure investment plan, and the Hawkes' Bay regional infrastructure project is a part of this work.
- Increased cost of landfill - landfill costs have risen in the past due to higher environmental standards under the RMA, introduction of the Waste Disposal Levy (currently \$50 per tonne for Class 1 disposal facilities) and the New Zealand Emissions Trading Scheme. The cost of carbon credits, and the ongoing increases in the landfill levy, will make disposal prices a more significant consideration in waste management practices.
- Kerbside standardisation now requires that kerbside food scraps collections are introduced, with associated performance standards for TAs based on kerbside diversion; this will increase existing community demand for kerbside services where they don't already exist.
- Waste industry capabilities - as the nature of the waste sector continues to evolve, the waste industry is changing to reflect a greater emphasis on recovery and is developing models and ways of working that will help enable effective waste minimisation in cost-effective ways. COVID-19 pandemic management presents ongoing challenges in resourcing, both staff and vehicles, and logistics.
- Local policy drivers, including actions and targets in the WMMP, bylaws, and licensing.

³² http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=10833117

³³ Data from www.stats.govt.nz 'Household Use of Information and Communication Technology' accessed September 2018

- Recycling and recovered materials markets - recovery of materials from the waste stream for recycling and reuse is heavily dependent on the recovered materials having an economic value. This particularly holds true for recovery of materials by the private sector. Markets for recycled commodities are influenced by prevailing economic conditions, by commodity prices for the equivalent virgin materials, and by market controls in key destinations such as China. The risk is linked to the wider global economy through international markets, and the impact of the China National Sword policies has demonstrated this.

6.1.5 Summary of Demand Factors

The analysis of factors driving demand for waste services in the future suggests that demand will increase over time as a result largely of population growth and economic activity. It is likely that some new waste management approaches will be introduced as a result of the central government work programme, which could create demand in specific areas. Initial indications are that, for Tairāwhiti, this new demand is likely to be largely related to efforts towards possible business food waste diversion and recovery of construction wastes.

There is also likely to be an increasing focus and demand in other waste activities and types, including:

- disaster waste – recent events have highlighted the need for proactive disaster waste management plans, particularly with respect to local resilience where there is reliance on waste infrastructure located elsewhere in the region, or outside the region;
- smaller but difficult waste streams such as soft plastics, packaging that isn't accepted in kerbside recycling collections, compostable packaging as replacements for what will become banned packaging items, farm wastes, vape waste; and
- the impact of a possible future container return scheme.

6.2 Future Demand – Gap Analysis

The aim of waste planning at a territorial authority level is to achieve effective and efficient waste management and minimisation. The following high level 'gaps' or key issues have been identified; and these are discussed in more detail in the sections below:

- a significant (but unknown) proportion of the material collected in kerbside recycling is disposed of to landfill as a result of operational issues and contamination;
- access to infrastructure that is crucial for the district, such as Class 1 landfill and MRF processing for recyclables, is uncertain in the medium to long term;
- significant quantities of organic waste going to landfill, which is predominately food waste from household sources;
- central government requirements for kerbside services such as household food scraps collection and performance targets;
- improved management of waste from construction and demolition, particularly diversion of new plasterboard and timber;
- rural waste streams are poorly understood and would probably benefit from more proactive management;
- other materials going to landfill such as cardboard, paper, and textiles from both residential and ICI sources;

- increased requirements to monitor waste flows;
- ensuring waste infrastructure accommodates growth in the district; and
- proactive disaster and medical waste management.

6.2.1 Recyclables

Currently a significant (but unknown) proportion of the material that is collected at kerbside for recycling ends up in landfill. This appears to be the result of a number of factors including the cross-contamination that results from a fully comingled collection, incorrect materials being put into the containers, and operational issues including staff and vehicle shortages.

Despite the household kerbside services provided by Council, and the ability to recycle separated material at the Gisborne and rural RTS, there are also still quantities of recyclables going to landfill; especially cardboard and paper.

6.2.2 Access to Infrastructure

The Class 1 landfill that receives most of the district's waste, Tirohia, applied for an extension to the site resource consents. This application has been rejected at both the regional and national (Environment Court) levels. Under current consents, Tirohia may be able to receive waste up to around 2028.

The small Class 1 landfill to the northeast of the district, which accepts residual waste from the remote communities, is also nearing the end of the current consent.

The MRF in Tauranga which currently accepts the mixed kerbside recyclables from the district is on a site leased from Tauranga City Council; and this lease ends 31 December 2025. While a new MRF may well be constructed on the site (by EnviroNZ Ltd), there will be a period during which there will be no MRF in the Bay of Plenty region.

6.2.3 Organic Waste Diversion

There is no food scraps collection service in place in the district. SWAP audits also show that there are significant quantities of food scraps and garden waste going to landfill; largely originating in kerbside collections and (in the case of food scraps) through residential loads taken directly to the Gisborne Transfer Station.

Council will be required to introduce a household kerbside food scraps collection service for Gisborne city by 2030.

6.2.4 Construction and Demolition Waste

While some C&D waste is being diverted through Gisborne RTS, many building sites do not lend themselves easily to on-site separation of materials, which can make diversion of construction wastes difficult. Recovering C&D waste from these sites really requires some kind of sorting facility, which is not a feasible infrastructure option for the district alone. There are currently significant quantities of clean plasterboard and reusable or untreated timber going to landfill, which could both be diverted to beneficial use if separated from other construction wastes.

Some basic construction waste sorting could be put in place to at least enable the diversion of untreated timber and clean plasterboard.

A full construction waste sorting facility would be more feasible as a cross-regional project, in collaboration with the councils of the Hawkes Bay.

6.2.5 Rural Waste Management

Nationally, rural wastes are estimated to account for up to 12% of waste disposed of.³⁴ Waste streams from rural areas are not well understood, and current management practices of farm wastes probably include a number of less desirable methods such as on-property burning and burial.

Rural wastes are most commonly managed on-farm with material stockpiled, burned, and/or buried. There are very few controls over waste disposal on farm sites, and much of the material which is currently managed informally could be recycled or recovered, or properly disposed of.

The key issue is that current management methods are essentially no-cost and relatively convenient for farmers. Little to no sorting is required; services that collect non-natural materials for recovery or proper disposal are likely to be costly due to the distances involved and remoteness from processing and consolidation points, and require farmers to sort different materials into a number of different containers for collection.

Current product stewardship programmes such as Agrecovery and Plasback apply charges to farmers that participate in the schemes.

There have been a number of trials of farm waste collection services nationally. In addition, there are steps being taken to develop regulated product stewardship schemes for farm plastics and agricultural chemicals and their containers, which will provide a more comprehensive approach with (potentially) no direct charges to the end-user at end of life. There may be an opportunity to leverage these initiatives to support on-farm collection services for non-natural rural wastes that offers a high-quality collection service at below cost.

6.2.6 Textiles

Textiles are a material stream that has historically had a very low profile nationally. The recent focus on carbon reduction through waste management has increased this profile as textiles can contribute significantly to carbon impact assessments. Various national programmes exist to divert specific textile types (such as socks and cotton clothing) but these are capturing very small quantities and are unlikely to have the ability to cope with large quantities.

6.2.7 Private Sector Involvement

Non-household collection services are provided by the private sector, along with a proportion of household collection services.

³⁴Ministry for the Environment. 2019. *Reducing waste: a more effective landfill levy – consultation document*. Wellington: Ministry for the Environment.

Private sector involvement in the waste industry is not uncommon. However, private operators will, unsurprisingly, make service provision and investment decisions based on commercial realities. These decisions may not be in alignment with Council's preferred waste management approach or infrastructure priorities.

This issue will become increasingly important as performance reporting for household kerbside collections will include data reported by private operators. Although this will be reported directly to MfE, it may not necessarily be accessible by the councils in which areas the services are provided.

6.2.8 Monitoring and Performance Targets

Government has indicated its intention to require performance targets.

6.2.9 Waste Infrastructure

As growth continues in the district, there will be a need to expand and increase waste infrastructure accordingly to accommodate this growth. Landfill access in this part of the country is going to become a significant issue in the near future, with Tirohia landfill (that takes waste from all of the east side of the country apart from Hastings, which is serviced by the Hastings landfill) currently forecast to reach consent limits around 2028. Currently, there is a Ministry for the Environment funded project underway looking at a regional approach to planning for waste infrastructure in the Hawkes Bay and Tairāwhiti regions and will inform infrastructure development³⁵.

The circular economy focus of Te rautaki para | Waste Strategy gives the impetus and mandate to consider waste infrastructure in a slightly different way, with more of an emphasis on encouraging and providing for circular material flows.

6.2.10 Medical Waste

Medical waste can be an issue at home and in medical facilities. Generally, it is comprised of:

- Hazardous waste (which can be sharps, such as needles, or non-sharps such as infectious waste or radioactive);
- Controlled waste (such as potentially infectious bodily fluids); and
- Non-hazardous waste (which is general waste or recyclables).

At home, non-hazardous waste can generally be managed through usual general refuse and recycling services (although there are some exceptions through either the size of the item, or the sheer quantity). However, the management of hazardous and controlled wastes at home can be difficult, and with the increasing prevalence of in-home medical care, this is becoming a more significant problem.

³⁵ The MfE-funded project called "*Waste and Resource Recovery Infrastructure Plan*" is underway and will inform waste infrastructure gaps in the Hawkes Bay and Gisborne regions.

Ideally, in-home medical care would include provision for appropriate handling and disposal of medical wastes. However, for various reasons such as lack of awareness or cost, this is not always the case.

For healthcare in medical facilities, The Pharmacy Practice Handbook states:³⁶

4.1.16 Disposal of Unused, Returned or Expired Medicines

Members of the public should be encouraged to return unused and expired medicines to their local pharmacy for disposal. Medicines, and devices such as diabetic needles and syringes, should not be disposed of as part of normal household refuse because of the potential for misuse and because municipal waste disposal in landfills is not the disposal method of choice for many pharmaceutical types. Handling and disposal should comply with the guidelines in NZ Standard 4304:2002 – Management of Healthcare Waste.

While Council is not responsible for the provision of medical waste management services for either home-based care or medical facilities, it would be beneficial for Council to work proactively with DHBs and other medical service providers to ensure that appropriate services are being offered and put in place; efforts to do so via the CWJC are ongoing.

6.2.11 Disaster Waste

Disaster waste is increasingly becoming an issue, as climate change drives more extreme weather events such as flooding and slips, along with other natural disasters (such as earthquakes). A regional approach to this might strengthen a response to events that are likely to have regional scale impact. As mentioned in section **Error! Reference source not found.**, MfE is funding a project, the “Waste and Resource Recovery Infrastructure Plan”, which will inform this waste assessment and the infrastructure needed to efficiently deal with disaster waste.

³⁶ <https://nzpharmacy.wordpress.com/2009/06/09/disposal-of-unwanted-medicines/>

7 Statement of Options and Proposals

This section sets out the range of options available to Council to address the key issues that have been identified in the previous section of this Waste Assessment. Options presented in this section would need to be fully researched and the cost implications understood, before being implemented through Council's WMMP action plans and respective LTP/Annual Plan. Addressing these issues will ensure that Council is meeting their statutory obligations, and improving waste management and minimisation in Tairāwhiti.

7.1 Circular Resource Networks

A core principle incorporated in the options table following is that of the 'circular resource network'. This is a concept first developed in work carried out by Eunomia for the Ministry for Environment in 2021, and is included in the recently released 'National Resource Recovery – Infrastructure and Services Stocktake and Gap Analysis' referenced previously.

This concept is a way of implementing Circular Economy principles, which are a key part of Te rautaki para, in a practical resource recovery network infrastructure approach.

While the Circular Resource Network concept is explained in detail in appendix A.5.0, the key components of the system are explained here.

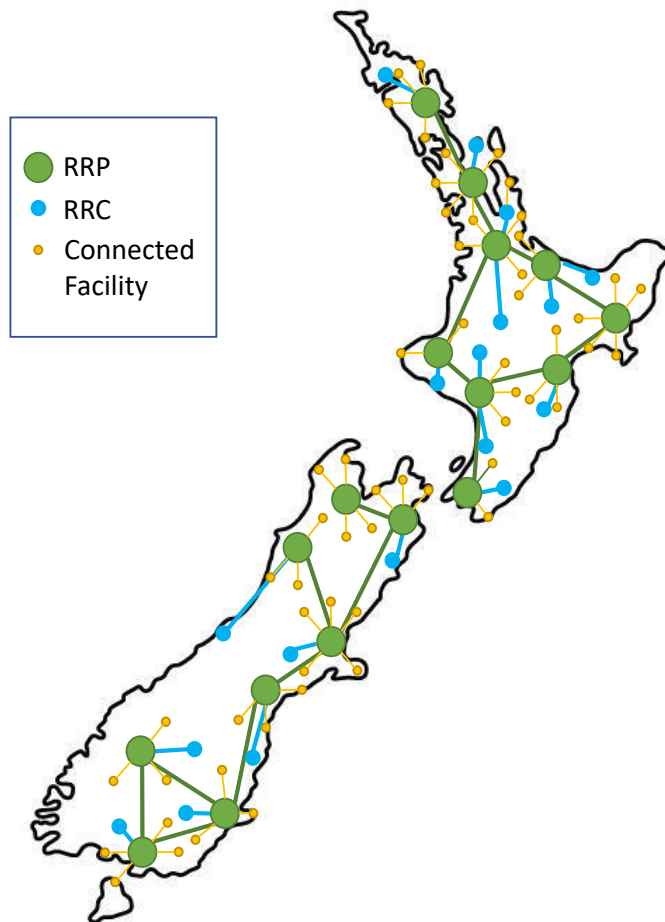
Figure 14 below shows a high-level visual representation of a national resource recovery network.

The large green dots represent regional RR Parks that consolidate and process material at a regional level. Depending on the material stream, materials could also be transported between the regional hubs (for example glass being consolidated in Christchurch for shipping to Auckland for manufacture). Regional hubs could also specialise in processing certain materials and swap materials accordingly.

The mid-sized blue dots represent local RR Centres that accept a full range of materials and send to the regional RR Parks for bulking (or to Connected Facilities for local processing). Not shown are smaller drop off sites.

The small yellow dots represent the potentially hundreds of facilities that are not co-located at an RR Park or RR Centre but are linked and operate to the standards of the network. These facilities could accept materials from the RR Park or RR Centres for processing, or supply materials to these sites.

Figure 14: Concept Map of Circular Resource Network



The key roles and components of the system are:

RR Parks – Regional Hubs: The heart of each regional network consists of one or two large RR Parks, where a range of key functions are co-located. The purpose of the RR Park is to provide a ‘hub’ for the efficient regional consolidation of a wide range of materials collected at the RR Centre and Connected Facilities, as well as those that may be collected at the RR Park itself.

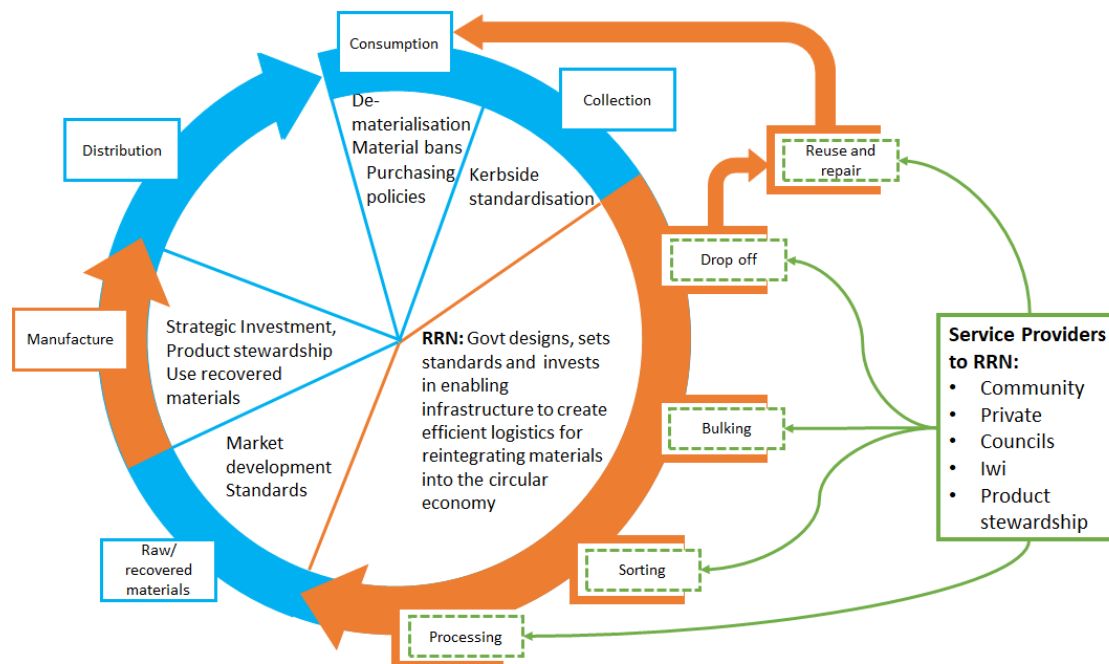
Local RR Centres: While the RR Parks are the hub of the regional networks, the RR Centre form the primary nodes, where the majority of material is dropped off and consolidated locally. Many RR Centres will start off as local transfer station sites that are upgraded and re-purposed to have a predominant focus on resource recovery.

Connected Facilities: While the heart of the circular resource network is the RR Park and RR Centre, a key feature of the circular resource network concept is the connection of potentially all resource recovery operations to the network. A range of resource recovery businesses that are not/do not need to be co-located at a network site are connected virtually. The facilities could be owned or operated by regional or national agencies, TAs, private sector, iwi, or community sector or through partnerships. As noted earlier, these

facilities would operate to the same standards as co-located facilities and could participate in the logistics and virtual network arrangements.

The figure below illustrates how the roles and functions of a national resource recovery network could integrate to provide key reverse logistics functions in the circular economy. The orange elements of the circle are the parts that form the circular resource network.

Figure 15: Roles and Functions of a Circular Recovery Network in the Circular Economy



In the above chart material flows around in a clockwise direction. The arrows represent the material flows. The boxes indicate the key steps within the value chain. The graphic shows how different providers to the can deliver all of the key functions, but within an overall connected framework (that is established and overseen by central/regional/local government).

7.2 Options Categorised by Work Area

These sections present the high-level options to address the key issues described above, broken down into the categories of regulation, measuring/monitoring, education/engagement, collections/services, infrastructure, and leadership/management. Options are presented this way as the role of TAs is likely to be fairly consistent within each of these categories and one option may address a number of key issues; also this enables the options to show a progression of options in one category with (for example) an increasing level of circular economy alignment.

The Council's roles could be:

Strategic: Simply identify the need at a strategic level, with other sectors able to respond to the need as they wish

Facilitation/Leadership: Take a facilitation and leadership role in addressing the need, such as by creating working groups focusing on a particular material e.g. construction waste

Regulator: Use regulatory tools available to councils to create an environment that encourages solutions, such as requiring construction site waste management plans, banning certain materials from landfill, etc.

Funder: Influence the way gaps addressed by others by making funding available for specific initiatives that address the need in some way

Provider: Take direct action by providing services or facilities that address the need.

7.2.1 Regulation

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Council's Role
R1	Introduce a solid waste bylaw to regulate the waste sector – establish consistent requirements for property owners, businesses and householders; regulate the use of waste facilities; license waste operators including requirements for minimum performance standards and data reporting; etc.	Poor understanding of some waste streams, including recycling, rural, construction and demolition waste. Increase monitoring and reporting required by central government.	Having access to better data enables better management of waste streams and future identification of issues. Council will have a better understanding of the district's performance against government's kerbside diversion targets. Te rautaki para goal 1, priority 1.3	Regulator

7.2.2 Measuring and Monitoring

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Council's Role
M1	Monitor tonnages of household recycling collected at the kerbside against contamination loss	Better understanding of kerbside recycling loss and the reasons for this – e.g. operational issues, contamination loss due to the fully comingled collection, incorrect items put out by residents.	Will better enable Council to identify the reasons for recycling loss and address these. Council will have a better understanding of progress towards meeting kerbside diversion targets Te rautaki para goal 1, priority 1.3	Provider
M2	Increase monitoring and surveying of rural wastes going to landfill; e.g. quantities and material types	More understanding and proactive management required for rural wastes – both from rural households, and from agricultural properties.	Better understanding across the board of non-household waste management and opportunities to move up the hierarchy. Te rautaki para goal 1, priority 1.5; goal 2, priority 2.4	Regulator, Provider

7.2.3 Education and Engagement

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Council's Role
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EE1	Identify opportunities for consistent, targeted, direct engagement that can be delivered where there is low participation in kerbside recycling and/or high levels of incorrect materials	May improve the loss of recyclables collected at the kerbside by reducing contamination	Need for education/ engagement (i.e. demand) is proactively identified and addressed. Te rautaki para goal 3, priorities 3.1 and 3.2	Provider
EE2	Continue to seek wider engagement with industry, community, and other agencies through regional and national waste action groups (e.g., C&D, health, retail, industry).	Improve the management of specific materials, moving up the hierarchy, by engaging with the sources – C&D waste, non-household recyclables, agricultural wastes, vapes, etc. Kerbside diversion performance standards and reporting requirements set by central government require changes in management for wastes outside Council's direct control. Proactive disaster and medical waste management.	Improved understanding of needs in the district and service gaps, and who is best to address them. Collaboration with the community and industry would improve their engagement, understanding, and awareness of waste issues, and enable closer relationships with other agencies such as Te Whatu Ora. Increased responsibility taken by various sectors for waste management within the community. Better understanding across the board of non-household waste management and opportunities to move up the hierarchy. Te rautaki para goal 1, priority 1.5; goal 2, priority 2.4	Facilitation/Leadership, Funder, Provider. Council could initiate groups and facilitate, possibly with low-level funding for project work. Council could provide options that support these other sectors in moving up the hierarchy. Ideally this would continue to be progressed through the CWJC.
EE3	Work closely with mana whenua, community groups, social enterprise, non-government organisations etc to develop and enable locally-led waste minimisation engagement and education, and support existing initiatives locally such as Sharewaste and Foodprint.	Large quantities of household organic waste and some household recyclables still going to landfill, suggesting lack of understanding of waste issues and what the services are for.	Need for education/ engagement (i.e. demand) is proactively identified and addressed. Collaborate with the community and industry would improve their	Facilitation/Leadership, Funder, Provider. Council should identify and facilitate collaboration with and between local groups to

	Incorrect items in kerbside recycling may be contributing to the current high loss of collected material. Encourage participation in services such as kerbside recycling. E&E can be targeted in areas where it is needed and delivered locally. Management of specific materials needs to be improved, especially moving up the hierarchy, by engaging with the sources – C&D waste, non-household recyclables, agricultural wastes, medical wastes etc. and reducing environmental harm.	engagement, understanding, and awareness of waste issues. Increased responsibility taken by various sectors for waste management within the community. Better understanding across the board of non-household waste management and opportunities to move up the hierarchy. Te rautaki para goal 1 priority 1.5; goal 3 priority 3.1 and 3.2	enable waste minimisation education and engagement.
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7.2.4 Collection & Services

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Council's Role
CS1	Identify preferred options and Introduce a kerbside food waste collection by 2030 to comply with the government's kerbside standardisation requirements (whether food waste only, or food and garden waste co-collected)	Central government requirements need to be complied with by a certain date.	Kerbside services would be aligned with central government's kerbside standardisation requirements. Kerbside diversion would increase and environmental impacts decrease with the diversion of household food scraps from landfill disposal. Te rautaki para goal 2, priority 2.1; goal 5 priorities 5.2 and 5.3	Provider

CS2	Review the kerbside recycling collection with a view to reducing loss through operational issues, cross-contamination, and gross contamination (incorrect materials) – e.g. require householders to use separate crates for glass. This action would be supported by an increased understanding of the issues causing the current high loss of kerbside-collected material. The solution/s that relate to the way the collection is provided should be identified through better data collection and analysis, and appropriate solutions introduced.	More recyclables would be diverted from landfill, and the overall kerbside diversion performance would improve.	More recyclable material would be diverted from landfill. Kerbside diversion performance would improve. Te rautaki para goal 2, priority 2.1; goal 5 priorities 5.2 and 5.3	Provider
CS3	Support/introduce virtual trading marketplaces e.g., freecycle pages, Civilshare.	Management of specific materials needs to be improved, especially moving up the hierarchy, by engaging with the sources – C&D waste, non-household recyclables, etc. and reducing environmental harm.	Meets demand for materials, and demand for increased reuse. Te rautaki para goal 1, priority 1.5; goal 2, priority 2.4; goal 3 priority 3.2, goal 4 priority 4.1 and 4.3	Facilitate/leadership, and/or provision
CS4	Work with local providers (private, iwi and community groups) to implement and/or encourage improved commercial service provision – e.g., recyclables, construction waste.	Management of specific materials needs to be improved, especially moving up the hierarchy, by engaging with the sources – C&D waste, non-household recyclables, agricultural wastes, medical wastes etc. and reducing environmental harm. Other materials going to landfill such as cardboard, paper, and textiles from both residential and ICI sources.	Te rautaki para goal 2, priority 2.3, 2.4; goal 4 priority 4.1; goal 5 priority 5.3; goal 6 priority 6.1; goal 7 priority 7.2 (where C&D waste is organic in nature)	Provider or Facilitation – ideally as a regional initiative

CS5	Work with product stewardship providers to encourage better service provision and awareness raising for key materials such as farm waste (containers and wrap), textiles, polystyrene.	Management of specific materials needs to be improved, especially moving up the hierarchy, by engaging with the sources – C&D waste, non-household recyclables, agricultural wastes, medical wastes etc. and reducing environmental harm. Other materials going to landfill such as cardboard, paper, and textiles from both residential and ICI sources.	Te rautaki para goal 2, priority 2.3, 2.4; goal 4 priority 4.1; goal 5 priority 5.3; goal 6 priority 6.1;	Facilitation – ideally as a regional initiative
CS6	Support local initiatives to provide services to increase diversion of C&D and ICI waste	Significant quantities of these waste streams going to landfill, including recyclables and potentially divertible organic wastes.	Ensure ongoing demand for services that facilitate increased diversion from these waste streams is met, now and into the future. Te rautaki para goal 2, priority 2.3 and 2.4; goal 4 priority 4.1; goal 5 priorities 5.2 and 5.3	Strategic and/or facilitation/leadership and/or funder (partial)

7.2.5 Infrastructure

Infrastructure options have been categorised into infrastructure that addresses a specific material (such as C&D, or organic waste) and then into progressively increasing levels of alignment with circular economy principles and achieving a Circular Resource Network.

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Council's Role
<i>Infrastructure for specific materials</i>				
IN1	Infrastructure provision to ensure collected kerbside recyclables are diverted may require improvement.	More recyclables would be diverted from landfill, and the overall kerbside diversion performance would improve.	More recyclable material would be diverted from landfill. Kerbside diversion performance would improve.	Strategic and/or facilitation/leadership and/or funder and/or provider

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Council's Role
	This action would be supported by an increased understanding of the issues causing the current high loss of kerbside-collected material. The solution/s that relate to infrastructure should be identified through better data collection and analysis, and appropriate solutions introduced.		Te rautaki para goal 2, priority 2.1; goal 5 priorities 5.2 and 5.3	
IN2	Consider future infrastructure provision for landfill disposal and MRF facilities in discussion with Council's contractor	More certainty around access to essential waste infrastructure	Ensure ongoing demand for disposal of residual waste and processing is met, now and into the future. Te rautaki para goal 2, priority 2.3 and 2.4; goal 4 priority 4.1; goal 5 priorities 5.2 and 5.3	Strategic and/or facilitation/leadership and/or funder and/or provider
IN3	Identify possible infrastructure processing options for material collected in any future kerbside organic waste collection (whether food waste only, or food and garden waste co-collected)	Processing for waste collected in the government-mandated household kerbside food waste collection service	Ensure emerging demand for processing of organic waste is met, now and into the future. Te rautaki para goal 2, priority 2.3 and 2.4; goal 4 priority 4.1; goal 5 priorities 5.2 and 5.3	Strategic and/or facilitation/leadership and/or funder and/or provider
IN4	Implement applicable outcomes of the regional circular resource network project	A more cohesive approach to waste infrastructure for the region, improving efficiency and recovery for a wide range of materials, and a stronger alignment to Te rautaki para	Ensure ongoing demand for disposal of residual waste and processing is met, now and into the future. Te rautaki para goal 2, priority 2.3 and 2.4; goal 4 priority 4.1; goal 5 priorities 5.2 and 5.3	Strategic and/or facilitation/leadership and/or funder and/or provider

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Council's Role
IN5	Support local initiatives to develop infrastructure to increase diversion of C&D and ICI waste	Significant quantities of these waste streams going to landfill, including recyclables and potentially divertible organic wastes.	Ensure ongoing demand for disposal of residual waste and processing is met, now and into the future. Te rautaki para goal 2, priority 2.3 and 2.4; goal 4 priority 4.1; goal 5 priorities 5.2 and 5.3	Strategic and/or facilitation/leadership and/or funder (partial)

7.2.6 Leadership and Management

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Council's Role
LM1	Advocate to central government for extended producer responsibility.	Implementation of product stewardship addresses problem waste streams at the source, such as vape waste.	Using the provisions in the WMA will help to ensure that the true cost of waste management of a product is reflected in its price. Product stewardship schemes for difficult waste streams such as e-waste and tyres will help Council provide management options for these waste streams. Te rautaki para goal 1 priority 1.1; goal 4 priorities 4.1, 4.2 and 4.3; goal 5 priorities 5.1 and 5.3; goal 7 priority 7.1	Facilitate/leadership - advocate to central government for stronger regulation and extended producer responsibility. Work with other councils and agencies to support similar lobbying efforts.

LM2	Respond to central government consultations, engagements, technical advisory groups, and information sharing opportunities.	Tairāwhiti-specific issues are considered and reflected in national strategies, plans, regulation, and actions.	Ensures that central government work supports local/regional work, and that local/regional issues are recognised. Te rautaki para goal 1; goal 2 priorities 2.1 and 2.4	Facilitate/leadership - advocate to central government
LM3	Work closely with mana whenua, community groups, and the private sector to progress opportunities for increased waste reduction and diversion.	TAs, mana whenua, community groups and the private sector working together will increase waste reduction and diversion.	Encourage the community to be more involved in waste minimisation, and potentially reduce waste and increase waste diversion. Te rautaki para goal 1 priority 1.5; goal 2 priority 2.4; goal 4; goal 5 priorities 5.2, 5.3 and 5.4; goal 7 priority 7.1	Facilitate/leadership, funder: coordinate and support initiatives.
LM4	Continue to develop regional collaborative projects and work towards increasingly formal collaborative arrangements.	Many key issues would be more effectively resolved through regional collaboration.	Puts in place collaboration arrangements that are appropriate to the collaborative work agreed. Te rautaki para goal 1 priority 1.5	Facilitate/leadership - negotiate and agree collaborative working arrangements
LM5	Support regional and national initiatives and organisations campaigning for better waste management and minimisation such as WasteMINZ sector groups and the TAO Waste Manifesto.	Tairāwhiti/Hawkes Bay-specific issues are considered and reflected in industry work programmes and Canterbury councils are aware and informed of work at the national scale.	Ensures that national scale work supports local/regional work, and that Canterbury councils are well positioned to make the most of opportunities from these national initiatives and organisations. Te rautaki para goal 1 priorities 1.1 and 1.5; goal 2 priorities 2.1, 2.2 and 2.3; goal 4 priorities 4.1, 4.2 and 4.3; goal 5 priorities 5.1 and 5.3; goal 7 priority 7.1	Facilitate/leadership be involved, coordinate and support initiatives.

LM6	Support regional and national projects improving waste management planning in disaster situations.	Proactive planning in place for disaster waste.	Proactive planning in place for disaster waste. Te rautaki para goal 1 priority 1.5	Facilitate/leadership - provide information as requested, and any other input required.
LM7	Support national sector organisations in lobbying for better vocational training and to encourage new recruits to the sector.	Relevant issues relating to staff and vehicle resources are incorporated in national-level work and addressed at a national level.	Ensures that Tairāwhiti/Hawkes Bay - focused issues are incorporated in national-level work on these issues. Te rautaki para goal 1 priority 1.5; goal 2 priority 2.1; goal 5 priority 5.2	Facilitate/leadership – provide support and information to national sector organisations.

The options identified and Council's possible role in meeting forecast demand comprise a range of proposals. The specific actions and timeframes for delivery will be identified through the development of a draft Waste Management and Minimisation Plan.

It is expected that the implementation of the preferred options from these proposals, as will be set out in Council's draft WMMP, will meet forecast demand as well as support Council's goals and objectives for waste management and minimisation and the phase 1, 2 and 3 goals of Te rautaki para. These goals and objectives will be confirmed as part of the development and adoption of the draft WMMP.

7.3 Statement of Extent

In accordance with section 51 (f), a Waste Assessment must include a statement about the extent to which the proposals will (i) ensure that public health is adequately protected, (ii) promote effective and efficient waste management and minimisation.

7.3.1 Protection of Public Health

The Health Act 1956 requires councils to ensure the provision of waste services adequately protects public health. The Waste Assessment has identified potential public health issues, and appropriate mechanisms to manage these risks would be a part of any implementation programme.

In respect of Council-provided waste and recycling services, public health issues are and will continue to be addressed through setting appropriate performance standards for waste service contracts and ensuring performance is monitored and reported on, and that there are appropriate structures within the contracts for addressing issues that arise.

Privately provided services can be regulated through local bylaws where necessary.

Uncontrolled disposal of waste, for example in rural areas and in cleanfills, can be regulated at a local, regional and central government level. Recent regulation adopted by government has extended both levy requirements and information reporting requirements to a wider range of facilities, and TAs will work with the regional council to ensure that waste issues are reflected appropriately in the developing regional plan/s.

It is considered that, subject to any further issues identified by the Medical Officer of Health, the proposals would adequately protect public health.

7.3.2 Effective and Efficient Waste Management and Minimisation

The Waste Assessment has investigated current and future quantities of waste and diverted material, and outlines Council's potential roles in meeting the forecast demand for services.'

It is considered that the process of forecasting has been robust, and that Council's intended role in meeting these demands is appropriate in the context of the overall statutory planning framework.

Therefore, it is considered that the proposals would promote effective and efficient waste management and minimisation.

8 Statement of Council's Intended Role

8.1 Statutory Obligations and Powers

Councils have a number of statutory obligations and powers in respect of the planning and provision of waste services. These include the following:

- Under the WMA each Council “must promote effective and efficient waste management and minimisation within its district” (s 42). The WMA requires TAs to develop and adopt a Waste Management and Minimisation Plan (WMMP).³⁷
- The WMA also requires TAs to have regard to the New Zealand Waste Strategy, Te rautaki para.
- Under Section 17A of the Local Government Act 2002 (LGA) local authorities must review the provision of services and must consider options for the governance, funding and delivery of infrastructure, local public services and local regulation. There is substantial cross over between the section 17A requirements and those of the WMMP process in particular in relation to local authority service provision.
- Under the Local Government Act 2002 (LGA) Councils must consult the public about their plans for managing waste.
- Under the Resource Management Act 1991 (RMA), TA responsibility includes controlling the effects of land-use activities that have the potential to create adverse effects on the natural and physical resources of their district. Facilities involved in the disposal, treatment or use of waste or recoverable materials may carry this potential. Permitted, controlled, discretionary, non-complying and prohibited activities and their controls are specified within district planning documents, thereby defining further land-use-related resource consent requirements for waste-related facilities.
- Under the Litter Act 1979 TAs have powers to make bylaws, issue infringement notices, and require the clean-up of litter from land.
- The Health Act 1956. Health Act provisions for the removal of refuse by local authorities have been repealed by local government legislation. The Public Health Bill is currently progressing through Parliament. It is a major legislative reform reviewing and updating the Health Act 1956, but it contains similar provisions for sanitary services to those currently contained in the Health Act 1956.

³⁷ The development of a WMMP in the WMA is a requirement modified from Part 31 of the LGA 1974, but with even greater emphasis on waste minimisation.

- The Hazardous Substances and New Organisms Act 1996 (the HSNO Act). The HSNO Act provides minimum national standards that may apply to the disposal of a hazardous substance. However, under the RMA a regional council or TA may set more stringent controls relating to the use of land for storing, using, disposing of or transporting hazardous substances.
- Under current legislation and the new Health and Safety at Work Act the Council has a duty to ensure that its contractors are operating in a safe manner.

Council, in determining their role, needs to ensure that their statutory obligations, including those noted above, are met.

8.2 Overall Strategic Direction and Role

The role taken by Councils in implementing the options described in the previous section can vary significantly, for example Councils can:

- simply identify the need at a strategic level, with other sectors able to respond to the need as they wish;
- take a facilitation and leadership role in addressing the need, such as by creating working groups focusing on a particular material e.g., construction waste;
- regulator - use regulatory tools available to Councils to create an environment that encourages solutions, such as requiring construction site waste management plans, banning certain materials from landfill, etc.;
- influence the way gaps are addressed by others by making funding available for specific initiatives that address the need in some way; and
- take direct action by providing services or facilities that address the need.

The overall strategic direction and role is presented in the Waste Management and Minimisation Plan.

9 Statement of Proposals

Based on the options identified in this Waste Assessment and the Council's intended role in meeting forecast demand a range of proposals have been put forward in section. Actions and timeframes for delivery of priority proposals are identified in the Draft Waste Management and Minimisation Plan.

It is expected that the implementation of these proposals will meet forecast demand for services as well as support the Council's goals and objectives for waste management and minimisation. These goals and objectives will be confirmed as part of the development and adoption of the Waste Management and Minimisation Plan.

9.1 Statement of Extent

In accordance with section 51 (f), a Waste Assessment must include a statement about the extent to which the proposals will (i) ensure that public health is adequately protected, (ii) promote effective and efficient waste management and minimisation.

9.1.1 Protection of Public Health

The Health Act 1956 requires the Council to ensure the provision of waste services adequately protects public health.

The Waste Assessment has identified potential public health issues associated with each of the options, and appropriate initiatives to manage these risks would be a part of any implementation programme.

In respect of Council-provided waste and recycling services, public health issues will be able to be addressed through setting appropriate performance standards for waste service contracts and ensuring performance is monitored and reported on, and that there are appropriate structures within the contracts for addressing issues that arise.

Privately provided services will be regulated through local bylaws.

Uncontrolled disposal of waste, for example in rural areas and in cleanfills, will be regulated through local and regional bylaws.

It is considered that, subject to any further issues identified by the Medical Officer of Health, the proposals would adequately protect public health.

9.1.2 Effective and Efficient Waste Management and Minimisation

The Waste Assessment has investigated current and future quantities of waste and diverted material, and outlines the Council's role in meeting the forecast demand for services.

It is considered that the process of forecasting has been robust, and that the Council's intended role in meeting these demands is appropriate in the context of the overall statutory planning framework for the Council.

Therefore, it is considered that the proposals would promote effective and efficient waste management and minimisation.

A.1.0 Medical Officer of Health Statement

3 May 2024

Health New Zealand
Te Whatu Ora

Anita Lewis
Eunomia Research & Consulting Ltd
P.O. Box 78-313
Grey Lynn
Auckland 1245

Kia Ora Anita,

Re: Medical Officer of Health Consultation: Gisborne District Council Water Assessment

Thank you for the opportunity to provide comments on the draft Gisborne District Council Waste Assessment, dated April 2024, as required by section 51 of the Waste Minimisation Act 2008. I have reviewed the document and am pleased to be able to provide the following feedback.

Effective waste management is critical for good public health outcomes. From a public health perspective, sanitary collection and disposal of solid waste is essential for:

- Human disease control such as managing pathogenic wastes and reducing harbourage of human disease vectors like rats, fleas, and mosquitoes
- Control of health nuisances from dust, odour, pest species or smoke from indiscriminate burning of waste
- Control of health risks from hazardous wastes such as asbestos
- Prevention of contamination of drinking or recreational water from runoff or leachate
- Public safety, in terms of uncluttered thoroughfares.

1. Waste minimisation

Public health can be protected by waste minimisation practices that decrease waste generation and subsequently reduce associated health hazards and adverse environmental outcomes. I support the Council's actions to reduce waste to landfill, such as reducing, recycling and reusing, and endorse efforts to promote circular economy principles, in which resources are utilised for as long as possible.

I commend Gisborne District Council for introducing bin-based kerbside collection.

It is encouraging that per capita kerbside landfill waste increase of -6.9 % in 2022/23 compared to 2021/22. However, I note that there remains significant diversion potential, with an estimated 60.6% of Council's kerbside collected waste being potentially recyclable paper (6.7%) and compostable food scraps (42.8%), and green waste (5.5%). I support proposed actions aimed at addressing this issue. Promoting composting initiatives, both at the community level and for household composting, is a commendable approach. Educational efforts should include information on the risk and prevention of legionellosis.

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2. Natural disaster waste

I support the Council's consideration for waste management during natural disasters. Large volumes of forestry slash were deposited in many areas during Cyclone Gabrielle, particularly along streams and rivers, embedded in road bridges and on beaches.

With the effects of climate change, we have experienced more severe weather events, and it is essential to consider natural disasters, which have been identified as significant waste generators. This may pose a challenge for Council, given the residual waste from Gisborne recycle transfer station is bulk hauled to Tirohia landfill in the Waikato, and the potential for limited capacity at Council-owned transfer stations. I would recommend that the Council not only investigate how to prepare for waste during a natural disaster but also develop a plan for managing disaster waste. This would align with the Council's Climate Change Strategy.

3. Construction and demolition waste

The waste assessment has identified that construction and demolition is a major waste stream, presenting a significant opportunity for waste minimisation in this area. I commend the Council for its initiatives aimed at diverting construction and demolition waste away from landfill, including the proposal for a construction and demolition waste sorting facility.

It is important to ensure that demolition waste does not contain contaminants, such as asbestos. While there is mention of asbestos waste within the waste assessment, consideration should be given to how asbestos waste is managed and disposed of.

4. Waste data

Good quality waste data is crucial for understanding the quantity and composition of waste coming into facilities. This information is essential for implementing effective and appropriate initiatives to minimise waste. The waste assessment recognizes improvement is needed in the quality and management of waste data. I recommend that Council investigate ways of obtaining data in these areas to better guide actions in the future.

5. Iwi engagement

The Waste Assessment indicates that Council is seeking views from Iwi on engagement on the overall plan. I think that it is important to include these views in the Waste Assessment and recommend ongoing proactive engagement with local Iwi regarding the Waste Management and Minimisation Plan to give effect to Māori perspectives on waste management.

6. Closed Landfills

The Tokomaru Bay site recently has been eroded by a river. Waste being distributed into the environment, and therefore poses a high risk to both human health and the environment. I recommend initiatives to manage the risk to human health.

7. Hazardous waste

Given the nature of hazardous waste and its high risk potential for harm to health, it is an important public health issue. It is pleasing to see that the Council has a range of treatment processes are used before hazardous wastes can be safely disposed of.

I recommend there is a facility where residents can safely dispose household quantities of hazardous waste or chemicals for free. I recommend that this information be included in the waste assessment. Free disposal of hazardous waste is important to discourage people from disposing of it in the kerbside collection.

I recommend not limiting this service to a scheduled drop-off events, or collections, as these may not be accessible to all members of the community.

I particularly recommend initiatives for responsible disposal of lithium batteries. At least three lithium battery fires have occurred in Waikato kerbside bin collections.¹

8. Organic waste

I note that organic material makes up approximately 51.6% of waste collected from households in kerbside bags. The organic waste is predominately food waste

Organic waste is odorous and more likely to be offensive. Reducing the amount of organic waste sent to landfill will extend the life of existing landfills and reduce the amount of greenhouse gas generated. The decomposition of organic wastes, such as food scraps, in the anaerobic environment of a landfill is the predominant source of greenhouse gas emissions from waste disposal.

9. Population growth

Future waste management planning must account for projected population growth as total waste is expected to increase in tandem with population growth. I recommend considering and providing a range of population growth projections, rather than just the total GDP.

Given the expected and estimated increase in total waste secondary to population and economic growth, early consideration and pre-emptive planning is imperative to address capacity issues related to storage and disposal.

¹ <https://hamilton.govt.nz/your-council/news/community-environment/batteries-cause-three-fires-in-six-months#:~:text=On%20Friday%2030%20June%2C%20a,Lincoln%20Street%20Resource%20Recovery%20Centre>

10. Rural waste

The Waste Assessment has identified the difficulty of quantifying rural waste managed on farms.

Waikato example: Two pieces of research, including a study conducted in the Waikato and Bay of Plenty in 2014² and a 2013 study of farm waste in Canterbury³ found that a large percentage of farms surveyed practised on-site disposal of waste by burning, burying or bulk storing indefinitely. The 2017 Eastern Waikato Waste Assessment estimated, based on these studies, that approximately 17000 tonnes of farm waste was disposed of on the farm in the Thames-Coromandel district.

The studies of farm waste have found that it includes hazardous waste, with variable management techniques. Poor practices in the disposal of hazardous waste can lead to contamination of the environment, with associated health risks.

I encourage Council to engage with farmers to help address the issue of on-site disposal through education, and the identification and removal of barriers to appropriate waste disposal. This will also require further work to obtain information about farm waste in the district.

11. Medical waste

I would encourage the Council to provide opportunities for more education and community initiatives that support safe disposal of sharps. Inappropriate sharps disposal through general waste and recycling systems poses a risk for collection and processing staff and is a significant infectious disease safety concern. I support the view for Council to work proactively Te Whatu Ora Tairāwhiti (previously the Tairāwhiti District Health Board) and other medical service providers regarding the management of medical waste.

Conclusion

I hope that these comments will add to the value to the Waste Assessment and be helpful in further development of the Waste Management and Minimisation Plan.

Once again thank you for the opportunity to comment. The National Public Health Service recognises that effective waste management contributes to better health outcomes for the community.

² GHD (2014) Rural waste surveys data analysis Waikato & Bay of Plenty. Waikato Regional Council Technical Report 2014/55. Accessed from

<https://www.waikatoregion.govt.nz/services/publications/tr201455/> 12/1/23

³ GHD (2013) Non-natural rural wastes. Site survey data analysis, Environment Canterbury Report no. R13/52

Ngā mihi,



Dr Douglas Lush

Medical Officer of Health

National Public Health Service

Health New Zealand
Te Whatu Ora

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Te Kāwanatanga o Aotearoa
New Zealand Government
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A.2.0 Glossary of Terms

Class 1-5 disposal facilities	Classification system for facilities where disposal to land takes place. The classification system is provided in A.3.0 below for reference.
Cleanfill	A cleanfill (properly referred to as a Class 5 landfill) is any disposal facility that accepts only cleanfill material. This is defined as material that, when buried, will have no adverse environmental effect on people or the environment.
C&D Waste	Waste generated from the construction or demolition of a building including the preparation and/or clearance of the property or site. This excludes materials such as clay, soil and rock when those materials are associated with infrastructure such as road construction and maintenance, but includes building-related infrastructure.
Diverted Material	Anything that is no longer required for its original purpose and, but for commercial or other waste minimisation activities, would be disposed of or discarded.
Domestic Waste	Waste from domestic activity in households.
ETS	Emissions Trading Scheme
ICI	Industrial, Commercial, Institutional
Landfill	A type of disposal facility as defined in S.7 of the Waste Minimisation Act 2008, excluding incineration. Includes, by definition in the WMA, only those facilities that accept 'household waste'. Also referred to as a Class 1 landfill.
LGA	Local Government Act 2002
Managed Fill	A Class 3 disposal site requiring a resource consent to accept well-defined types of non-household waste, e.g. low-level contaminated soils or industrial by-products, such as sewage by-products.
MfE	Ministry for the Environment

MRF	Materials Recovery Facility
MSW	Municipal Solid Waste
NZ	New Zealand
NZWS	New Zealand Waste Strategy
PS	Product Stewardship programmes
Putrescible, garden, greenwaste	Plant based material and other bio-degradable material that can be recovered through composting, digestion or other similar processes.
RRP	Resource Recovery Park
RTS	Refuse Transfer Station
Service Delivery Review	As defined by s17A of the LGA 2002. Councils are required to review the cost-effectiveness of current arrangements for meeting the needs of communities within its district or region for good-quality local infrastructure, local public services, and performance of regulatory functions. A review under subsection (1) must consider options for the governance, funding, and delivery of infrastructure, services, and regulatory functions.
TA	Territorial Authority (a city or district council)
Waste	Means, according to the WMA: a) Anything disposed of or discarded, and b) Includes a type of waste that is defined by its composition or source (for example, organic waste, electronic waste, or construction and demolition waste); and c) To avoid doubt, includes any component or element of diverted material, if the component or element is disposed of or discarded.
WA	Waste Assessment as defined by s51 of the Waste Minimisation Act 2008. A Waste Assessment must be completed whenever a WMMP is reviewed
WMA	Waste Minimisation Act 2008

WMMP	A Waste Management and Minimisation Plan as defined by s43 of the Waste Minimisation Act 2008
WWTP	Wastewater treatment plant

A.3.0 Classifications for Disposal to Land

MfE have classified disposal and other waste facilities under two regulations, which enable the application of the disposal levy and the collection of data. Facilities had also previously been categorised according to the WasteMINZ 'Technical Guidelines for the Disposal of Waste to Land', and there are some slight variations between the two.

A.3.1 Technical Guidelines Definitions

Class 1 - Landfill

A Class 1 landfill is a site that accepts municipal solid waste. A Class 1 landfill generally also accepts C&D waste, some industrial wastes and contaminated soils. Class 1 landfills often use managed fill and clean fill materials they accept, as daily cover.

Class 1 landfills require:

- a rigorous assessment of siting constraints, considering all factors, but with achieving a high level of containment as a key aim;
- engineered environmental protection by way of a liner and leachate collection system, and an appropriate cap, all with appropriate redundancy; and
- landfill gas management.

A rigorous monitoring and reporting regime is required, along with stringent operational controls. Monitoring of accepted waste materials is required, as is monitoring of sediment runoff, surface water and groundwater quality, leachate quality and quantity, and landfill gas.

Waste acceptance criteria (WAC) comprises:

- municipal solid waste; and
- for potentially hazardous leachable contaminants, maximum chemical contaminant leachability limits (TCLP) from Module 2 Hazardous Waste Guidelines – Class A4.

WAC for potentially hazardous wastes and treated hazardous wastes are based on leachability criteria to ensure that leachate does not differ from that expected from non-hazardous municipal solid waste.

For Class 1 landfills, leachability testing should be completed to provide assurance that waste materials meet the WAC.

Class 2 Landfill

A Class 2 landfill is a site that accepts non-putrescible wastes including C&D wastes, inert industrial wastes, managed fill material and clean fill material. C&D waste can contain biodegradable and leachable components which can result in the production of leachate – thereby necessitating an increased level of environmental protection. Although not as strong as Class 1 landfill leachate, Class 2 landfill leachate is typically characterised by mildly acidic pH, and the presence of ammoniacal nitrogen and soluble metals, including heavy metals. Similarly, industrial wastes from some activities may generate leachates with chemical characteristics that are not necessarily organic.

Class 2 landfills should be sited in areas of appropriate geology, hydrogeology and surface hydrology. A site environmental assessment is required, as are an engineered liner, a leachate collection system, and groundwater and surface water monitoring. Additional engineered features such as leachate treatment may also be required.

Depending on the types and proportions of C&D wastes accepted, Class 2 landfills may generate minor to significant volumes of landfill gas and/or hydrogen sulphide. The necessity for a landfill gas collection system should be assessed.

Operational controls are required, as are monitoring of accepted waste materials, monitoring of sediment runoff, surface water and groundwater quality, and monitoring of leachate quality and quantity.

Waste acceptance criteria comprises:

- a list of acceptable materials; and
- maximum ancillary biodegradable materials (e.g. vegetation) to be no more than 5% by volume per load; and
- maximum chemical contaminant leachability limits (TCLP) for potentially hazardous leachable contaminants.

Class 3 Landfill – Managed/Controlled Fill

A Class 3 landfill accepts managed fill materials. These comprise predominantly clean fill materials, but may also include other inert materials and soils with chemical contaminants at concentrations greater than local natural background concentrations, but with specified maximum total concentrations.

Site ownership, location and transport distance are likely to be the predominant siting criteria. However, as contaminated materials (in accordance with specified limits) may be accepted, an environmental site assessment is required in respect of geology, stability, surface hydrology and topography.

Monitoring of accepted material is required, as are operational controls, and monitoring of sediment runoff and groundwater.

Waste acceptance criteria comprises:

- a list of acceptable solid materials; and
- maximum incidental or attached biodegradable materials (e.g. vegetation) to be no more than 2% by volume per load; and

- maximum chemical contaminant limits.

A Class 3 landfill does not include any form of engineered containment. Due to the nature of material received it has the potential to receive wastes that are above soil background levels. The WAC criteria for a Class 3 landfill are therefore the main means of controlling potential adverse effects.

For Class 3 landfills, total analyte concentrations should be determined to provide assurance that waste materials meet the WAC.

Class 4 Landfill – Controlled Fill

A Class 4 landfill accepts controlled fill materials. These comprise predominantly clean fill materials, but may also include other inert materials and soils with chemical contaminants at concentrations greater than local natural background concentrations, but with specified maximum total concentrations.

Site ownership, location and transport distance are likely to be the predominant siting criteria. However, as contaminated materials (in accordance with specified limits) may be accepted, an environmental site assessment is required in respect of geology, stability, surface hydrology and topography.

Monitoring of accepted material is required, as are operational controls, and monitoring of sediment runoff and groundwater.

Waste acceptance criteria comprises:

- a list of acceptable solid materials; and
- maximum incidental or attached biodegradable materials (e.g. vegetation) to be no more than 2% by volume per load; and
- maximum chemical contaminant limits.

A Class 4 landfill does not include any form of engineered containment. Due to the nature of material received it has the potential to receive wastes that are above soil background levels. The WAC criteria for a Class 4 landfill are therefore the main means of controlling potential adverse effects.

Class 5 Fill – Cleanfill

A Class 5 fill accepts only clean fill material. The principal control on contaminant discharges to the environment from Class 5 fills is the waste acceptance criteria.

Stringent siting requirements to protect groundwater and surface water receptors are not required. Practical and commercial considerations such as site ownership, location and transport distance are likely to be the predominant siting criteria, rather than technical criteria.

Clean filling can generally take place on the existing natural or altered land without engineered environmental protection or the development of significant site infrastructure. However, surface water controls may be required to manage sediment runoff.

Extensive characterisation of local geology and hydrogeology is not usually required.

Monitoring of both accepted material and sediment runoff is required, along with operational controls.

Waste acceptance criteria:

- virgin excavated natural materials (VENM), including soil, clay, gravel and rock; and
- maximum incidental inert manufactured materials (e.g. concrete, brick, tiles) to be no more than 5% by volume per load; and
- maximum incidental or attached biodegradable materials (e.g. vegetation) to be no more than 2% by volume per load; and
- maximum chemical contaminant limits are local natural background soil concentrations.

Materials disposed to a Class 5 fill should pose no significant immediate or future risk to human health or the environment.

The WAC for a Class 5 fill should render the site suitable for unencumbered potential future land use, i.e. future residential development or agricultural land use.

The WAC for a Class 5 fill are based on the local background concentrations for inorganic elements, and provide for trace concentrations of a limited range of organic compounds.

Note: The Guidelines should be referred to directly for the full criteria and definitions.

A.3.2 Ministry for the Environment Classifications

The Ministry for the Environment have recently extended the payment of the landfill levy to a wider range of disposal facilities, and have also required reporting of data from 'cleanfills' and transfer stations. This has entailed two regulations – the first to extend the levy to other facilities³⁸ and the second to require data reporting from 'cleanfills' and transfer stations³⁹.

These regulations establish definitions for a range of disposal and other waste facilities beyond the Class 1 landfills that were captured by the landfill levy when it was first introduced.

These are summarised in the table below:

³⁸ <https://www.legislation.govt.nz/regulation/public/2021/0068/latest/LMS474556.html>

³⁹ <https://www.legislation.govt.nz/regulation/public/2021/0069/latest/whole.html>

Disposal facility class	Description	Types of waste not accepted	Examples of types of waste accepted
1 Municipal Disposal Facility	A facility, including a landfill: • where waste is disposed of • that operates, at least in part, as a business to dispose of waste • accepts waste that is or includes any one or more of the following: - household waste - waste from commercial or industrial sources - waste from institutional sources (e.g., hospitals, educational facilities and aged-care facilities) - green waste (e.g., degradable plant materials such as tree branches, leaves, grass, and other vegetation matter) - waste that is not accepted at other disposal facilities in the WMA. It is not a: • class 2: construction and demolition disposal facility • class 3 and 4 managed or controlled fill disposal facility • an industrial monofill facility • a cleanfill facility.		Types of waste may include (but not limited to): • mixed municipal waste from residential, commercial and industrial sources • construction and demolition waste • contaminated soils • rocks, gravel, sand, clay • sludges • slurries • putrescible waste • green waste • biosolids • clinical waste • treated hazardous waste • incidental hazardous waste.
2 C&D Disposal	Accepts waste from construction and demolition activity It is not a: • class 3 and 4 managed or controlled fill disposal facility • an industrial monofil facility • a cleanfill facility.	Does not accept any of the following for disposal: • household waste • waste from commercial or industrial sources • waste from institutional sources (e.g., hospitals, educational facilities, and aged-care facilities)	Mixed construction and demolition waste including: • rubble, plasterboard, treated and untreated timber • wood products, including softboard, hardboard, particle board, plywood, MDF, custom wood, shingles, sawdust

		• waste generated from a single industrial process (e.g., steel or aluminium-making, or pulp and papermaking) carried out in one or more locations • Is not a class 3 and 4 managed or controlled fill facility	• concrete, including reinforced or crushed concrete blocks • clay products including pipes, tiles • asphalt (all types), and roading materials, including road sub-base • plasterboard and Gibraltar board • masonry, including bricks, pavers • metal, or products containing metals, including corrugated iron, steel, steel-coated tiles, wire, wire rope, wire netting, aluminium fittings • plastic products, including plastic bags, pipes, guttering, building wrap • insulation products • laminate products, including Formica • flooring products, including carpet and underlay, vinyl/linoleum, cork tiles • paper and cardboard products, including wallpaper, lining paper, building paper • site clearance and excavation materials including soils, clays, rocks, gravel, tree stumps
3/4 Managed or Controlled Fill Disposal	Accepts any one of the following for disposal: • inert waste material from construction and demolition activities	Does not accept: • household waste • waste from commercial or industrial sources	Types of waste may include (but not limited to): • lightly contaminated soil below applicable consent limits and inert

	• inert waste material from earthworks or site remediation	• waste from institutional sources (eg, hospitals, educational facilities, and aged-care facilities) • waste generated from a single industrial process (eg, steel or aluminium-making, or pulp and paper-making) carried out in one or more locations • waste material from construction and demolition activity (except for inert waste material).	construction and demolition materials, including: - site facilities clearance and excavation materials including soils, clays, rocks, gravel, tree stumps masonry, including bricks and pavers clay products, including pipes, tiles - concrete, including crushed concrete and blocks (for reinforced concrete, exposed reinforcing must be removed) - asphalt (bitumen-based only) - road sub-base.
5 Cleanfill	A facility that accepts only virgin excavated natural material (such as clay, soil, or rock) for disposal	Any materials other than virgin excavated natural materials (VENM)	VENM such as clay, soil and rock
Industrial monofill	A facility that accepts for disposal waste that: • discharges or could discharge contaminants or emissions • is generated from a single industrial process (e.g., steel or aluminium-making, or pulp and paper-making) carried out in one or more locations.	• household waste • waste from commercial or institutional sources (e.g., hospitals, educational facilities, and aged-care facilities) • waste not generated by a single industrial process.	Waste generated by industrial processes such as: • steel-making • aluminium-making • pulp and paper • oil exploration and extraction
Transfer station	A facility: • that contains a designated receiving area where waste is received; and • from which waste or any material derived from that waste is: transferred to a final disposal site transferred elsewhere for further processing that does not itself provide	N/A (no disposal of waste occurs)	N/A

	long-term storage for waste or material derived from that waste.		
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A.4.0 National Legislative and Policy Context

A.4.1 The New Zealand Waste Strategy 2023

The New Zealand Waste Strategy 2023 provides the Government's strategic direction for waste management and minimisation in New Zealand. This strategy was released in 2023 and replaced the 2010 Waste Strategy.

The strategy aims to provide direction to central and local government, businesses (including the waste industry), and communities on where to focus their efforts to manage waste. It will be supported by an action and investment plan (AIP) which will be developed in consultation with local authorities, the waste management sector, and others; and will set out priority actions required over the next five years. The 2023 strategy has a focus on achieving a more 'circular economy' for waste and sets out a multi-decade pathway towards this. Under section 44 of the Waste Management Act 2008, in preparing their waste management and minimisation plan (WMMP) councils must have regard to the New Zealand Waste Strategy, or any government policy on waste management and minimisation that replaces the strategy. Guidance on how councils may achieve this is provided in section 4.4.3.

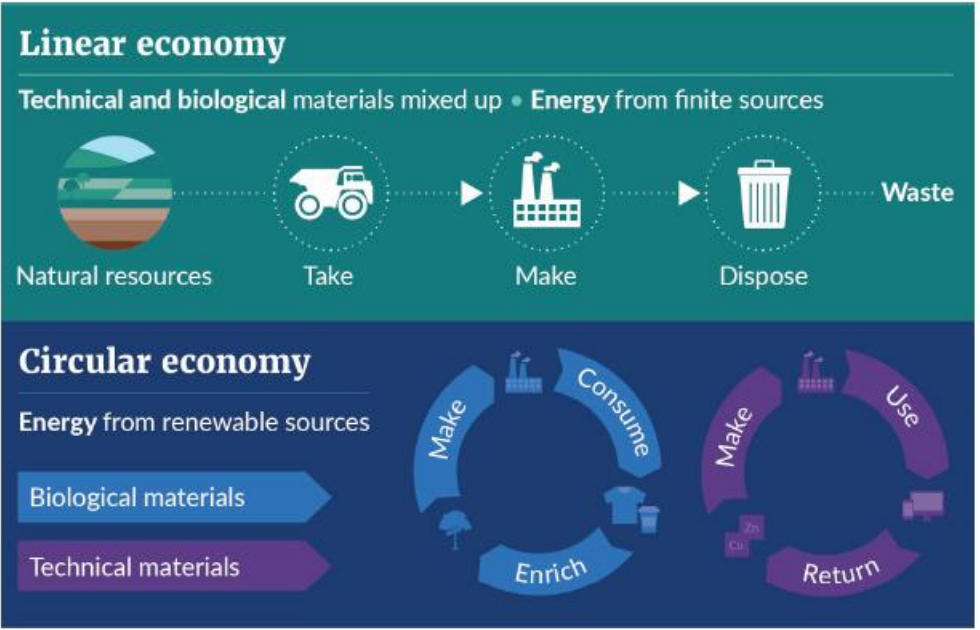
A copy of the current New Zealand Waste Strategy is available on the Ministry's website. Sections of the new strategy are discussed here in more detail.

A.4.1.1 Circular Economy principles

The strategy includes some background on circular economy, including some summary figures that compare a linear economy to a circular economy, and a revised waste hierarchy. It also emphasises the role of te ao Māori in considering waste approaches.

The figures mentioned above are shown here (with permission from MfE):

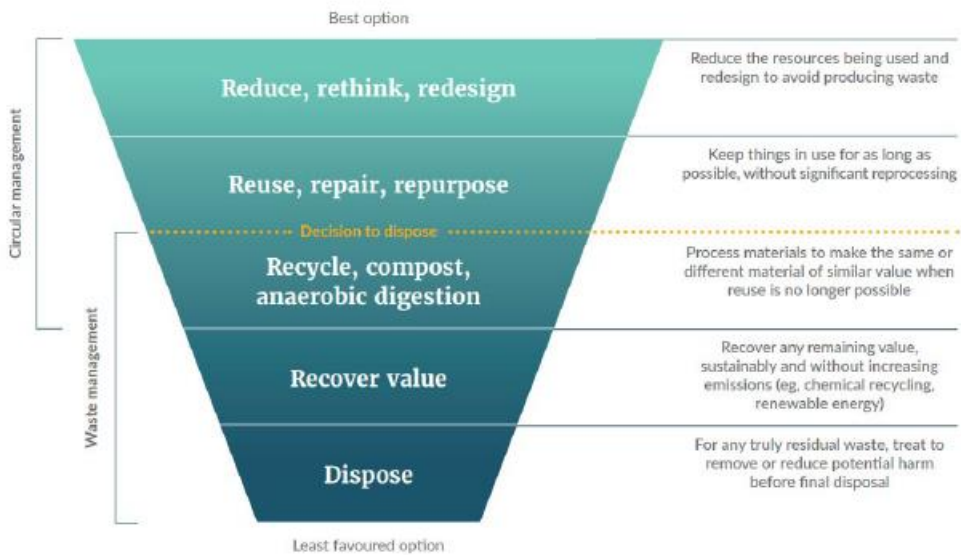
Figure 16: Characteristics of Linear and Circular Economies



Source: Te rautaki para | Waste Strategy (page 14), Ministry for the Environment 2023

The waste hierarchy is still a core principle guiding waste management and minimisation in New Zealand, but has been refined to more closely support and align with a circular economy approach.

Figure 17: Revised Waste Hierarchy



Source: Te rautaki para | Waste Strategy (page 14), Ministry for the Environment 2023

The strategy highlights several key facts that demonstrate New Zealand’s relatively poor performance in waste management and minimisation:

- emissions from waste produce 9% of New Zealand’s biogenic methane emissions, and 4% of our total greenhouse gas emissions, with organic waste decomposing in landfills contributing 94% of these emissions;
- on average, nearly 700 kg of waste per capita goes to municipal landfills⁴⁰ annually – compared to the OECD average of 538 kg; and trends are for this to increase;
- domestic recovery infrastructure is limited, and exporting challenging due to our relative geographic isolation and distance from markets;
- lack of data relating to waste practices, significantly non-municipal landfills and diverted materials; and
- historical management has been poor, with numerous legacy disposal sites around the country causing local environmental harm.

A.4.1.2 The Strategy

The direction of the strategy is important in many, very practical, ways; it provides a clear vision through to 2050, principles that support this vision, a phased approach with three clear stages, and targets to measure progress and encourage ambitious action.

Three key strategic issues are core to the strategy – domestic resource recovery and recycling, the role of waste to energy, and net zero emissions by 2050.

The vision is:

“By 2050, Aotearoa New Zealand is a low-emissions, low-waste society, built upon a circular economy.

We cherish our inseparable connection with the natural environment and look after the planet’s finite resources with care and responsibility.”

Six guiding principles are included.

A.4.1.3 A staged process

While the strategy has a view out to 2050, the work required to get there has been divided into three high level work stages:

1. 2022 – 30: embedding circular thinking into systems
2. 2030 – 40: expanding to make circular normal
3. 2040 – 50: Helping others do the same

Each stage has a number of goals, some of which are more relevant to TAs than others – Phase 1 is shown in the table below and has been addressed in the options list.

⁴⁰ ‘municipal landfill’, ‘municipal solid waste landfill’ ‘sanitary landfill’ and ‘Class 1 landfill’ are all terms that essentially refer to the same type of facility.

Phase 1 Goals – By 2030, our enabling systems are working well and behaviour is changing

The building blocks are in place to enable change

Strategic planning, regulatory, investment and engagement systems are in place and operating to drive and support change	TAs have a role in strategic planning at a local level (through WMMPs), which will both inform and be informed by the AIP. TAs also have a role, albeit limited compared to the national role, to contribute through local bylaws and any local funding pools that are available. TAs carry out local engagement and can support national campaigns.
We have a comprehensive national network of facilities supporting the collection and circular management of products and materials	TAs will be well placed to understand what this means at a local level, and be able to drive and coordinate the development of a network approach.
We all take responsibility for how we produce, manage, and dispose of things, and are accountable for our actions and their consequences	This is likely to be aimed mainly at personal responsibility – although TAs can encourage this attitude locally.
Specific Priorities:	• Support the creation of national planning, regulatory and investment systems. • Consider how the timing and interactions of central government and local government waste planning could best be integrated, and communicate to MfE. • Consider how to use waste levy funding to support the overall strategic framework of funding and investment, given the AIP context, direction and priorities – collaborate with other councils and with central government to a greater extent. • Support the development of simple ways for central and local government to collaborate and work in partnership.

	• Work with central government, the waste sector, and others to develop a shared view of what a ‘comprehensive national network of facilities’ looks like. • Align overall direction and approach with this. • The network needs to have nationwide coverage and include a range of products and materials, and focus on circular management options where possible. • Prioritise reducing greenhouse gas emissions. • Ensure planning and consenting teams require new builds to have appropriate space for waste management, there is space for community facilities, and feed into regional plans to ensure they provide for a ‘coherent network’. • Identify and work with community partners to extend services into hard-to-reach areas. • Promote waste minimisation using long-term, evidence-based behaviour change programmes. • Provide timely, accurate and clear information when creating additional obligations through bylaws or introducing new services.
<i>More activity is circular and we produce less waste</i>	
We use fewer products and materials, and using (sic) them for longer, by making them more durable, and repairing, reusing, sharing and repurposing them	As above, TAs have a detailed understanding of what is required to enable repair, reuse, sharing and repurposing at the local level.
Resource recovery systems are operating effectively for core materials and across all regions	TAs will have a key role in developing and maintaining resource recovery systems at the local level. Regional and cross-regional collaboration will be needed to ensure these form part of a cohesive network.
We look for ways to recover any remaining value from residual waste, sustainably and without increasing emissions, before final disposal	TAs will need to consider any potential role for energy-from-waste technologies at the local and/or regional level – particularly those that operate landfills.

Specific Priorities	• Support repair initiatives by, for example, making space in resource recovery centres or other community facilities. • Think about how to cater for future reuse systems when developing infrastructure to support collection and processing of products and materials. • Take responsibility for kerbside collection of household recycling and general waste. • Find solutions to provide services to small towns and rural areas. • Implement kerbside standardisation locally. • Recover value from ‘truly residual waste’ without harming the environment. • Consider the purpose, feedstock, processing and potential energy production of any ‘waste to energy’ methodology.
<i>Emissions and other environmental indicators are improving</i>	
Emissions from waste are reducing in line with our domestic and international commitments	Tas will need to model and monitor emissions from their local activities.
Contaminated land is sustainably managed and remediated, to reduce waste and emissions and enhance the environment	TAs are responsible for the management of their closed landfills.
Specific Priorities	• Maximise the amount of organic waste being recycled into beneficial uses (composting and anaerobic digestion are options). • Implement standardised kerbside collections locally for organic wastes (with support and education). • Fund and invest in infrastructure to collect, process, manage and recycle organic waste (food, garden and C&D organics). • Landfill gas capture at Class 1 facilities by the end of 2026 or cease accepting organic waste. • Potentially implement landfill organics ban by 2030 at all Class 1 facilities. • Address the management of ‘vulnerable landfills’ if any are identified that are council’s responsibility that are not already included in a closed landfill management plan.

A.4.1.4 Targets

The strategy includes targets; although it is acknowledged that there currently isn't enough (or reliable enough) data to set an accurate baseline or monitor these fully.

TAs should consider these, however, when setting targets in their WMMPs as it would make sense for these metrics to be reflected in local target setting and monitoring. This will also provide more support to the process of monitoring these targets at a national level.

A.4.1.5 Strategic Planning Cycle

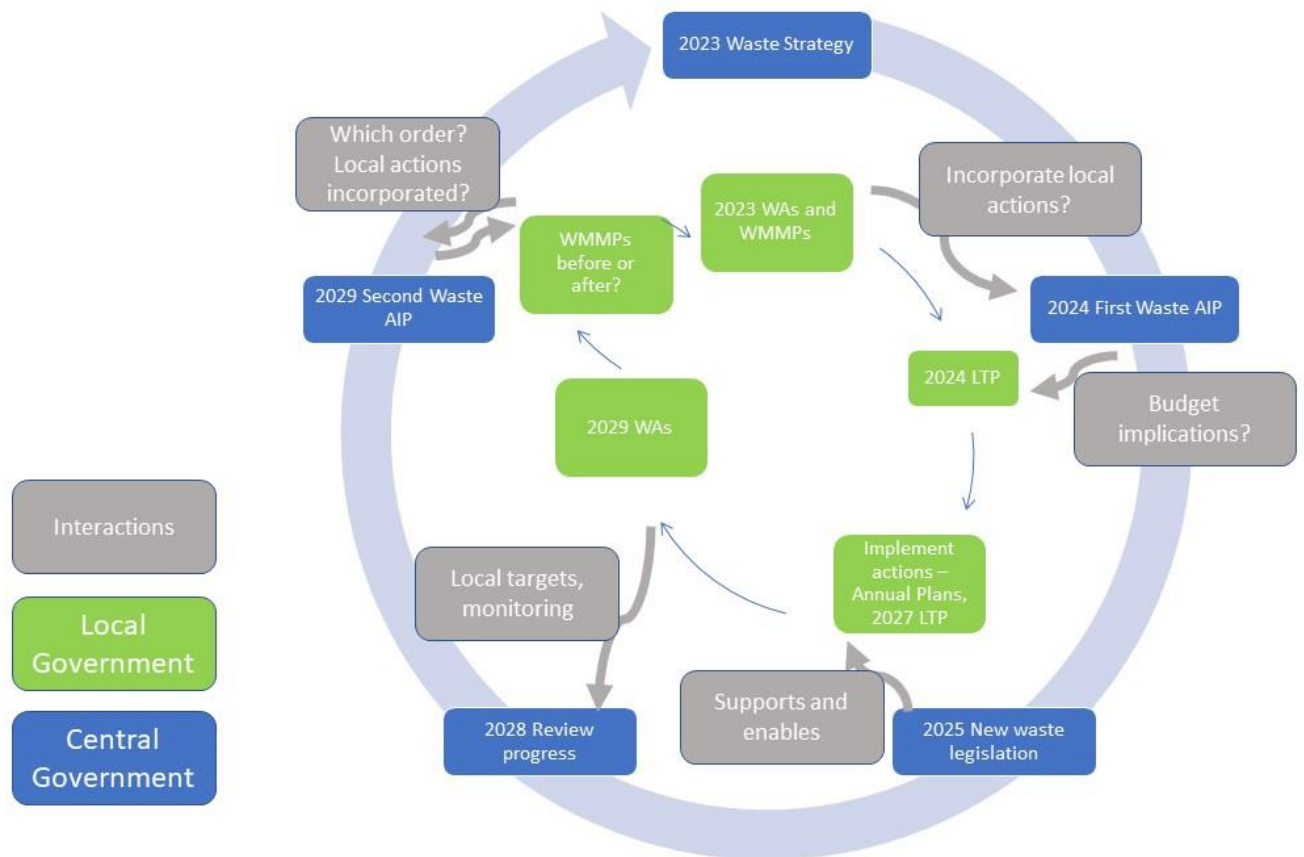
Many TAs are currently in the process of completing a Waste Assessment with a view to reviewing their WMMPs (if necessary) during the second half of 2023 so actions can be budgeted and included in 2024 LTPs. The current proposal is for the first of the MfE AIP to be out in 2024, and then a five year cycle to occur from there – so the second AIP will be due in 2029. This doesn't fit neatly with the local government planning cycle, particularly for Council which is completing a Waste Assessment during 2023 (and therefore would need to repeat this process no later than 2029).

It is not yet clear the extent to which local planning (through WMMPs) will be used to build, and be incorporated in, the AIPs. It is also not clear what the impact would be if the AIP included actions or investments that would require implementation at a local level, as is likely – and therefore may need to be included in WMMPs. Significant amendments to WMMPs do, of course, require that the full special consultative process is completed again.

The question then arises as to how TAs handle the situation where they are required, through regulation or through implementation of national AIPs and to take advantage of specific focuses for funding opportunities, to implement actions that their local communities have not had the opportunity to comment on fully through consultation.

The figure below attempts to align and show the interactions between the central and local government waste planning cycles.

Figure 18: Central and Local Government Waste Planning



A.4.1.6 Summary

The direction of the New Zealand Waste Strategy, the supporting goals, and the proposed targets all have clear implications for the future direction of waste disposal facilities in this country.

- The overall direction of the Waste Strategy is towards a circular economy, which is not supported by a landfill disposal-based linear system;
- there are specific actions relating to reducing a wide range of waste streams, and specifically and particularly organic waste – in concert with work to reduce emissions. This could extend to a ban on organic waste going to landfill; and
- the targets focus on reducing waste generation and waste disposal by 2030 – by quite significant proportions.

The overall tone of the strategic direction is not in support of continued or extended disposal of waste; and particularly not organic wastes.

A.4.2 Waste Minimisation Act 2008

Cabinet papers came out in 2023 in review of the Waste Minimisation Act 2008 (WMA) and included several proposals. The key points of the proposals regarding local authorities were:

- waste assessments will be non-mandatory
- set reporting requirements for central and local government
- WMMPs to be reviewed every five years
- action and investment plans to be included in WMMP
- tracking system for waste to be implemented
- introduction of national licensing
- setting waste bylaws
- delivery of domestic waste and recycling collection through kerbside services

The status of proposals are uncertain at present.

The purpose of the Waste Minimisation Act 2008 (WMA) is to encourage waste minimisation and a decrease in waste disposal to protect the environment from harm and obtain environmental, economic, social and cultural benefits.

The WMA introduced tools, including:

- waste management and minimisation plan obligations for territorial authorities
- a waste disposal levy to fund waste minimisation initiatives at local and central government levels
- product stewardship provisions.

Part 4 of the WMA is dedicated to the responsibilities of a council, in that it “must promote effective and efficient waste management and minimisation within its district” (section 42).

To meet this requirement, councils are required to develop and adopt a WMMP. The development of a WMMP in the WMA is a requirement modified from Part 31 of the Local Government Act 1974, but with even greater emphasis on waste minimisation.

To support the implementation of a WMMP, section 56 of the WMA also provides councils the ability to:

- develop bylaws
- regulate the deposit, collection and transportation of wastes
- prescribe charges for waste facilities
- control access to waste facilities
- prohibit the removal of waste intended for recycling.

A number of specific clauses in Part 4 relate to the WMMP process. It is essential that those involved in developing a WMMP read and are familiar with the WMA and Part 4 in particular.

The Waste Minimisation Act 2008 (WMA) provides a regulatory framework for waste minimisation that had previously been based on largely voluntary initiatives and the involvement of territorial authorities under previous legislation, including Local Government Act 1974, Local Government Amendment Act (No 4) 1996, and Local Government Act 2002. The purpose of the WMA is to encourage a reduction in the amount of waste disposed of in New Zealand.

In summary, the WMA:

- Clarifies the roles and responsibilities of territorial authorities with respect to waste minimisation e.g. updating Waste Management and Minimisation Plans (WMMPs) and collecting/administering levy funding for waste minimisation projects.
- Requires that a Territorial Authority promote effective and efficient waste management and minimisation within its district (Section 42).
- Requires that when preparing a WMMP a Territorial Authority must consider the following methods of waste management and minimisation in the following order of importance:
 - Reduction
 - Reuse
 - Recycling
 - Recovery
 - Treatment
 - Disposal
 - Put a levy on all waste disposed of in a landfill.
 - Allows for mandatory and accredited voluntary product stewardship schemes.
 - Allows for regulations to be made making it mandatory for certain groups (for example, landfill operators) to report on waste to improve information on waste minimisation.
 - Establishes the Waste Advisory Board to give independent advice to the Minister for the Environment on waste minimisation issues.

Various other aspects of the Waste Minimisation Act are discussed in more detail below.

A.4.3 Waste Levy

The waste levy originally came into effect from 1st July 2009, adding \$10 per tonne to the cost of landfill disposal at sites which accept household solid waste (essentially Class 1 disposal facilities). The levy has two purposes, which are set out in the Act:

- to raise revenue for promoting and achieving waste minimisation

- to increase the cost of waste disposal to recognise that disposal imposes costs on the environment, society and the economy.

This levy is collected and managed by the Ministry for the Environment (MfE) who distribute half of the revenue collected to territorial authorities (TA) on a population basis to be spent on promoting or achieving waste minimisation as set out in their WMMPs. The other half is retained by the MfE and managed by them as a central contestable fund for waste minimisation initiatives (the Waste Minimisation Fund).

In April 2021, the government introduced regulation to expand the scope of the levy from Class 1 landfills to also include classes 2-4.⁴¹

The table below shows the timetable and rates for the new levy regime:

Table 24: Levy Rates by Fill Type and Year

LANDFILL CLASS	1-Jul-21	1-Jul-22	1-Jul-23	1-Jul-24
Municipal landfill (class 1)	\$20	\$30	\$50	\$60
Construction and demolition fill (class 2)		\$20	\$20	\$30
Managed fill (class 3)			\$10	\$10
Controlled fill (class 4)			\$10	\$10

<https://www.mfe.govt.nz/waste/waste-and-government>

As the landfill levy is expanded and raised, there will be an impact on the quantity of material going to the different destinations; however, the extent to which this occurs, and for which materials, depends on a number of other factors.

One impact that has been noted in some areas of New Zealand, for example, is operators choosing to close rather than add the landfill levy to their gate fee, and undertake the administrative task of monitoring waste quantities to the extent required by the online waste levy system (OWLS). Some of these facilities don't have weighbridges in place and instead base their charges on volume estimates. To report to the OWLS, these facilities then need to translate volumes to weights, and it is on this basis that their landfill levy obligations are calculated. Therefore, any variances in conversion rates between volume and weight could result in an over- or under-calculation of the required landfill levy at the gate.

⁴¹ <https://www.legislation.govt.nz/regulation/public/2021/0069/latest/whole.html>

A.4.4 Product Stewardship

Under the Waste Minimisation Act 2008, if the Minister for the Environment declares a product to be a priority product, a product stewardship scheme must be developed and accredited to ensure effective reduction, reuse, recycling or recovery of the product and to manage any environmental harm arising from the product when it becomes waste.⁴²

The following voluntary product stewardship schemes have been accredited by the Minister for the Environment:⁴³

- Agrecovery rural recycling programme
- Envirocon product stewardship
- Fonterra Milk for Schools Recycling Programme
- Fuji Xerox Zero Landfill Scheme
- Holcim Geocycle Used Oil Recovery Programme (no longer operating)
- Interface ReEntry Programme
- Kimberly Clark NZ's Envirocomp Product Stewardship Scheme for Sanitary Hygiene Products
- Plasback
- Public Place Recycling Scheme
- Recovering of Oil Saves the Environment (R.O.S.E. NZ)
- Refrigerant recovery scheme
- RE: MOBILE
- Resene PaintWise
- The Glass Packaging Forum

Further details on each of the above schemes are available on:

<http://www.mfe.govt.nz/waste/product-stewardship/accredited-voluntary-schemes>

The first six priority products were named under the WMA in 2020 (shown below) and subsequently single-use packaging has been added. The first seven priority products named are:

1. Plastic packaging
2. Tyres
3. Electrical and electronic products (e-waste including large batteries)
4. Agrichemicals and their containers
5. Refrigerants
6. Farm plastics

⁴² Waste Management Act 2008 2(8)

⁴³ <http://www.mfe.govt.nz/waste/product-stewardship/accredited-voluntary-schemes>

7. Single-use plastic packaging

MfE has taken a 'co-design' approach, which involves industry developing and operating product stewardship schemes with central government oversight. Progress on the schemes, and parties involved, are summarised below.

Priority product	Progress made	Lead agency/ies
Tyres	Consultation on proposed regulations late 2021 Scheme accredited October 2022 Regulation in effect from late 2023	Tyrewise
Large batteries	Consultation on proposed regulations late 2021 Accreditation expected late 2023 Regulation in effect from 2024	Battery Industry Group
Refrigerants (and other synthetic greenhouse gases)	Consultation on regulations in late 2022 Scheme accreditation mid 2023 Regulation in effect from 2024	Synthetic Refrigerant Stewardship group
Farm plastics, agrichemicals and containers (farm waste)	Consultation on regulations planned late 2023	The Agrecovery Foundation
Electrical and electronic products (e-waste)	Scheme design in 2023 Consultation on regulations in 2024	TechCollect
Plastic packaging	Co-design underway	Packaging Forum and Food & Grocery Council

A.4.5 Waste Minimisation Fund

The Waste Minimisation Fund has been set up by the Ministry for the Environment to help fund waste minimisation projects and to improve New Zealand's waste minimisation performance through:

- Investment in infrastructure;
- Investment in waste minimisation systems; and

- Increasing educational and promotional capacity.

Criteria for the Waste Minimisation Fund have been published:

1. Only waste minimisation projects are eligible for funding. Projects must promote or achieve waste minimisation. Waste minimisation covers the reduction of waste and the reuse, recycling and recovery of waste and diverted material. The scope of the fund includes educational projects that promote waste minimisation activity.
2. Projects must result in new waste minimisation activity, either by implementing new initiatives or a significant expansion in the scope or coverage of existing activities.
3. Funding is not for the ongoing financial support of existing activities, nor is it for the running costs of the existing activities of organisations, individuals, councils or firms.
4. Projects should be for a discrete timeframe of up to three years, after which the project objectives will have been achieved and, where appropriate, the initiative will become self-funding.
5. Funding can be for operational or capital expenditure required to undertake a project.
6. For projects where alternative, more suitable, Government funding streams are available (such as the Sustainable Management Fund, the Contaminated Sites Remediation Fund, or research funding from the Foundation for Research, Science and Technology), applicants should apply to these funding sources before applying to the Waste Minimisation Fund.
7. The applicant must be a legal entity.
8. The fund will not cover the entire cost of the project. Applicants will need part funding from other sources.
9. The minimum grant for feasibility studies will be \$10,000.00. The minimum grant for other projects will be \$50,000.00.

Application assessment criteria have also been published by the Ministry.

The current funding round opened in October 2022 and will consider applications as they are received, and will agree to fund successful applications until funds are exhausted.

A.4.6 Local Government Act 2002

The Local Government Act 2002 (LGA) provides the general framework and powers under which New Zealand's democratically elected and accountable local authorities operate.

The LGA contains various provisions that may apply to councils when preparing their WMMPs, including consultation and bylaw provisions. For example, Part 6 of the LGA refers to planning and decision-making requirements to promote accountability between local authorities and their communities, and a long-term focus for the decisions and

activities of the local authority. This part includes requirements for information to be included in the long-term plan (LTP), including summary information about the WMMP. More information on the LGA can be found at www.dia.govt.nz/better-local-government.

A.4.6.1 Section 17A Review

Local authorities are now under an obligation to review the cost-effectiveness of current arrangements for meeting community needs for good quality infrastructure, local public services and local regulation. Where a review is undertaken local authorities must consider options for the governance, funding and delivery of infrastructure, local public services and local regulation that include, but are not limited to:

- a) in-house delivery
- b) delivery by a CCO, whether wholly owned by the local authority, or a CCO where the local authority is a part owner
- c) another local authority
- d) another person or agency (for example central government, a private sector organisation or a community group).

Local authorities had three years from 8 August 2014 to complete the first review of each service i.e. they must have completed a first review of all their services by 7 August 2017 (unless something happened to trigger a review before then).

Other than completion by the above deadline, there are two statutory triggers for a section 17A review:

- The first occurs when a local authority is considering a significant change to a level of service;
- The second occurs where a contract or other binding agreement is within two years of expiration.

Once conducted, a section 17A review has a statutory life of up to six years. Each service must be reviewed at least once every six years unless one of the other events that trigger a review comes into effect.

While the WMMP process is wider in scope – considering all waste service provision in the local authority area – and generally taking a longer term, more strategic approach, there is substantial crossover between the section 17A requirements and those of the WMMP process, in particular in relation to local authority service provision. The S17A review may however take a deeper approach go into more detail in consideration of how services are to be delivered, looking particularly at financial aspects to a level that are not required under the WMMP process.

Because of the level of crossover however it makes sense to undertake the S17A review and the WMMP process in an iterative manner. The WMMP process should set the strategic direction and gather detailed information that can inform both processes.

Conversely the consideration of options under the s17A process can inform the content of the WMMP – in particular what is contained in the action plans.

A.4.7 Resource Management Act 1991

The Resource Management Act 1991 (RMA) promotes sustainable management of natural and physical resources. Although it does not specifically define 'waste', the RMA addresses waste management and minimisation activity through controls on the environmental effects of waste management and minimisation activities and facilities through national, regional and local policy, standards, plans and consent procedures. In this role, the RMA exercises considerable influence over facilities for waste disposal and recycling, recovery, treatment and others in terms of the potential impacts of these facilities on the environment.

Under section 30 of the RMA, regional councils are responsible for controlling the discharge of contaminants into or on to land, air or water. These responsibilities are addressed through regional planning and discharge consent requirements. Other regional council responsibilities that may be relevant to waste and recoverable materials facilities include:

- managing the adverse effects of storing, using, disposing of and transporting hazardous wastes
- the dumping of wastes from ships, aircraft and offshore installations into the coastal marine area
- the allocation and use of water.

Under section 31 of the RMA, council responsibility includes controlling the effects of land-use activities that have the potential to create adverse effects on the natural and physical resources of their district. Facilities involved in the disposal, treatment or use of waste or recoverable materials may carry this potential. Permitted, controlled, discretionary, noncomplying and prohibited activities, and their controls, are specified in district planning documents, thereby defining further land-use-related resource consent requirements for waste-related facilities.

In addition, the RMA provides for the development of national policy statements and for the setting of national environmental standards (NES). There are currently two enacted NESs that directly influence the management of waste in New Zealand:

- 1) The Resource Management (National Environmental Standards for Air Quality) Regulations 2004; this NES requires certain landfills (e.g., those with a capacity of more than 1 million tonnes of waste) to collect landfill gases and either flare them or use them as fuel for generating electricity. Unless exemption criteria are met, the NES for Air Quality also prohibits the lighting of fires and burning of wastes at landfills, the burning of tyres, bitumen burning for road maintenance, burning coated wire or oil, and operating high-temperature hazardous waste incinerators. These prohibitions aim to protect air quality.

- 2) The Resource Management (National Environmental Standards for Storing Tyres Outdoors) Regulations 2021; this NES provides nationally consistent rules for the responsible storage of tyres.

The implementation of the National Policy Statement for Freshwater Management⁴⁴ may reduce the application rates of some organic wastes to land, which is currently a low cost management option for wastes such as effluent. This may increase the quantities of these organic materials that will be available for processing, which would then impact on the types of materials requiring processing, the technologies best suited to these material mixes, and the markets for the end product.

The RMA is currently subject to extensive reform, which will entail repealing the RMA and replacing it with three separate pieces of legislation:

- 1) National and Built Environments Act;
- 2) Spatial Planning Act; and
- 3) Climate Adaptation Act.

It is likely that this reform process will be completed before the end of 2023.

A.4.8 New Zealand Emissions Trading Scheme

The Climate Change Response Act 2002 and associated regulations is currently the Government's principal response to manage climate change. A key mechanism for this is the New Zealand Emissions Trading Scheme (NZ ETS). The NZ ETS puts a price on greenhouse gas emissions, providing an incentive for people to reduce emissions and plant forests to absorb carbon dioxide.

Certain sectors are required to acquire and surrender emission units to account for their direct greenhouse gas emissions or the emissions associated with their products. Landfills that are subject to the waste disposal levy are required to surrender emission units to cover methane emissions generated from landfill. These disposal facilities are required to report the tonnages landfilled annually to calculate emissions (this is separately to the tonnages required to be reported for the landfill levy, through the OWLS).

The NZ ETS was introduced in 2010 and, from 2013, landfills have been required to surrender 'New Zealand emissions units' or NZUs for each tonne of CO₂ (equivalent) that they produce. Until around 2017, however, the impact of the NZETS on disposal prices was limited. There were a number of reasons for this:

The global price of carbon crashed during the GFC in 2007-8 and was slow to recover in the following years. Prior to the crash it was trading at around \$20 per tonne. The price had been as low as \$2, although in June 2015, the Government moved to no longer

⁴⁴ <https://environment.govt.nz/publications/national-policy-statement-for-freshwater-management-2020/>

accept international units in NZETS and the NZU price increased markedly. NZUs⁴⁵ currently change hands for between \$70 and \$85, with prices at \$74.40 at the time of writing⁴⁶.

- The transitional provisions of the Climate Change Response Act, which were extended in 2013 but have now been reviewed, meant that landfills only had to surrender half the number of units they would be required to otherwise. These transitional provisions were removed in January 2017, effectively and immediately doubling the price per tonne impact of the ETS.
- Landfills are allowed to apply for 'a methane capture and destruction unique emissions factor (UEF)'. This means that if landfills have a gas collection system in place and flare or otherwise use the gas (and turn it from methane, CH₄ into carbon dioxide, CO₂) they can reduce their liabilities in proportion to how much gas they capture. Up to 90% capture and destruction is allowed to be claimed under the regulations, with large facilities applying for UEF's at the upper end of the range.

Taken together (a low price of carbon, only two-for-one surrender required, and methane destruction of 80-90%) the actual cost of compliance with the NZETS had been small for most landfills – particularly those that were able to claim high rates of gas capture. Disposal facilities typically imposed charges (in the order of \$5 per tonne) to their customers, but these charges mostly reflected the costs of scheme administration, compliance, and hedging against risk rather than the actual cost of carbon.

The way the scheme has been structured has also resulted in some inconsistencies in the way it is applied – for example class 2-5 landfills and closed landfills do not have any liabilities under the scheme. Further, the default waste composition (rather than a SWAP) can be used to calculate the theoretical gas production, which means landfill owners have an incentive to import biodegradable waste, which then increases gas production which can then be captured and offset against ETS liabilities.

Recently, however the scheme has had a greater impact on the cost of landfilling, and this is expected to continue in the medium term. Many small landfills which do not capture and destroy methane are now beginning to pay a more substantial cost of compliance. The ability of landfills with high rates of gas capture and destruction to buffer the impact of the ETS will mean a widening cost advantage for them relative to those without such ability. This appears to be putting further pressure on small (predominantly Council-owned) facilities and will drive further tonnage towards the large regional facilities (predominantly privately owned).

For example, with a price of carbon at \$75 per tonne, the liability for a landfill without gas capture will be \$68.25 (based on a DEF of 0.91 tonnes of CO₂e per tonne of waste), whereas for a landfill claiming 90% gas capture (the maximum allowed under the

⁴⁵ NZUs are carbon credits that are officially accepted to offset liabilities under the NZETS

⁴⁶ According to carbon prices on www.carbonforests.co.nz and [https://www.carbonmatch.co.nz/](http://www.carbonmatch.co.nz/)

scheme), the liability will be only \$6.83. This type of price differential will mean it will become increasingly cost competitive to transport waste larger distances to the large regional landfills.

More information is available at www.climatechange.govt.nz/emissions-trading-scheme.

A.4.9 Litter Act 1979

Under the Litter Act⁴⁷ it is an offence for any person or body corporate to deposit or leave litter:

- in or on any public place; or
- in or on any private land without the consent of its occupier.

The Act enables Council to appoint Litter Officers with powers to enforce the provisions of the legislation.

The legislative definition of the term "litter" is wide and includes 'refuse, rubbish, animal remains, glass, metal, garbage, debris, dirt, filth, rubble, ballast, stones, earth, waste matter or other thing of a like nature'.

Any person who commits an offence under the Act is liable to:

- An instant fine of \$400 imposed by the issue of an infringement notice; or a fine not exceeding \$5,000 in the case of an individual or \$20,000 for a body corporate upon conviction in a District Court.
- A term of imprisonment where the litter is of a nature that it may endanger, cause physical injury, disease or infection to any person coming into contact with it.

Under the Litter Act 1979 it is an offence for any person to deposit litter of any kind in a public place, or onto private land without the approval of the owner.

The Litter Act is enforced by territorial authorities, who have the responsibility to monitor litter dumping, act on complaints, and deal with those responsible for litter dumping. Councils reserve the right to prosecute offenders via fines and infringement notices administered by a litter control warden or officer. The maximum fines for littering are \$5,000 for a person and \$20,000 for a corporation.

Council powers under the Litter Act could be used to address illegal dumping issues that may be included in the scope of a council's waste management and minimisation plan.

The Litter Act will be reviewed alongside the Waste Minimisation Act and the current proposal appears to suggest merging the two Acts into one.

⁴⁷ <https://www.legislation.govt.nz/act/public/1979/0041/latest/DLM33082.html>

A.4.10 Health Act 1956

The Health Act 1956 places obligations on TAs to provide sanitary works for the collection and disposal of refuse, for the purpose of public health protection (Part 2 – powers and duties of local authorities, section 25). Where the Ministry of Health considers that a local authority is not taking the necessary action to meet these obligations and protect public health, it can require a local authority to do so.

It specifically identifies certain waste management practices as nuisances (S 29) and offensive trades (Third Schedule) and section 23 directs every local authority to improve, promote, and protect public health by inspecting its district regularly to identify any nuisance or condition likely to be offensive or harm human health. If any issues are noted, the local authority should take steps to rectify the situation. Improperly managed waste would be considered a nuisance. Section 34 enables councils to abate nuisances without notice and recover costs.

Section 54 places restrictions on carrying out an offensive trade and requires that the local authority and medical officer of health must give written consent and can impose conditions on the operation. The local authority's responsibilities under section 54 only applies where resource consent has not been granted under the RMA (i.e., no need to give written consent twice). Local authorities should seek to coordinate with their local public health unit where offensive trades are being established, such as refuse collection and other waste treatment practices.

The Health Act enables TAs to raise loans for certain sanitary works and/or to receive government grants and subsidies, where available.⁴⁸ It also means that where TAs incur costs in meeting their responsibilities to abate nuisances by (for example) removing refuse that is likely to harm public health, the TA can seek payment of these costs.

Health Act provisions to remove refuse by local authorities have been repealed.

A.4.11 Hazardous Substances and New Organisms Act 1996 (HSNO Act)

The HSNO Act addresses the management of substances (including their disposal) that pose a significant risk to the environment and/or human health. The Act relates to waste management primarily through controls on the import or manufacture of new hazardous materials and the handling and disposal of hazardous substances.

Depending on the amount of a hazardous substance on site, the HSNO Act sets out requirements for material storage, staff training and certification. These requirements would need to be addressed within operational and health and safety plans for waste

⁴⁸ From: MfE 2009: Waste Management and Minimisation Planning, Guidance for Territorial Authorities.

facilities. Hazardous substances commonly managed by TAs include used oil, household chemicals, asbestos, agrichemicals, LPG and batteries.

The HSNO Act provides minimum national standards that may apply to the disposal of a hazardous substance. However, under the RMA a regional council or TA may set more stringent controls relating to the use of land for storing, using, disposing of, or transporting hazardous substances.⁴⁹

Health and Safety at Work Act 2015

The new Health and Safety at Work Act, passed in September 2015 replaces the Health and Safety in Employment Act 1992. The bulk of the Act came into force from 4 April 2016.

The Health and Safety at Work Act introduces the concept of a Person Conducting a Business or Undertaking, known as a PCBU. The Council will have a role to play as a PCBU for waste services and facilities.

The primary duty of care requires all PCBUs to ensure, so far as is reasonably practicable:

- 1) the health and safety of workers employed or engaged or caused to be employed or engaged, by the PCBU or those workers who are influenced or directed by the PCBU (for example workers and contractors).
- 2) that the health and safety of other people is not put at risk from work carried out as part of the conduct of the business or undertaking (for example visitors and customers).

The PCBU's specific obligations, so far as is reasonably practicable:

- providing and maintaining a work environment, plant and systems of work that are without risks to health and safety.
- ensuring the safe use, handling and storage of plant, structures and substances
- providing adequate facilities at work for the welfare of workers, including ensuring access to those facilities.
- providing information, training, instruction or supervision necessary to protect workers and others from risks to their health and safety.
- monitoring the health of workers and the conditions at the workplace for the purpose of preventing illness or injury.

A key feature of the new legislation is that cost should no longer be a major consideration in determining the safest course of action that must be taken.

WorkSafe NZ is New Zealand's workplace health and safety regulator. WorkSafe NZ will provide further guidance on the new Act after it is passed.

⁴⁹ From: MfE 2009: Waste Management and Minimisation Planning, Guidance for Territorial Authorities.

A.4.12 Other legislation

Other legislation that relates to waste management and/or reduction of harm, or improved resource efficiency from waste products includes:

- Biosecurity Act 1993
- Radiation Protection Act 1965
- Ozone Layer Protection Act 1996
- Agricultural Chemicals and Veterinary Medicines Act 1997.

For full text copies of the legislation listed above see www.legislation.govt.nz.

A.4.13 International commitments

New Zealand is party to international agreements that have an influence on the requirements of our domestic legislation for waste minimisation and disposal. Some key agreements are the:

- Montreal Protocol
- Basel Convention
- Stockholm Convention
- Waigani Convention
- Minamata Convention.

More information on these international agreements can be found on the Ministry's website at www.mfe.govt.nz/more/international-environmental-agreements.

A.5.0 A Circular Resource Recovery Network

Historically, our economic system has operated primarily on the basis of linear processes. This system involves extraction, processing, manufacturing, consumption and disposal (end-of-life). This system is not sustainable as it involves systematically using up non-renewable raw materials (such as minerals and fossil fuels) and degrading the natural environment, which is necessary to support life, through unsustainable agricultural and extractive activities (such as logging of native forests), and the creation of waste and pollution.

To address this, a paradigm shift is needed. This requires a change in how the economic system produces, assembles, sells, and uses products to minimise waste and maximise the value of materials in use. The circular economy is a model that enables resources to be kept in use for as long as possible, extract maximum value from them, and then recover and regenerate materials at end-of-life.

Within the context of enabling a circular economy, it is proposed to re-organise how the recovery of materials in the economy occurs by establish a **‘circular resource network’**.

The key organising principle behind the concept of a circular resource network is that the resource recovery system should be consciously designed to facilitate the circular flow of materials through the economy, by ‘completing the circle’. To date, the ‘reverse logistics’ aspect of the economy that is responsible for collecting widely dispersed and mixed materials has been a poor relation to the ‘logistics’ part of the economy that is responsible for the dispersion.

The following subsections expand on what a circular resource network concept that is designed for the circular economy could entail. The circular resource network concept borrows from and builds on the existing concept of a resource recovery network (RRN).

A.5.1 Conventional Resource Recovery Network (RRN)

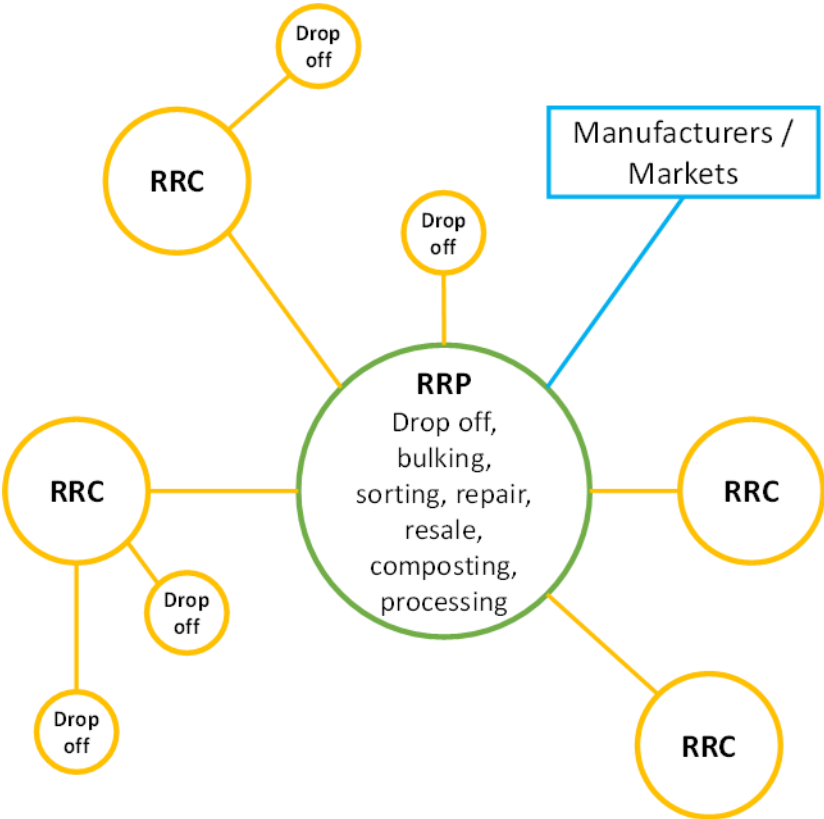
The concept of a RRN is a longstanding one with various examples including Auckland Council working to develop a network of community run facilities in partnership with the Zero Waste Network⁵⁰, the development of a Māori and Pasifika Eco Park, in South

⁵⁰ <https://www.makethemostofwaste.co.nz/resource-recovery-network/>

Auckland⁵¹, and Selwyn District Council recently announcing their resource recovery park concept⁵².

These examples (which have different approaches) can be expanded into a nationwide state of the art network of resource recovery parks (RRPs) which consist of linked (sub) regional hubs, with smaller satellite facilities (resource recovery centres or RRCs) feeding recovered materials into the hub for processing and sale. These potentially can be further supplemented by local drop off sites that feed the satellite facilities. This concept is illustrated in the figure below.

Figure 19: Network of Resource Recovery Centres Linked to Resource Recovery Parks



The functions that are performed by the RRP consolidate a range of resource recovery functions into a single site. The intent is both to provide a ‘one stop shop’, but also to take advantage of economies of scale and sharing of infrastructure, services, and overheads, and optimising transport of materials to reduce costs. Furthermore, by co-locating functions there can arise the possibility of synergies between the different functions. For example, reclaimed timber and building materials can provide materials

⁵¹ <https://www.stuff.co.nz/business/126810349/the-1-billion-plan-to-lift-mori-and-pasifika-prosperity-in-aucklands-south-and-west>

⁵² <https://www.selwyn.govt.nz/services/rubbish,-recycling-And-organics/recovery-park/reconnect-project>

for a 'Community Shed' type operation⁵³, or items salvaged from the waste stream can be sold at low cost to the public. The proposed form of a resource recovery network is to have a series of sites with physically co-located functions, and for these to be operated by or overseen by a single entity.

A.5.2 Expanding the Resource Recovery Network

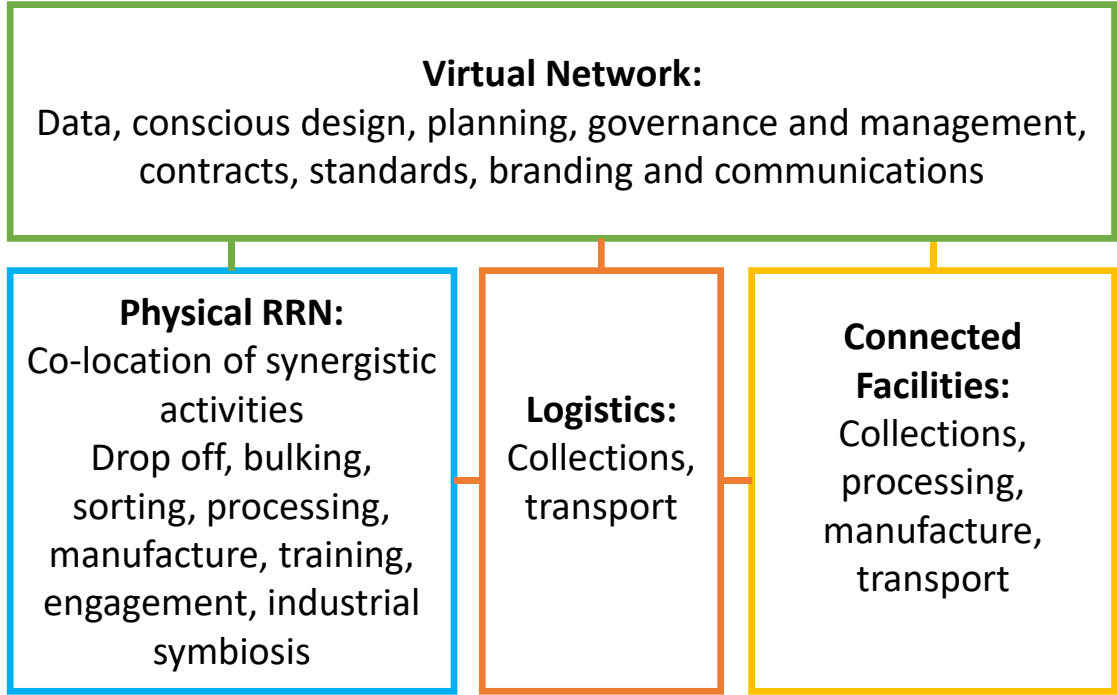
While the conventional concept of a resource recovery network has much to recommend it, in our view there is potential to evolve it further to create the core functionality needed to enable the circular economy.

It is proposed to evolve the concept of physical co-location of synergistic activities to encompass a virtual and holistic network of sites, some co-located (where this provides efficiency gains, and is practical), but also including other sites that may be physically stand-alone sites, but which are connected to the circular resource network. The method of connection would be through supplying and receiving material, utilising network transport arrangements, operating to agreed performance standards, utilising standardised signage and specifications, providing and receiving data, and being linked through virtual directories.

A physical network of sites and logistic can be replicated virtually in an information management system. A nation-wide virtual circular resource network could, eventually, track and/or manage the flow of materials through the entire resource recovery sector in Aotearoa, and enable the optimisation of infrastructure, logistics, and services. Underpinning the virtual network is a physical network of sites and facilities that operate to agreed standards (akin to the traditional RRN concept), supplemented by standalone sites that are connected to the network. Connecting the physical network and standalone sites is a highly efficient, flexible, and low-carbon logistics network. The high-level structure of the network is illustrated in the figure below:

⁵³ <https://menzshed.org.nz/about-us/what-is-a-shed/>

Figure 20: Circular Recovery Aotearoa High-Level Structure



A.5.2.1 Spatial Representation

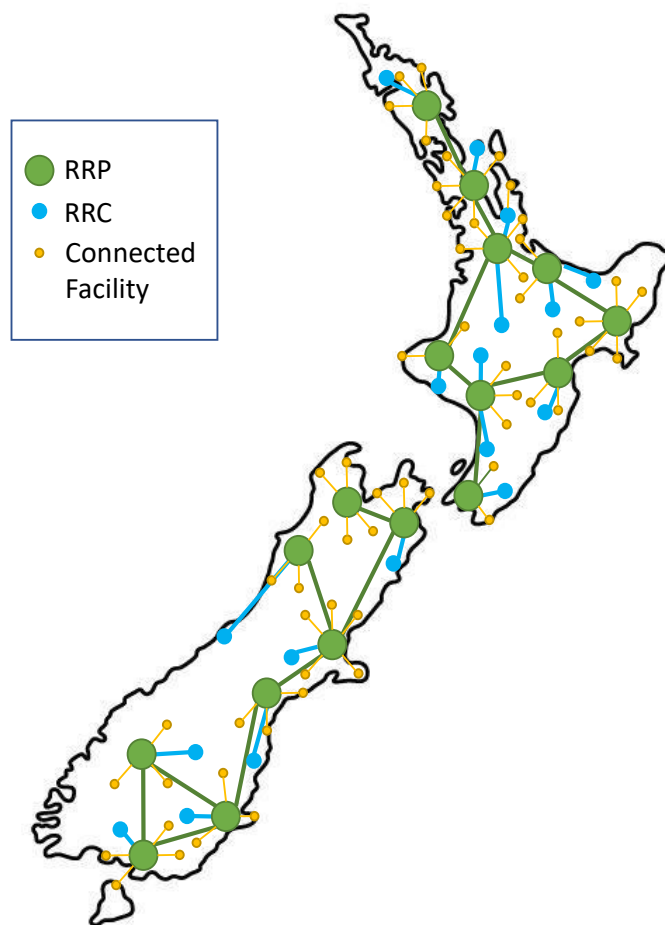
Figure 21 below shows a high-level visual representation of a national resource recovery network.

The large green dots represent regional RRs that consolidate and process material at a regional level. Depending on the material stream, materials could also be transported between the regional hubs (for example glass being consolidated in Christchurch for shipping to Auckland for manufacture). Regional hubs could also specialise in processing certain materials and swap materials accordingly.

The mid-sized blue dots represent local RRs that accept a full range of materials and send to the regional RRs for bulking (or to ‘connected facilities’ for local processing). Not shown are smaller drop-off sites.

The small yellow dots represent the potentially hundreds of facilities that are not co-located at an RR or RR but are linked and operate to the standards of the network. These facilities could accept materials from the RR or RR for processing, or supply materials to these sites.

Figure 21: Concept Map of Circular Resource Network

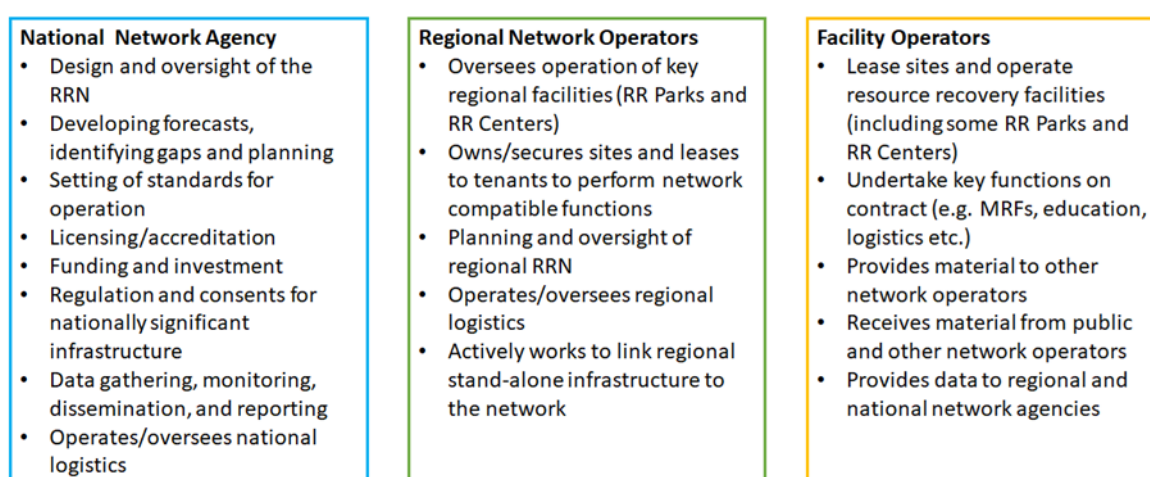


A.5.2.2 Virtual Network

The core of the concept is that the reverse logistics system is actively planned and optimised to 'close the circle' and enable a circular economy. This requires planning, analysis, and data gathering and analysis functions, alongside the active ongoing management of material flows. This is what is covered by the 'virtual network' element.

The roles of the key organisations involved in the circular resource network are shown in the figure below:

Figure 22: Key Agents and Roles in the Resource Recovery Network



A digital model could be developed of the key material flows within the resource recovery sector (ideally this would ultimately encompass a mass balance of materials through the economy, although this is likely to be more difficult to achieve and therefore a more long-term aspiration).

By digitally mapping material flows nationally, across both core facilities and connected facilities, potential gaps and issues could be quickly identified and planning undertaken to ensure the system remains optimised and is resilient and adaptive in the face of change.

The digital model would include current material flows and allow for projections and modelling of new facilities, changes to material types and quantities, logistics etc. This would enable the potential impact of new facilities and options to be investigated before implementation.

The core of the circular resource network is the establishment of a set of standards of operation that all facilities that form part of the circular resource network operate to. These standards would apply to both operations co-located at an RRP or RRC, as well as connected facilities. In this regard what is proposed is similar to a franchise model: as well as designing the overall system the government (or its agents) set the basis by which the circular resource network would function.

A.5.2.3 Physical RRN – Structure

The 'Physical RRN' is the aspect of the system that is most recognisable interface of the network. A national network could be made up of regional nodes (circular resource networks) that are linked but that can operate as independent regional entities.⁵⁴ This

⁵⁴ For the purposes of this exercise, it should be assumed that 'regional' broadly corresponds to current regional council and unitary council boundaries.

would enable planning with a national perspective (as noted above) but empower the governance and management at a regional level to enable agile response to regional and local requirements. It should be noted, however, that there could be a number of different models.

The role at a regional level is primarily:

- Site ownership, management, development, and leasing.
- Operating region-wide logistics to consolidate materials from RRCs and Connected Facilities at the regional RRP for bulking, sorting, processing and bulk transport or local manufacture.
- Overseeing and applying the operating standards for the network.
- Advocating for the development of the network and working with operators and stakeholders to facilitate its continued development.
- Promotion and communication with users.

Regional networks would operate to national standards that include the following (as noted above):

- Branding and communications.
- Core materials accepted and material acceptance criteria.
- Output material quality standards and contamination levels (referencing existing market specifications or official standards where appropriate).
- Customer service levels.
- Appropriate employment conditions.
- Standard contracts and agreements for supply of services, provision or sale of materials, leases etc.
- Access to and participation in online marketplaces for recovered materials generated by network participants.

The regional network operators in turn would be responsible for applying and enforcing these standards for local and connected facilities.

A.5.2.4 RRP – Regional Hubs

The heart of a regional network consists of one or two large RRPs, where a range of key functions are co-located. The purpose of the RRP is to provide a ‘hub’ for the efficient regional consolidation of a wide range of materials collected at the RRC and Connected Facilities, as well as those that may be collected at the RRP itself.

The core of the concept is to have regional consolidation of materials and provide a hub for the regional network. In addition, these sites could provide a ‘flagship’ centre with a full range of services for drop-off and community engagement etc.

The RRP all can have different mixes of facilities depending on local requirements. The logistics and flagship public facing operations could be co-located or at different sites depending on local situations.

Typical facilities may include:

- Material recovery facilities for sorting of collected comingled materials.
- Anaerobic digestion facilities to process putrescible wastes and generate biogas that is used to fuel the regional logistics collection fleet.
- Logistics sorting centre for managing the inputs and outputs of a range of facilities.
- Construction and demolition waste sorting facility.
- Wash plants and fleet management facilities for reusable containers.
- Regional consolidation and logistics for a range of product stewardship schemes such as:
 - E-waste dismantling and processing operations.
 - Used large battery (EV and stationary storage) assessment and consolidation centres.
 - Farm plastics and agrichemical containers.
 - Tyres.
 - Mattresses.
- Education centre.
- Reuse stores/mall.
- Food rescue.
- Manufacturing businesses utilising recovered materials. In some instances, these businesses are co-located to utilise others' discarded materials and surplus process heat, with ongoing work to develop industrial symbiosis models.
- Research on material reuse/recovery.
- Drop off facilities for a full range of materials.

A.5.2.5 Local RR Centres

While the RRP are the hub of the regional networks, the RRC form the primary nodes where the majority of material is dropped off and consolidated locally. Many RRCs will start off as local transfer station sites that are upgraded and re-purposed to have a predominant focus on resource recovery. The RRCs are the local centre for community activity, with many run by community enterprises or iwi, and serve to engage, educate and empower the local communities to not only recover materials but extract and apply the value of those materials for community benefit.

There are a range of different services and facilities at each site, but a set of core facilities could include the following:

- Drop off facilities for a standard range of materials (nominally as follows):
 - Cardboard
 - Metals
 - Paper
 - Glass
 - Plastics 1,2,5
 - Shrink-wrap
 - Garden waste
 - DIY construction and demolition waste
- Dropoff/consolidation sites for current and future product stewardship schemes, for example:
 - Reusable containers
 - Single use containers
 - E-waste and batteries
 - Farm plastics and chemical containers
 - Tyres
 - Mattresses
 - Textiles
 - Paint and household chemicals
- Reuse drop off, refurbishment and resale (furniture, household items, furnishings and clothing, toys, books, tools).

Optional services and facilities could include:

- Café
- Construction and bulky materials sales yard
- Education, training
- Workshops/refurbishment
- Food rescue
- Cooking oil – biodiesel/soap manufacture
- Reusable nappies
- Mattress recycling
- Business incubator space

A.5.2.6 Logistics

A core feature of the concept is the establishment of an efficient logistics network that is able to consolidate and transport materials as efficiently as possible, including utilising

back-loading, bulk transport, and using flexible methodologies to facilitate bulk transport of smaller volume materials (for example, modular bins transported on side loaders).

Vehicles utilised by the network could take advantage of low-carbon and waste-based technologies to minimise the carbon footprint of materials managed by the network.

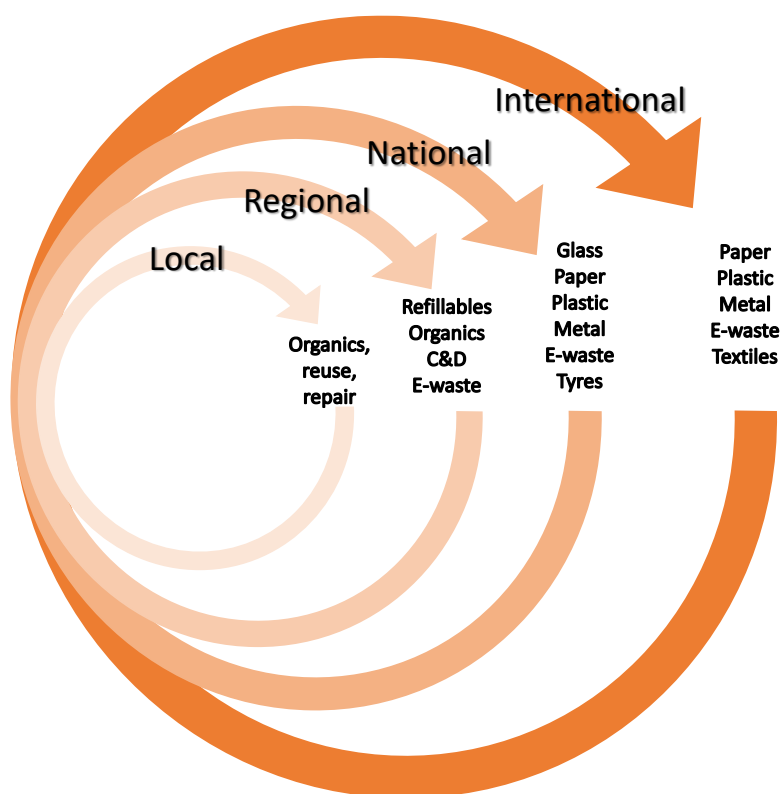
For example:

- Vehicles could be powered by gas/energy generated from anaerobic digestion of organic waste.
- Battery electric vehicles could utilise second-life batteries or charging infrastructure built using second life batteries.
- Bulk transport using rail (ideally electrified).

Materials are dealt with in the most appropriate manner through the network with some materials managed locally or regionally, and other materials utilising the logistics capabilities of the network to be delivered to national end uses at low cost.

The figure below illustrates how certain materials are likely to be managed locally, regionally, nationally, or internationally.

Figure 23:Geographical Circulation of Material Types



In the above indicative representation, organics (such as garden waste), reusables, and repairable items are likely to be utilised in local communities; refillable, organics that require more capital intensive processes (such as food waste or sludges), construction and demolition waste, and e-waste dismantling are likely to be undertaken on a regional level; processing and manufacture of products from glass, paper, plastic, metal, e-waste,

and tyres are likely to be processed at national or sub-national scale facilities. Finally, there will be a range of materials that are sold into international commodity markets. These are likely to include paper, plastics, metals, e-waste, and textiles.

The above is intended purely for the purposes of illustration – as markets, material types, and processing technologies evolve these circles of re-integration into the economy are likely to change. The key point is that the network will involve a redistribution of different products and materials to different points and designing this redistribution to be as efficient and effective as possible will be critical to the functioning of the circular economy.

Local Logistics

A key part of the concept is to facilitate the ability to capture the widest possible range of materials by taking advantage of economies of scale to capture economic quantities. This can be achieved through a standardised modular approach to material separation and collection. An example of this is the system deployed in Upper Austria, which utilised 1 cubic metre stackable bins that can be moved using forklifts and transported on curtainsider trucks (see below).

Figure 24: Standardised Bins Being Loaded onto Curtainsider Truck



The system collects 80 different types of separated material. The possible downside of it taking time to gather economic quantities of less common material types is minimised as

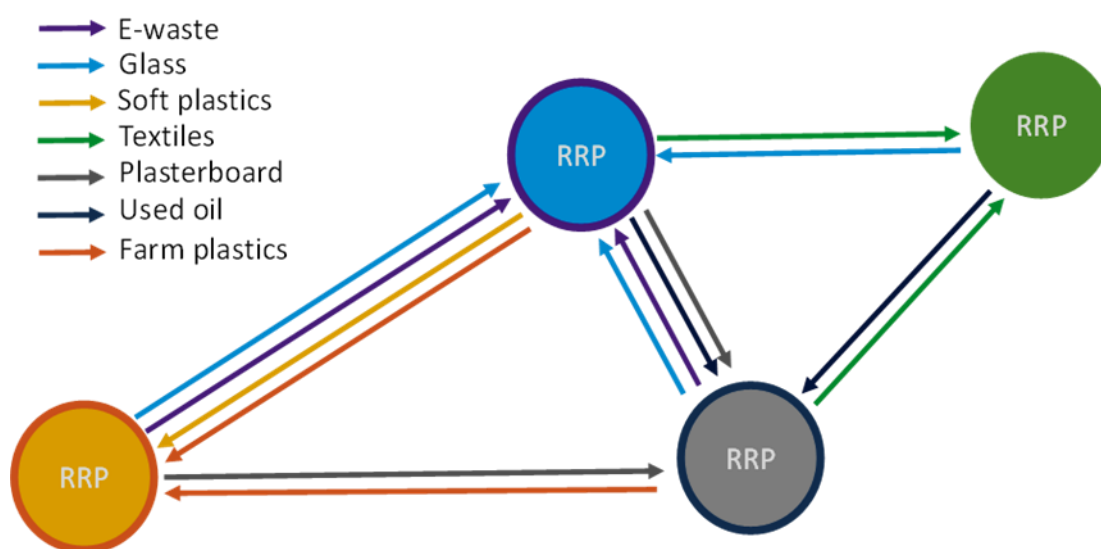
economic quantities can be achieved across the whole region, and the systems components are low cost and have proven efficiency.

The use of the same bins the same types of materials and common signage provides standardisation across the network, despite a wide range of operators being responsible for the individual resource recovery sites.

Inter-Regional Logistics

There is also potential to optimise the flows of materials between regional/sub regional hubs. For example, each regional hub could specialise in processing of one or more material types, with flows of materials then able to be balanced between sites, optimising logistics through backloading, as well as creating economies of scale. A hypothetical illustration is provided in the figure below.

Figure 25: Inter-Regional Logistics Model

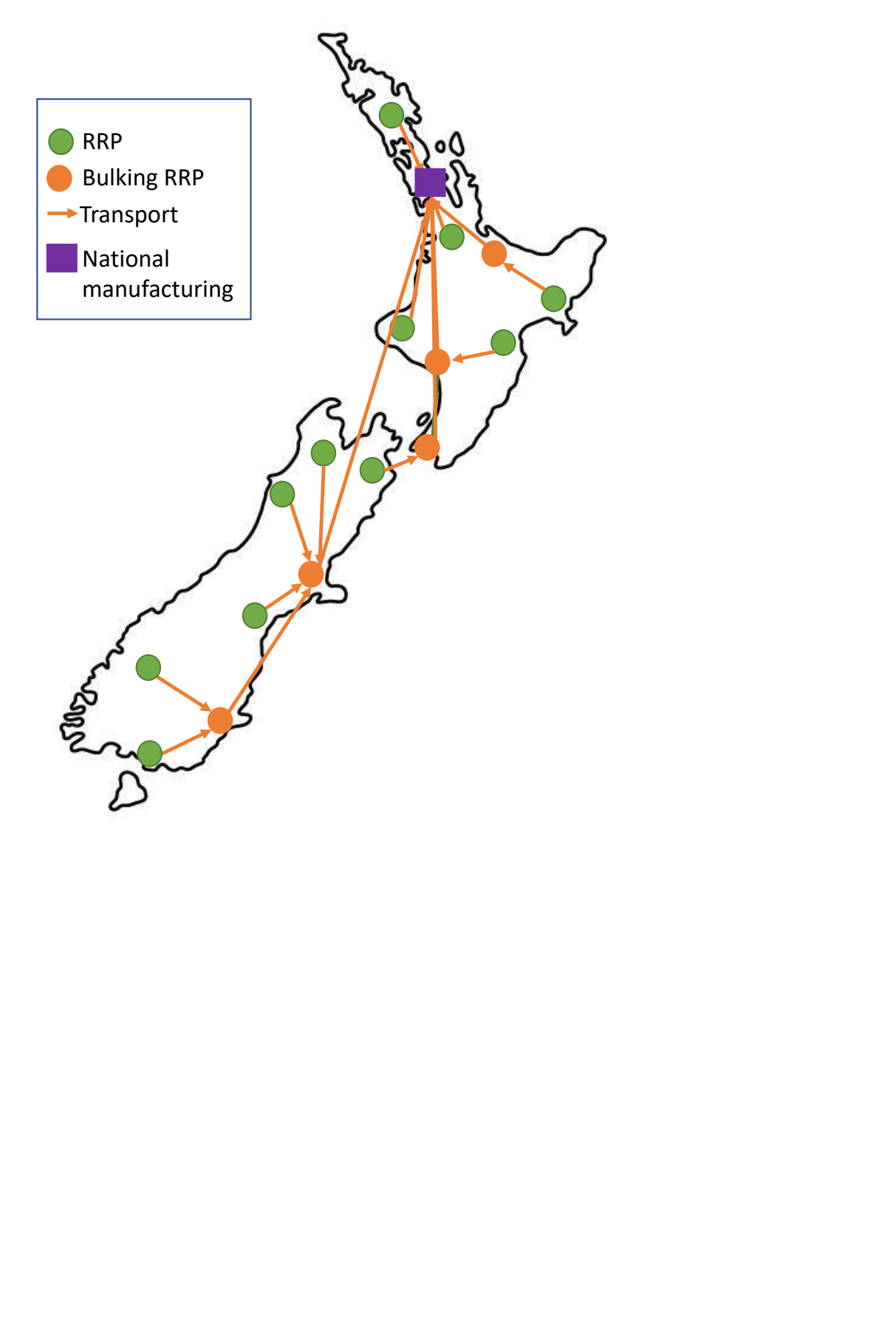


In the above hypothetical illustration, the blue RRP processes e-waste and glass from other proximate RRP, while sending other materials such as soft plastics, farm plastics, textiles, plasterboard and used oil to other proximate RRP. This is repeated across the RRP, so that the quantities and movements of material are approximately balanced. The location of specialised processing and balancing of logistics would be part of the design and planning role of the national level 'virtual network'.

National Logistics

In addition to the local and inter-regional flows of materials, a range of materials handled by the network would need to go to national scale processing/manufacturing facilities (e.g. glass, paper, plastics). Logistics across the network could be optimised to take advantage of bulk transport through strategic bulking points, and there is even the possibility of constructing new national scale facilities in locations to balance national materials flows. The figure below illustrates how materials could be consolidated through regional networks to key bulking points for long-haul transport.

Figure 26: National Logistics Illustration



A.5.2.7 The Role of Local/Regional Government

Local government has historically had a major role in waste management planning and service delivery, and this is likely and desirable to continue. Local government own a significant proportion of the existing transfer station sites, and well as processing infrastructure sites and are familiar with local circumstances. Many councils are already in the process of developing resource recovery parks or local networks.

These existing and planned sites could form a starting point for the physical circular resource network. It would primarily be a matter of collaborating to establish consistency and linkages across the existing and planned sites as well as promoting the development of new sites by local government.

In addition, there may be a vital role for regional entities. One of the key issues identified in the stocktake work was a lack of appropriate delivery structures for regional level infrastructure. Some facilities require a regional level approach to achieve appropriate economies of scale (for example processing of food waste, MRFs, regional bulking for key materials such as glass etc.).

The proposed circular resource network concept is centred around a regional approach, with one or two regional scale RRs that form the core hubs for collecting and consolidating material from the RRC sites, and undertaking processing and, potentially, manufacture. Key aspects of the roles for regional and local government could include:

- Service operation/contracting
- Local and regional expertise and coordination
- Local infrastructure investment and operation
- Identification and provision of appropriate sites
- Local consents monitoring, and enforcement
- Gathering and analysis of data

A.5.2.8 The Role of Iwi

Iwi also have an important role to play in the co-development of the circular resource network. The concept of resource recovery is aligned with the te ao Māori principle of kaitiakitanga, and the Para Kore programme is already in place in 476 marae across the country⁵⁵.

In addition to performing a similar role to the private and community sectors in service delivery, iwi have a role as kaitiaki of the land and people, and where resources are available, iwi can contribute financial investment and sites to the network and provide

⁵⁵ <https://www.parakore.maori.nz/our-story/>

leadership in the development of the network. Key aspects of the roles for iwi could include:

- Service operations
- Infrastructure investment and operation
- Guardians / developers of RR Park and RR Centre sites
- Recovering value from materials
- Ownership and sale of recovered materials
- Utilising recovered value to leverage other community outcomes (e.g. employment, training, rehabilitation)

A.5.2.9 The Role of Private Sector Operators

Private sector operators currently manage the vast majority of waste materials recovered and disposed of in NZ, whether via private commercial arrangements or under contract to the public sector, and this would be expected to continue under the proposed model.

The expectation is that, for the operation of the physical circular resource network, the public sector would generally own the land and generic infrastructure (such as buildings or, concrete pads, roading etc.) but would lease the sites or contract out for the delivery and operation of the circular resource network sites (such as separation of materials, composting, processing, manufacture).

Sites could have a range of private and community sector operators involved (see below). Key aspects of the roles for private sector operators could include:

- Service operations
- Infrastructure investment and operation (either privately or under contract)
- Recovering value from materials (including repair and reuse)
- Ownership and sale of recovered materials

A.5.2.10 The Role of the Community Sector

Although the community sector is a minor player in terms of the total quantity of waste materials managed in New Zealand, they have had a significant role in the industry in terms of community engagement, innovating around recovery, and extracting value from waste materials to apply to social and community outcomes.

The community sector role can potentially be further embedded and given added importance in the delivery of the circular resource network concept. Community groups could not only provide services such as reuse and repair across multiple sites but could

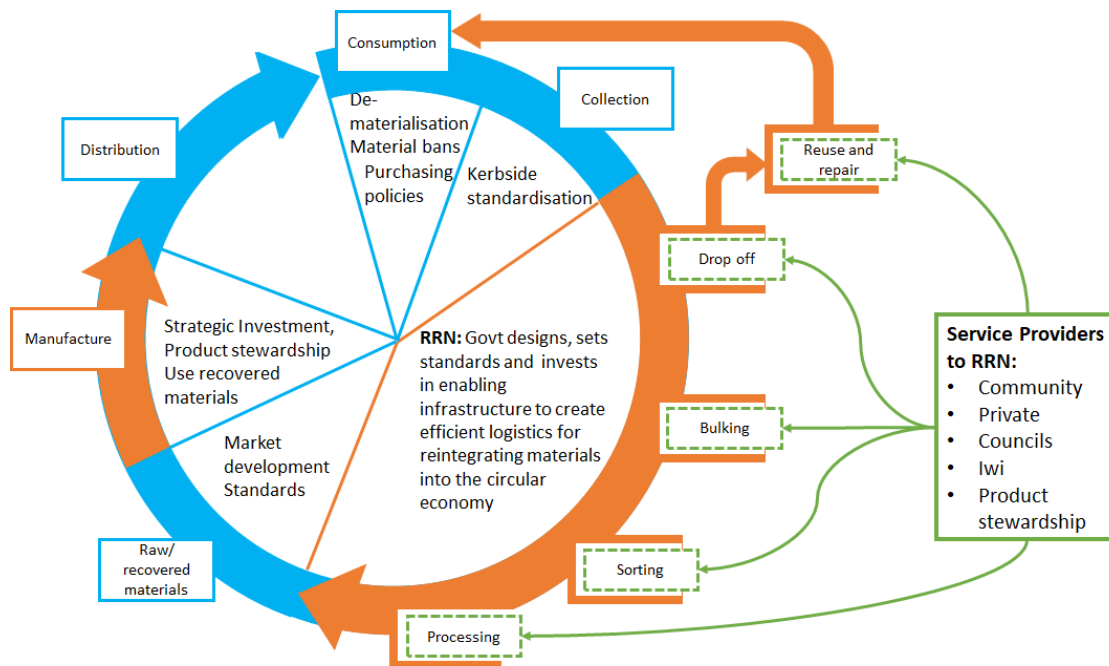
also be empowered to deliver all services on sites (as has been demonstrated in Auckland). Key aspects of the roles for community sector operators could include:

- Service operations
- Infrastructure operation
- Recovering value from materials (including repair and reuse)
- Ownership and sale of recovered materials
- Utilising recovered value to leverage other community outcomes (e.g. employment, training, rehabilitation)

A.5.2.11 Summary

The figure below illustrates how the roles and functions of a national resource recovery network could integrate to provide key reverse logistics functions in the circular economy. The orange elements of the circle are the parts that form the circular resource network.

Figure 27: Roles and Functions of a Circular Recovery Network in the Circular Economy



In the above chart material flows around in a clockwise direction. The arrows represent the material flows. The boxes indicate the key steps within the value chain. The graphic shows how different providers to the can deliver all of the key functions, but within an overall connected framework (that is established and overseen by central/regional/local government).

A.5.3 Benefits of Circular Resource Network Approach

A Circular Resource Network approach would have a range of benefits. These include:

- **Consistent with the Waste Strategy.** At its core the approach is about enabling the circular economy by building out the infrastructure required for the circular flow of materials in the economy. The circular resource network concept synthesises this into a practical approach with wide ranging applications.
- **A practical, easily articulated, investment strategy.** Because the core component of the circular resource network concept is an arrangement of physical infrastructure it is intuitively easy to communicate the intent.
- **Improved efficiency and value.** By focusing on how value can be preserved and enhanced through the resource recovery value chain rather than purely on environmental and social outcomes, it is possible to unlock the potential value of recovered materials and unleash the innovative power of the sector to achieve environmental and social outcomes.
- **Future flexibility.** Flows of materials will change over time. By government investing in the skeleton structures that enable functions, then investment is not locked into a time-limited solution. As materials, markets and processes change over time existing

infrastructure and governance can be efficiently and nationally adapted for the new functions.

- **Data harvesting.** The development of the digital model circular resource network will enable an unprecedented level of insight into recovered material flows and enable effective and intelligent planning and nimble responses by the sector to evolving situations.
- **Baskets of materials.** By co-locating and handling of a range of material and product types at single locations this enables efficiencies through the sharing of support structures and cross subsidisation, and hence the viable recovery of a wider range of materials.
- **Builds on existing infrastructure.** As noted, existing infrastructure (such as existing and planned RR Parks, and transfer stations) would form the foundation of the circular resource network, and these could be progressively integrated.
- **Provides valuable roles for all stakeholders.** The circular resource network will be significant in scale and scope, and it will require the input, collaboration, innovation, and power of all parts of the sector to fully realise its' potential.
- **'No regrets' approach.** The circular resource network concept proposed here is potentially far reaching in its scope and what it could eventually encompass. However, whatever level the concept is implemented to, it will still have multiple benefits. At a minimum it would result in the creation of a number of RR Parks or regional circular resource networks, which will still be positive outcomes.
- **Scalability.** The network can be "right"-sized in a flexible manner with the ability to effectively respond to changing circumstances.