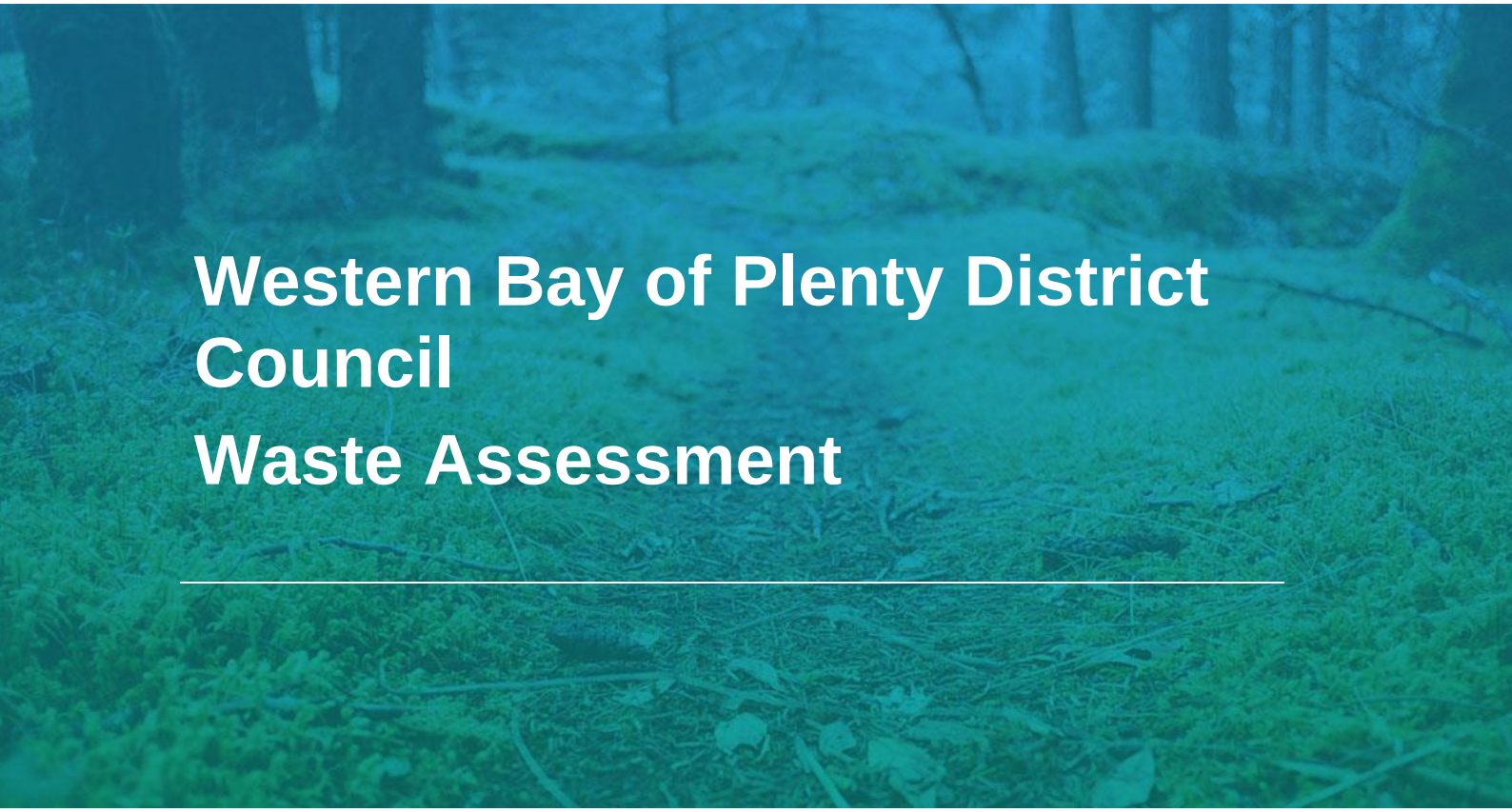

Western Bay of Plenty District Council
Waste Assessment

May 2022

Report for the Western Bay of Plenty District Council

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Acknowledgements

Disclaimer

Contents

1 Introduction

This Waste Assessment has been prepared for Western Bay of Plenty District Council (the 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 our district. 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.

Bay of Plenty Region

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 we manage our waste.

Our District

This section presents a brief overview of key aspects of the city'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 the Council is able to meet its statutory obligations.

Statement of Proposals

The statement of proposals sets out what actions are proposed to be taken forward. The proposals will be carried forward into the Waste Management and Minimisation Plan (WMMP).

Appendices

The appendices contain additional waste management data and further detail about facilities in each district. This section includes the statement 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
- 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 TAs to promote effective and efficient waste management and minimisation within their district. To achieve this, all TAs are required by the legislation to 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 written as a joint document with Tauranga City Council, and was adopted in 2016. Council's WMMP (not a joint document, although sharing a vision with Tauranga's WMMP) was adopted in December 2017.

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. 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].

A key issue for this Waste Assessment will be forming a clear picture of waste flows and management options in the city. 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 the TA'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 2010 also makes clear that TAs have a statutory obligation (under the WMA) to promote effective and efficient waste management and minimisation in their district. This applies to all waste and materials flows in the district, not just those controlled by councils.

Although the WMA is currently subject to review (as discussed further below in section xx), there has not been any indication that these requirements would change as a result.

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's long term plans (LTPs). For some assets and services, it is necessary to consider a longer timeframe and so this is taken into account where appropriate.

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 landfill to Western Bay district is Waste Management New Zealand Ltd's Tirohia landfill, which has a landfill gas capture system in place.

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.

The WMMP also considers disposal of biosolids, specifically waste products from the waste water treatment system (sludge).

1.4.4 Public Health Issues

Protecting public health is one of the original reasons for local authority involvement in waste management. The New Zealand Waste Strategy 2010 contains the twin high-level goals of "Reducing the harmful effects of waste", and "Improving the efficiency of resource use". In terms of addressing waste management in a strategic context, protection of public health can be considered one of the components entailed in "reducing harm".

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 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.

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 is expected to be added emphasis on workplace health and safety under the Health and Safety at Work Act 2015. This legislation could impact on the choice of collection methodologies and working practices and the design of waste facilities, for example.

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 New Zealand Waste Strategy: Reducing Harm, Improving Efficiency (NZWS) is the Government's core policy document concerning waste management and minimisation in New Zealand. The two goals of the NZWS are:

1. Reducing the harmful effects of waste
2. Improving the efficiency of resource use.

Section 44 of the WMA requires councils to have regard to the NZWS when preparing their WMMP.

For the purpose of this Waste Assessment, the council has given regard to the NZWS and the current WMMP (2017).

MfE has released a draft revised 'New Zealand Waste Strategy' (the Strategy), which was open for consultation until 10th December 2021. The new draft Strategy has a focus on achieving a more 'circular economy' for waste and sets out a multi-decade pathway towards this.

The MfE are currently reviewing submission responses, and the final form of the strategy is not yet known.

The consultation document[2] includes:

[2] https://environment.govt.nz/assets/publications/waste-strategy-and-legislation-consultation-document-.pdf

- A review of the current situation with waste management in New Zealand, including our performance in the global context
- A proposed new vision and principles for New Zealand
- A staged transition process, with three stages described
- A more detailed description of what stage one might look like
- Targets
- Proposals to review associated legislation.

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

The proposed direction of the draft New Zealand Waste Strategy, the supporting actions, and the suggested targets all have clear implications for the future direction of waste management and minimisation in this country.

- The overall direction of the Waste Strategy is towards a circular economy;
- 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; and
- The targets focus on reducing waste generation and waste disposal by 2030 – by quite significant proportions.

Given that the draft was developed in partnership with an industry focus group with representatives from across the sector, it presumably has wide-ranging support and seems unlikely to change significantly in its final form. The alignment with work to reduce emissions makes this particularly unlikely for the aspects that relate specifically to organic waste.

1.5.2 Emissions Reduction Plan (Draft)

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.

The recommendations for the waste sector included an increase in waste minimisation infrastructure investments to decrease methane emissions from waste by at least 40% by 2035 from 2017 levels[3]. 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).

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

[3] https://www.climatecommission.govt.nz/our-work/advice-to-government-topic/inaia-tonu-nei-a-low-emissions-future-for-aotearoa/chapter-summaries/

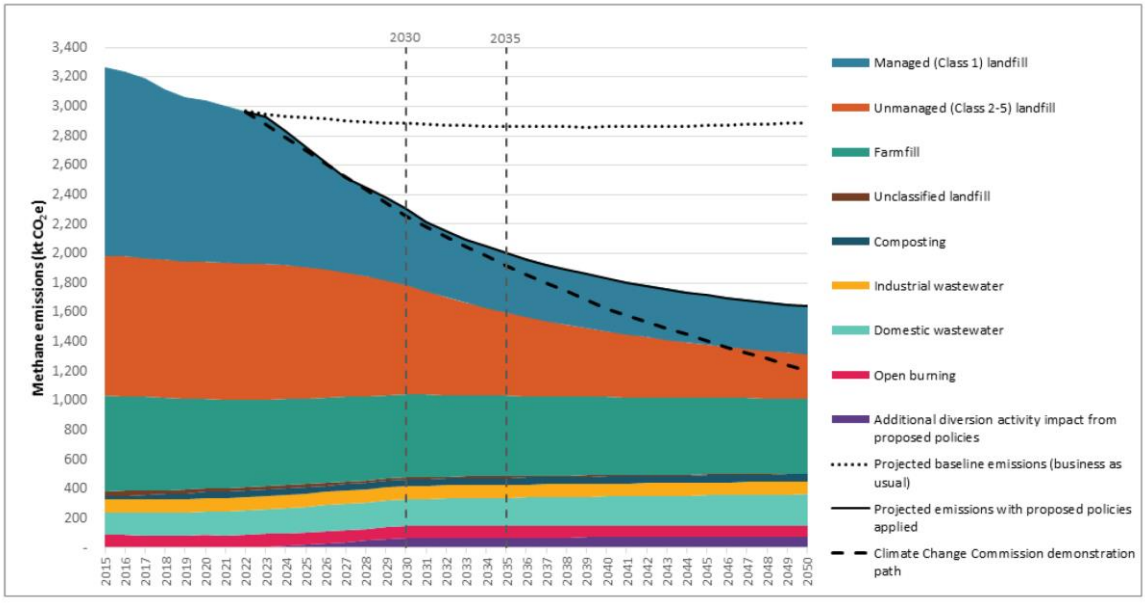
required to reduce waste overall, divert waste from landfill disposal, and improve/extend landfill gas capture systems.

The main source of biogenic methane emissions from the waste sector is the anaerobic decomposition of organic wastes in landfill (81%). As one possible way to significantly reduce this, the emissions reduction plan proposes "*key organic materials such as food, green, and paper waste could also be banned from Class 1 landfills by 2030*" with a note that this could also be extended to wood waste. Further possible methods to reduce organic waste going to disposal include food and green waste collections, services to enable commercial premises to divert food and green waste, better paper and cardboard recycling, and improvements to infrastructure such as transfer stations and material recovery facilities (MRFs).

Other relevant proposals relate to reducing the generation of food waste, construction and demolition waste, and options to divert treated timber from disposal.

It is worth noting that even with all of the initiatives proposed this would still fall short of achieving the CCC's proposed target for waste emissions, as shown in the chart below:

Figure 1: Total projected methane emissions from waste showing the impact of proposed combined waste policy options



Source: Ministry for the Environment. 2021. *Te hau mārohi ki anamata | Transitioning to a low-emissions and climate-resilient future: Have your say and shape the emissions reduction plan.* Wellington: Ministry for the Environment.

1.5.3 Waste Minimisation Act 2008

Alongside the development of a revised NZWS, 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 NZWS, 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.

The WMA has been amended by the 2021 waste disposal levy regulations[4], which set out the progressive increase and expansion of the landfill levy starting 1 July 2021; and supplemented by regulations banning specific items, including microbeads[5] (2017) and plastic shopping bags[6] (2018).

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 Waste Minimisation and Management Plan (WMMP). From April 2022, TAs will report on their waste levy expenditure through an online tool TAWLES.

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

1.5.4 Waste Disposal Levy

In April 2021. the government introduced regulation to expand the scope of the levy from Class 1 landfills to also include classes 2-4.[7]

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

Table 1: 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

If the landfill levy is expanded and raised as planned this will have 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. The potential impacts are explored further in Appendix A.4.3.

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

[4] https://www.legislation.govt.nz/regulation/public/2021/0068/latest/LMS474556.html#LMS474591
[5].https://www.legislation.govt.nz/regulation/public/2017/0291/latest/DLM7490715.html?search=ts_act%40bill%40regulation%40deemedreg_microbeads_resel_25_a&p=1
[6] https://www.legislation.govt.nz/regulation/public/2018/0270/6.0/whole.html
[7] https://www.legislation.govt.nz/regulation/public/2021/0069/latest/whole.html

units to be surrendered to cover greenhouse gas emissions from the incineration of household wastes.

The number of emissions units that needs 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 1.19 tonnes of CO_2-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.

During May 2021 MfE consulted on some possible changes to the ETS including:

- special treatment for waste removed from a closed landfill (not currently falling under the ETS) and re-disposed of at another landfill (that does fall under the ETS)
- decreasing the DEF from 1.19 to 0.91 to reflect the most recent composition estimate for waste going to Class 1 landfills.

The outcomes of the consultation and any potential future changes to the DEF have not been made available at the time of writing this report.

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)[8] currently change hands for between $70 and $85, with prices at $74.40 at the time of writing[9].

The cost of NZU 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.

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.

[8] NZUs are carbon credits that are officially accepted to offset liabilities under the NZETS
[9] According to carbon prices on www.carbonforestservices.co.nz and https://www.carbonmatch.co.nz/

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 is now seeking feedback on a detailed implementation proposal for a container return scheme in New Zealand. This is included in the 'Transforming Recycling' consultation document[10], and consultation closes on 8 May 2022.

The consultation document proposes 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, it is likely to have two key effects on household kerbside recycling collections:

- 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, would result in income for the 'owner' of the items. Usually, the owner is either the Council and/or its contractor.

Possible implications for Council may be that the frequency of recycling collections could be reduced (both the comingled wheeled bin and the glass crate).

1.5.6.2 Kerbside Standardisation

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 2020[11], and MfE is currently considering 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 waste collection service for households.

MfE is now seeking feedback on a detailed implementation proposal for kerbside standardisation in New Zealand. This is included in the 'Transforming Recycling' consultation document[12], and consultation closes on 8 May 2022.

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

- Phasing in source-separation of food waste only from businesses that produce or sell food;
- Phasing in source-separation of food waste from all businesses (including, for example, stadiums and other large event venues); or

[10] https://environment.govt.nz/assets/publications/Transforming-recycling-consultation-document.pdf
[11] https://www.wasteminz.org.nz/wp-content/uploads/2020/08/Final-1.0-Standardising-Kerbside-Collections-in-Aotearoa.pdf
[12] https://environment.govt.nz/assets/publications/Transforming-recycling-consultation-document.pdf

- Prohibiting the disposal of food waste to landfill entirely (which would also preclude disposal of food waste from household sources and public bins).

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 current consultation also covers a number of related issues.

One of these is 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 waste 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 is 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.

1.5.6.4 Priority Products

Until July 2020, the ability under the WMA to name a product as a 'priority product' had not been used. Once a product has been named such, an extended producer responsibility approach must be taken and a regulated product stewardship scheme developed. The first six 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

MfE has taken a 'co-design' approach, which involves industry developing and operating product stewardship schemes with central government oversight. To date regulated product stewardship schemes are in development for tyres, large batteries, e-waste, refrigerants, and agrichemicals and farm plastics, although only tyres have currently been accredited. Consultation on regulations to enable the schemes for tyres and large batteries was undertaken in late 2021 and is due to take place in the second half of 2022 for refrigerants and farm plastics.

1.5.6.5 Product Bans

In April 2022, MfE announced that regulations had been passed to enable the implementation of the first tranch 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 will take effect from 1 October 2022, and MfE will release further information such as scope and guidance on alternatives over the next few months.

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. It is due for completion in mid-2022.

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). MfE has also adopted regulations that enable the collection of some data from Class 5 landfills and transfer stations[13], and has proposed an approach for performance reporting by TAs in the current consultation.

1.5.7 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

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 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.

The LTP includes an environmental vision for the district – *"Our district has a vision of having a clean, green, and value environment"* including 'using resources wisely'. A key action in the 2021 LTP was the imminent introduction of the rates-funded kerbside recycling and organic waste collection service, and the introduction of a council-contracted kerbside rubbish collection service.

[13] https://www.legislation.govt.nz/regulation/public/2021/0069/latest/whole.html

During the term of the LTP, Council also intends to invest into community re-use centres, to provide opportunities for re-purposing and re-developing products; and continue waste reduction programmes so that less waste is created. 'Low waste' business practices are expected to become more common, and an increasing expectation for waste minimisation will be reflected in decision-making.

The LTP identifies twelve significant infrastructure issues that will need to be addressed during the term of the plan. One of these relates to solid waste, with specific actions such as the provision of a resource recovery centre in Ōmokoroa, and waste infrastructure investigations.

Council's main role in solid waste management is described as providing kerbside collection services, recycling and solid waste facilities, and education and enforcement to ensure waste is dealt with responsibly. Examples include provision of recycling and greenwaste facilities, waste minimisation education, illegal dumping management, and supporting community waste reduction initiatives. The WMMP is referred to for details as to what Council will do, and how the community will work together, but the LTP references some specific actions including:

- Development of a site at Ōmokoroa to address population-based increasing needs;
- Consideration of rural recycling drop-off facilities;
- Ongoing closed landfill management; and
- Raising community awareness of recycling and waste services.

Goals from the LTP reflect the existing WMMP, including to:

- Reduce and recover more waste;
- Applying latest proven and cost-effective waste management and minimisation approaches
- Collecting information to enable informed decision-making
- Creating benefit for our community.

The targets, similarly, are aligned with the WMMP.

1.6.2 Waste Infrastructure Review

In 2020, Tauranga City and Western Bay of Plenty District Councils undertook a review of solid waste infrastructure. The goal of this review was to model the infrastructure requirements for the sub-region

The key points are outlined here:

- Provision of drop-off facilities is good, with the exception of Ōmokoroa (greenwaste only);
- Processing capacity is limited to Te Maunga, but this site has sufficient space;
- Transfer infrastructure is considered to give satisfactory coverage except for some population centres in the north, which currently have over 40 minutes' drive time from a transfer facility;
- Glass bulking will need to be accounted for;
- The MRF will require replacement within the next four to eight years; and
- An Ōmokoroa location would be ideal for a 'northern' bulking and consolidation site.

It should be noted that since the completion of this report, the Maleme St RTS has closed to the public which has significantly increased drive times for much of the northern and central Western Bay district to an RTS.

1.6.3 Community Enterprise Investigation

Also during 2020, Tauranga City and Western Bay of Plenty District Councils commissioned Envision NZ Ltd to investigate the opportunities to increase resource recovery through community enterprise.

The review concluded that while there were numerous active community organisations in Tauranga City, there were few in Western Bay that might naturally be delivery agents for potential community resource recovery centres. Just two potential partners were identified, based in Katikati and Te Puke.

The recommendation of the review was that Council work to establish two new community reuse centres, and that these be located in Katikati and Te Puke to leverage off existing activities.

1.6.4 Bay of Plenty Regional Council

The Regional Waste Strategy (2013 – 2023) presents a regional position on managing waste, hazardous substances, hazardous waste and contaminated sites in the Bay of Plenty. The Regional Waste Strategy has a vision of *"working together towards a resource-efficient region"*.

The Strategy also contains six key focus areas through which the vision and associated goals will be achieved:

1. Foster collaboration, partnerships and promote forward planning
2. Improve data and information management
3. Review regulatory environment governing waste
4. Increase resource efficiency and beneficial reuse
5. Reduce harmful impacts of waste
6. Stimulate research and innovation.

1.6.5 Collaboration

The Bay of Plenty and Waikato regional councils are working together on a number of pan-regional collaborative projects that have been identified as priority actions by the constituent councils. The areas of collaborative work include:

1. Solid waste bylaws, licensing and data
2. Education and communication
3. Procurement
4. Rural waste

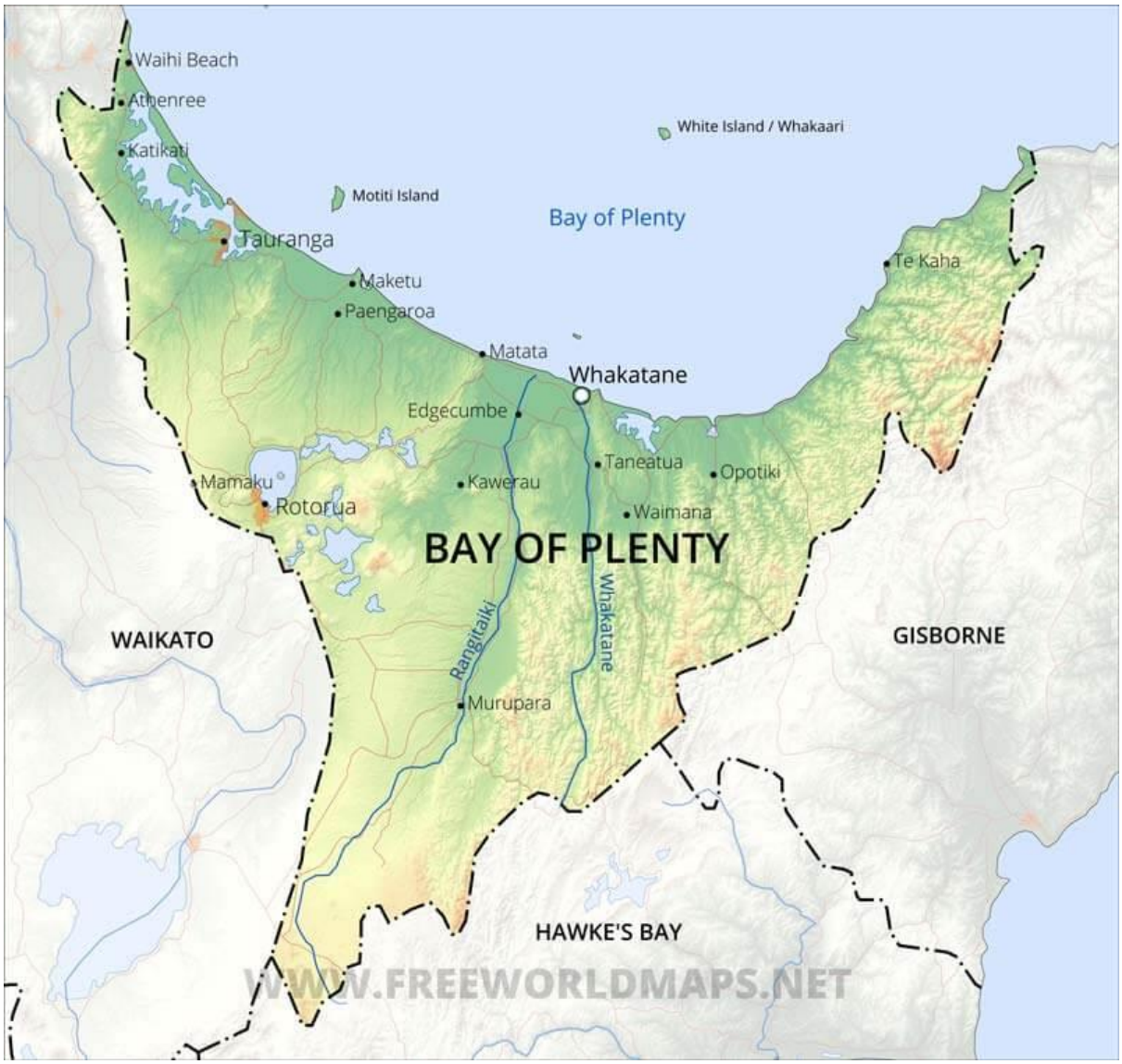
1.7 Our District

Western Bay of Plenty lies within the Bay of Plenty region, which reaches from Waihī Beach in the northwest to the eastern point of the East Cape, with significant inland forests including parts of Te Urewera and the Kaimais, and a long stretch of coastline. The region

includes the districts of Opotiki, Whakatāne, Kawerau and Western Bay, and part of Rotorua Lakes district. Tauranga City is the main population centre and biggest local authority area in the region by population.

The entire region hosts just over 300,000 residents and a significant Maori population, with 25% identifying as Maori and 39 iwi across the region.

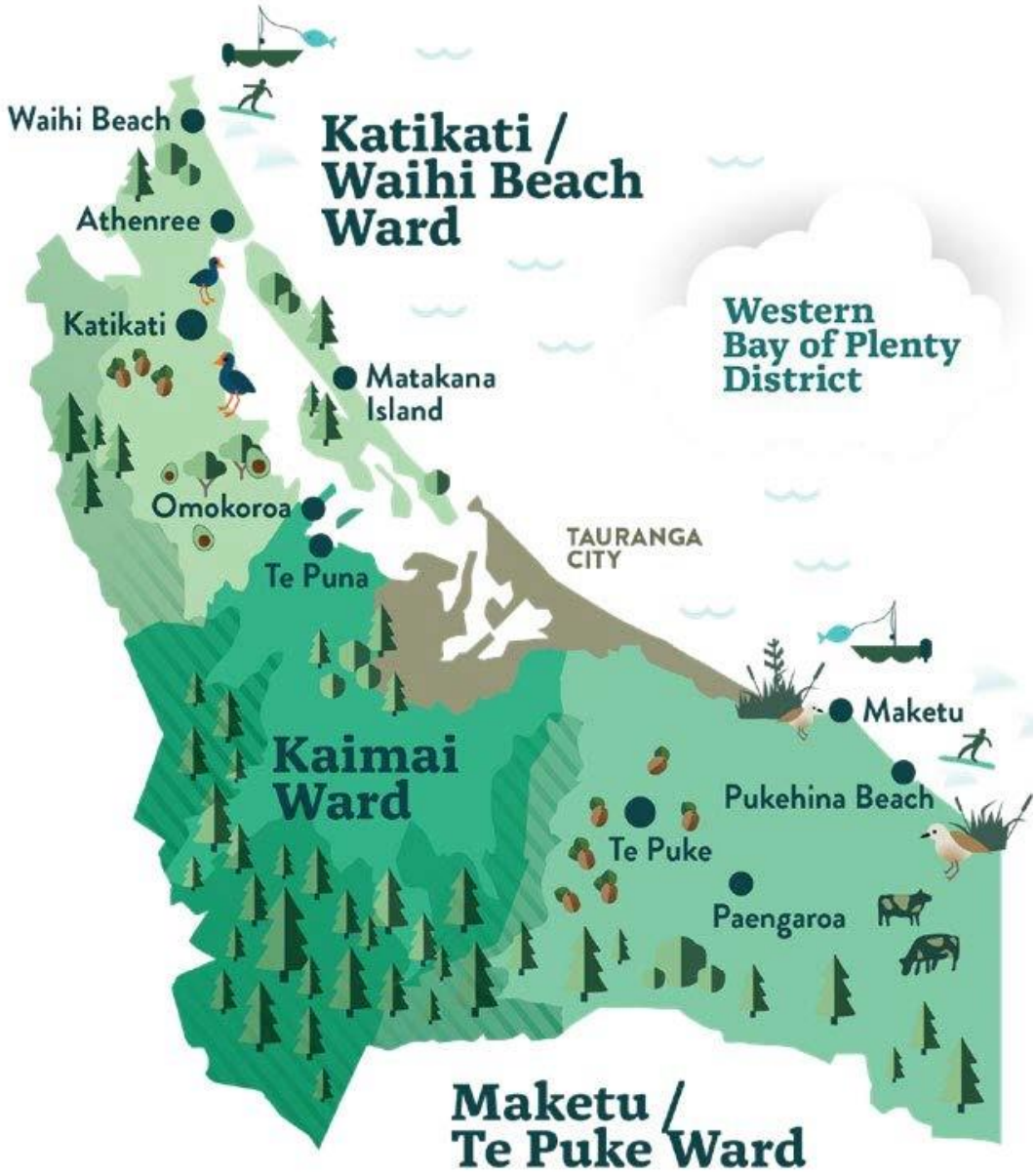
Figure 2: Bay of Plenty Region



Source: https://www.freeworldmaps.net/oceania/new-zealand/bayofplenty/

Western Bay of Plenty district surrounds Tauranga to the north, west, and south. The main population centres are Te Puke, Katikati, and Waihī Beach although populations are growing quickly in Ōmokoroa.

Figure 3: Map of Western Bay and Wards



Western Bay has coastal communities that experience significant increases in population over summer. The district is bordered in the west by the bush-covered Kaimai Ranges, and in the south is the Kaituna river which flows from Rotorua and Rotoiti through the Western Bay to Maketu.

The district generally has a mild, temperate, and sunny climate.

The last measured population of the district was 53,400. Most of these people live in Te Puke, Maketu, Ōmokoroa, Te Puna, Katikati, and Waihī Beach. A large part of the Western Bay district is relatively sparsely populated. The district is experiencing significant growth, with population increasing by 17.5% between 2013 and 2018.

1.7.1 Demographics

At the 2018 census, Western Bay of Plenty had 53,400 residents; an increase of 17.5% from the 2013 census population. It is estimated that the population will grow by 11% in the next five years.

Population projections are shown in the following table:

Table 2: Population Projections to 2043

2018	2021	2026	2031	2036	2041	2046	2051	Change 2018 – 2051 (number)	Change 2018 – 2051 (percent)
51,318	57,355	62,219	66,300	69,102	70,620	71,203	71,367	**20,049**	**28.1%**

The infographic below summarises key demographic indicators for the Western Bay.

19% of the District's population identify themselves as Māori which is higher than the national average of 17%.

Agriculture and horticulture are the main economic drivers of the Western Bay of Plenty District and the greater Tauranga and Western Bay sub-region.

Over 90% of the people in the **Kaimai Ward** indicated they were of European ethnicity in 2018.

15% indicated they were Māori in the **Kaimai Ward** for the same period.

19% of the population in the District are less than 15-years-old very close to the national average of 20%.

Population statistics on this page are from the 2018 Census.

21%
of residents in the District are over 65-years-old higher than the national average of 15%.

The Asian ethnicity in the **Katikati/Waihī Beach Ward** increased from 606 people in 2013 to 816 people in 2018 (+35%), while the Pacific People ethnicity increased from 342 people to 432 people (+26%) for the same period.

The District has a warm, sunny climate with an average of 1900 - 2300 sunshine hours per year.

The District has a moderate rainfall of 1200 - 2400 mm per year.

28% of the people in the **Maketu/Te Puke Ward** indicated they were of Māori ethnicity in 2018. 12% indicated they were Asian.

50% increase
The Asian and Pacific ethnicities increased in the **Maketu/Te Puke Ward** by 50% or over from the 2013 to 2018 Census.

The District has a lower level of socio-economic deprivation than the country as a whole.

1.7.2 Tangata Whenua

Western Bay has a slightly higher than average proportion of the population that identify as Maori, at 19% (compared to the national average of 17%).

There are 11 iwi within the Western Bay district. Council's Kaupapa Maori team take a key role in ensuring that Council and iwi engage with each other in an effective and valued way. Te Ihu o Te Waka o Te Arawa and Te Kāhui Mana Whenua o Tauranga Moana provide a formal pathway for iwi to be represented and engaged with Council's work.

These partnership forums may wish to provide an iwi view on waste management and minimisation in the consideration of this waste assessment and the development of the next WMMP.

2 Waste Infrastructure

The facilities available in Western Bay are a combination of those owned, operated and/or managed by Council, and those that are owned and/or operated by commercial entities or community groups.

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.[14] As there are differences, albeit slight, between the two; the legal definitions take precedence[15].

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
- 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:

- 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

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

[15] 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.

Industrial Monofill

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.3.0.

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 is one Class 1 disposal facility in the Bay of Plenty region, the Green Park Landfill located at the corner of McPhail and Ohauiti Roads. This facility is defined by MfE as a Class 1 landfill, but is not consented to take "general domestic refuse"[16].

There are two Class 1 disposal facilities within reach of the Western Bay that accept a wide range of waste types. The table below provides a detailed description.

Table 3: Class 1 landfills accessible from Western Bay

Name & Owner/Operator	Description	Location	Capacity and Consent
Tirohia Landfill (Waste Management NZ Ltd)	Non-hazardous residential, commercial and industrial solid waste, including special wastes. Sludges with less than 20% solid by weight are prohibited. Compostable material is also processed on site.	Tirohia, Hauraki District	Consented to accept 4 million m^3 - approximately 2035

[16] Consent can be found here: https://www.boprc.govt.nz/environment/resource-consents/consent-documents?pfid=fA769224

North Waikato Regional Landfill (Hampton Downs), EnviroNZ Ltd	Non-hazardous residential, commercial and industrial solid waste, including special wastes. Sludges with less than 20% solid by weight are prohibited. Compostable material is also processed on site.	Hampton Downs, North Waikato	Consented to 2030 (very likely to extend past this date)

While Council does not own or operate a Class 1 landfill, and is therefore reliant on the provision of disposal capacity by the private sector, this is not necessarily a strategic weakness. Many council-owned disposal facilities, particularly in smaller districts, are proving relatively expensive and are unable to compete with the larger private facilities because of the lack of economies of scale. Once established, large facilities have very low marginal costs, and are therefore able to offer low disposal charges meaning waste can be brought to these facilities from a wide catchment. If Council were to own a disposal facility it would need to be of substantial scale and compete for tonnage from a wide catchment to be economically viable.

The region has reasonable access to Class 1 landfills, although most residents and operators only have access to disposal through Te Maunga RRP. This can be an advantage in waste management, as Council has access to good data (via Tauranga City Council) relating to the waste streams passing through this facility. There is good capacity of Class 1 landfill space in the medium term covered by this assessment; assuming that the resource consent for the North Waikato Regional Landfill is successfully extended.

2.1.2 Transfer Stations and Recycling Drop-off Points

Refuse transfer stations (RTSs) and recycling drop-off points (RDOPs) provide for those that can't or choose not to make the journey to a landfill, which is not practical for most residents of Western Bay. 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.

Since the closure of Tauranga City Council's Maleme Street (Greerton) RTS to the public in late 2021, there is now just one RTS in the Western Bay/Tauranga sub-region that is open to the public for extensive waste diversion and disposal; Te Maunga Resource Recovery Park.

Some residents in northern Western Bay are likely to access the Hauraki District Council's RTS in Waihī.

There is one private RTS, also in Maleme Street in Greerton. This is only used by the company Bin Boys Ltd for the waste collected through their private kerbside services.

Council also provides a number of RDOCs located at Athenree, Katikati, Te Puke, and Ōmokoroa. Apart from Ōmokoroa, all sites accept greenwaste and recyclables. Ōmokoroa is currently located at a temporary site, as the original site was always intended eventually for housing development and only takes greenwaste. Council intends to relocate the Ōmokoroa facility again to a permanent site, and extend the services available significantly.

While the Te Maunga site accepts a wide range of materials, which will only expand with its ongoing development as a resource recovery park, this site is inconveniently located for residents of the western and northern Western Bay district. A resident that lives in Katikati, and needs to dispose of waste other than standard recyclables or green waste, is faced with a journey of 45km; which could take between 40 minutes to well over an hour at peak traffic times. A more attractive alternative is the Hauraki District Council's RTS at Waihī, around 20 minutes away; however, this site offers less diversion opportunities than Te Maunga.

The 2020 review of waste infrastructure identified that all four RDOPs had space constraints (although Ōmokoroa has since been moved to a temporary site), and that Athenree experienced very high use during the holiday season, largely for glass bottles.

Since the introduction of kerbside rubbish and recycling services the use of the Athenree site has reportedly reduced significantly in both volume and utililisation. A similar pattern has been seen at Katikati and Te Puke. Greenwaste drop-off, cardboard and excess glass still make up the main items recovered at these sites.

2.1.3 Closed Landfills

There are four closed landfills for which Council has ongoing management and monitoring responsibility at Waihī Beach (closed 1990), Athenree (2003), Strang Rd Te Puke (1996), McLaughlin Drive Te Puke (1980). Council carries out regular monitoring and inspection of closed landfills to ensure that they are remediated and managed according to the requirements of their resource consents.

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.[17] Other disposal sites include Class 2-5 landfills and farm dumps.

The Bay of Plenty Regional Council 2008 Regional Natural Resources Plan defines cleanfills as a permitted activity, as long as the operation of these cleanfills is in line with the Ministry for the Environment's Cleanfill Guidelines and they do not produce leachate (which would be the case by definition if the cleanfill guidelines were followed properly). There are no

[17] 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.

formal reporting requirements for these cleanfills to the regional council, nor are they monitored on a proactive basis.

In the MfE's 2002 "A Guide to the Management of Cleanfills" 'cleanfill' is defined as:
"Material that when buried will have no adverse effect on people or the environment. Cleanfill material includes virgin natural materials such as clay, soil and rock, and other inert materials such as concrete or brick that are free of:

- *combustible, putrescible, degradable or leachable components*
- *hazardous substances*
- *products or materials derived from hazardous waste treatment, hazardous waste*
- *stabilisation or hazardous waste disposal practices*
- *materials that may present a risk to human or animal health such as medical and*
- *veterinary waste, asbestos or radioactive substances*
- *liquid waste."*

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 the 1 July 2022, Class 2 disposal facilities will be 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 will need 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 will hold data on the quantities of waste disposed of at these sites and are in the process of developing a database of Class 2-5 facilities around the country. This data indicates that, so far, nine facilities have been identified in the Western Bay of Plenty district. In some parts of New Zealand, Class 2 landfills are indicating that they will close before the deadline to register and pay the levy of 1 July 2022. It is not known what the intentions are of the Green Park Landfill operators.

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.

There are three participants in the local hazardous waste market; EnviroNZ Technical Services, Waste Management Technical Services, and R & S McGregor. Agrecovery provides hazardous waste management services for agricultural properties.

Household hazardous waste can be taken to Te Maunga RRP; and Council accepts domestic quantities of hazardous waste (pesticides and agrichemicals) at the RDOCs in Katikati, Athenree and Te Puke.

2.3 Waste Water Treatment

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

Council operates waste water treatment plants at Katikati, Ōmokoroa (pump station only), Maketu/Little Waihī, Te Puke, and Waihī Beach. At some of these sites, any solid waste is disposed of to land within the WWTP site. Solids from Te Puke and Katikati are transported to Kawerau for vermicomposting alongside other organic wastes. The product from this facility is used to improve soil on land where stock food is grown, and on some kiwifruit orchards.

Waste water from Ōmokoroa is processed through systems operated by Tauranga City Council at Chapel Street and Te Maunga. Some of the solid waste from these sites goes to landfill disposal, with some from Te Maunga also transported to Kawerau for vermicomposting. Tauranga City Council are working to divert all solids from Te Maunga from landfill through vermicomposting.

2.4 Recycling and Reprocessing Facilities

The main facility within reach of the Western Bay district is the Te Maunga RRP. A number of organisations and services are co-located at this site including wood recovery, green waste composting, and a materials recovery facility (MRF). Customers can dispose of general waste, polystyrene, garden waste, cleanfill, concrete, whiteware, tyres, and some e-waste.

The intention is to expand and extend the services available at Te Maunga RRP, with work to start late 2022 (intended completion by 2025). The expansion should provide for additional

diversion of untreated timber, organics, concrete, tyres, e-waste, hazardous waste, and construction and demolition waste. It will also introduce a comprehensive public drop-off recycling centre, community reuse/recovery centre, and a workshop.

The MRF at Te Maunga is owned by Tauranga City Council, and operated by Waste Management Ltd with a lease agreement until 2026. This facility processes recyclables from a wide geographical catchment from Gisborne to Western Bay, including kerbside-collected recyclables from Western Bay on behalf of the contractor, EnviroNZ. No glass is accepted at this facility. The MRF currently experiences a reasonably high loss through contamination of around 33%. Tauranga City Council intend to invest in optical sorting at the MRF to reduce this contamination rate.

EnviroNZ lease a further area adjacent to the Te Maunga RTS where a wide range of organic waste have been processed previously by another operator, with around 35,000 tonnes per annum diverted from landfill. EnviroNZ took over this site in 2021 and are currently preparing the site to process organic wastes, including the food waste from the Western Bay district kerbside collections (this material is currently being transported to Hampton Downs for processing).

EnviroNZ sub-lease a portion of the Te Maunga site to Goodwood, which accepts untreated wood and shreds this to produce a range of products including animal bedding, landscaping material such as mulch, playground safety surfacing, and firewood.

There are a number of other recycling and reprocessing facilities that accept material from within the Bay of Plenty region. The key facilities are listed below.

Table 4: Other Recycling and Reprocessing Facilities

Name/Operator	Key services/waste streams	Location	Quantity accepted from the region (tonnes per annum, TPA)
5R	Window glass	Hamilton (via Te Maunga)	1,000
O-I NZ Ltd	Colour-sorted glass	Penrose, Auckland	8,566
SoilPro	Organic waste	Maungatawhiri	4,000
Daltons	Wood, timber, animal manures	Matamata	An unknown proportion of total 150,000
Pacific BioFert	Animal by-products	Pokeno	3,000
EcoCast	Waste water treatment plant (WWTP) sludge, industrial organic wastes, agricultural by-products	Kawerau	70,000

Why Waste	Household and commercial food waste in a network of worm farms	Multiple	85
CarbonCycle	Household and commercial food waste	Multiple	30
Envirowaste	Commercial food waste	Auckland	750
My Noke	WWTP sludge, agricultural by-products	Maketu	1,250
OJI Fibre Solutions	Mixed paper and old corrugated cardboard	Auckland	16,200
Various companies	E-waste	Auckland	190
Product stewardship	Agricultural plastic, containers, and chemicals	Various locations	128

In addition, there are a large number of charity shops, secondhand stores, online secondhand retailing (such as TradeMe and Facebook marketplace), and metal recyclers that have a role in diverting material from landfill disposal.

While many material types are transported out of the district and even out of the region for recycling and reprocessing, this is not an unusual situation in New Zealand. The district is relatively well-served for infrastructure compared to some other parts of New Zealand; with only Auckland and Waikato likely to enjoy better access to facilities.

The availability of infrastructure that is accessible directly by residents and businesses, as opposed to by Council and its contractors, is not as extensive. As previously mentioned, Te Maunga is now the primary site where waste can be recovered and diverted in the Tauranga-Western Bay sub-region; although most residents would require these services relatively infrequently (e.g. disposing of construction and demolition waste, or e-waste).

Many residents in Western Bay are now faced with a lengthy journey to access these services with the closure of Maleme St. There is also reason for concern in that the Te Maunga site is owned and managed by Tauranga City Council; and Western Bay has no formal role in the planning or development of this site. This potential risk has been demonstrated previously in the case of the closure of Maleme St; which, while being a key location for Western Bay residents, was solely in the control of Tauranga City Council.

The closure of the Jack Shaw cleanfill now means that the Western Bay (and Tauranga) have lost a local management point for cleanfill material, with Green Park the nearest option.

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

In 2021, Council introduced council-contracted kerbside collection services. This was a significant change from the previous situation where the majority of waste services were provided by the private sector. Following the development of the last WMMP, and the completion of a full service review according to the WMMP action plan, Council resolved to introduce a rates-funded kerbside recycling collection, and a user-pays kerbside rubbish collection, for most householders (the service covers approximately 80% of households in the district). This is supported by a kerbside food waste collection in urban areas.

Table 5: Council Kerbside Collections

Kerbside collection service	Charges/funding	Refuse collection contractor	Contract review dates
Weekly collection of residual waste from 140L wheeled bins	User-pays charges using a tag - $3.95 per collection (to approximately 18,156 households)	EnviroNZ Ltd under contract to Council	The contract will be reviewed 12 months prior its 2029 expiry date with view to extend the contract a further two years to June 2031
Fortnightly collection of paper, card, plastic containers (#1, #2, and #5), tins and cans from a 240L wheeled bin	Rates-funded (18,156 households)	As above	As above

Fortnightly collection of glass bottles and jars from a 45L crate	Rates-funded (18,156 households)	As above	As above
A weekly kerbside food waste collection from a 23L bin	Rates-funded (11,812 households)	As above	As above

3.1.2 Other Council Services

In addition to the services described above, there are other waste-related programmes and services provided by Council e.g. removal of illegal dumping, and provision of public litter bins.

3.1.3 Waste Education and Minimisation Programmes

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:

- Waste minimisation education for businesses
- Zero waste education for schools
- Paper4Trees
- Para Kore (zero waste on marae, when this service is available)
- Waste free living
- Enviro challenge
- Love Food, Hate Waste (national WasteMINZ-led initiative)
- Home worm composting

3.1.4 Solid Waste Bylaws

In addition to key strategic waste infrastructure assets, the 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 has recently adopted a revised Solid Waste Bylaw[18]. Key changes to the bylaw included updating it to support the Council-led kerbside service, updating the enforcement

[18] https://www.westernbay.govt.nz/repository/libraries/id:25p4fe6mo17q9stw0v5w/hierarchy/rules-regulations-licenses/bylaws-and-

provisions, requiring planning for waste at events, requiring multi-unit development owners/managers to make adequate provision for waste and recycling, and to give Council the ability to introduce controls around construction and demolition waste plans.

Council is also on the steering group for a cross-regional project to introduce waste operator licensing and data collection across the Waikato and Bay of Plenty regions.

3.2 Assessment and Funding of Council-provided Solid Waste Collection Services

Council provides a user-pays residual waste collection service from wheeled bins which offers flexibility to households. A rates-funded kerbside rubbish collection service was an option considered during 2018, when Council was completing its detailed service review. However, incorporating aspects of user-pays was considered a key outcome for the service review; to ensure that waste producers that were responsible for large quantities of waste paid more, and that the 'cross-subsidisation' of services was minimised. User-pays services also supported the key outcomes of flexibility, by giving customers choice and enabling different customer groups to choose the most appropriate and convenient service for their needs.

These key outcomes are still important to Council from a strategic sense, and although some councils around the country are reviewing the provision of user-pays rubbish collection services (such as Auckland Council), Western Bay continues to see this as a core component of the preferred waste services package.

Feedback through consultation processes and since the new services started suggests that Western Bay residents are generally very happy with the user-pays approach.

All other services, such as the comprehensive kerbside recycling collection service that is available to households and the food waste collection service provided in urban areas, are funded through general rates. This approach is likely to encourage the preferred behaviours such as recycling and other waste diversion.

Council has recently adopted an updated, comprehensive, waste minimisation bylaw and contracts specialist waste minimisation advisors to work with the community, schools and businesses.

3.3 Non-Council Services

There are a number of non-Council waste and recycling service providers operating in the city; in particular residual waste collection from wheeled bins, and garden waste collection.

Since Tauranga and Western Bay councils both introduced council-contracted kerbside collections (with Tauranga introducing a rates-funded rubbish collection), the number of private operators in the sub-region has decreased slightly. However, there are still a number offering services including EnviroNZ (who hold the council contracts), Waste

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policies/documents/Waste%20Management%20and%20Minimisation%20Bylaw%20Decisions%20Document%20PDF.pdf

Management Ltd, Kleana Bins, JJ Richards & Sons, and Bin Boys. Greenfingers Garden Bags offer a garden waste collection service.

3.3.1 Assessment of Non-Council Services

The commercial collection market is reasonably competitive with the two largest private sector operators offering services, along with a number of smaller businesses offering both regular and ad hoc removal.

There does appear to be scope for greater diversion of organic waste from the waste stream from non-household sources.

While facilities for handling of medical and hazardous and wastes exist, there is room for a more comprehensive approach and provision of better information to the public regarding disposal and handling of hazardous materials. There is, however, a notable lack of readily available data on commercial medical and hazardous waste flows, and with better data it would be possible to better identify potential opportunities for improved waste minimisation.

While there are many waste collection services for mixed waste, there are no easily accessible services for construction and demolition waste. This is largely associated with the lack of downstream processing options, and means that the only real option for diverting mixed C&D waste is for on-site sorting at source.

4 Situation Review

4.1 Waste to Class 1-5 Landfills

4.1.1 Definitions Used in this Section

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 21.1.

4.2 Overview of Waste to Class 1-5 Landfills

Virtually all municipal waste from the Western Bay district that is landfilled goes to the EnviroNZ North Waikato Municipal Landfill in Hampton Downs. There is a quantity (unknown) of construction and demolition waste disposed of from the Tauranga/Western Bay sub-region to Green Park Landfill. A small quantity of waste may travel directly from the source to landfill (mainly special wastes); but the majority passes through the Te Maunga or Maleme Street RTSs first.

4.3 Waste Quantities

4.3.1 Waste to Class 1 Landfills

Virtually all landfilled waste from the Western Bay district is aggregated with other landfill waste at either the Maleme Street or Te Maunga RTS; with the exception of any waste that is deposited at the Hauraki District Council's RTS in Waihi. Data is not collected at these two RTS on geographic source of waste, and therefore it is not possible to calculate how much of the landfilled waste originates from the Western Bay.

There is one Class 1 landfill in the Western Bay that accepts a range of wastes, although no municipal wastes. This facility, Green Park Landfill, has only recently been required to report data to MfE on waste quantities, and isn't able to advise how much waste they accept from the Western Bay district.

In the last Waste Assessment, the total waste to landfill from the sub-region was allocated to Western Bay district and Tauranga on the basis of population. For this Waste Assessment, allocation was modelled based on this method and on an alternative method, which built in assumptions relating to cross-border loss (Waihi), differences in the level and type of industrial activity, and proportion of the community that didn't receive a kerbside service (and therefore would need to use an RTS). The difference in waste allocation between these two approaches was less than 1.5%. Therefore, given the assumptions that were required for the latter approach, it is considered that allocating waste simply based on population is the most reasonable option.

Table 6: Annual Tonnage of Waste to Hampton Downs Landfill from Western Bay

Financial Year	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
Tonnes to landfill	19,677	21,376	22,680	23,562	22,504	23,989
Population	48,270	49,796	51,321	53,332	55,343	57,355
Kg to landfill per capita	560	580	589	588	551	562

4.3.2 Waste to Class 2-5 Landfills

As discussed earlier in this report, there is very little information available regarding most cleanfilled waste as the Bay of Plenty Regional Council considers these to be a permitted activity.

A 2011 MfE report on non-levied disposal facilities stated:[19]

> *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 landfills, 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.

4.4 Composition of Waste to Class 1 Landfill

As described above, virtually all landfilled waste from Western Bay is aggregated at the Tauranga City Council transfer stations and transported with Tauranga's waste to Hampton Downs landfill. Therefore, the composition of the waste to landfill from Te Maunga and Maleme Street is assumed to be analogous to the composition of waste to landfill from Western Bay.

This has been taken from Tauranga City Council's Waste Assessment 2021, and uses data from SWAP audits carried out for Tauranga City council at its transfer stations by Waste Not Consulting Ltd.

Waste that reaches transfer stations generally gets through two main methods: household kerbside collections, and direct to the transfer station (known as 'general' waste). As the

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

mechanisms by which these waste streams can be actively managed are so different, data is presented separately.

The table below shows the composition of 'general waste' and 'all waste' from Te Maunga and Maleme St.

Table 7: Composition of Waste to Landfill from the Tauranga/Western Bay sub-region

Data collected October/November 2020		General waste (excludes kerbside rubbish)		Overall waste (includes kerbside rubbish)	
		% of total (%)	Tonnes per week (tonnes)	% of total (%)	Tonnes per week (tonnes)
Paper	Recyclable	2.1	31	3.8	83
	Cardboard	4.4	64	3.2	70
	Non-recyclable	1.4	21	1.4	32
	Subtotal	**8**	**116**	**8.4**	**185**
Plastics	Recyclable	0.4	6	1.0	23
	Non-recyclable	11.1	161	10.1	223
	Subtotal	**11.5**	**167**	**11.1**	**245**
Organics	Kitchen waste	4.5	65	14.4	316
	Compostable greenwaste	4.4	64	8.4	185
	Non-compostable greenwaste	2.6	37	2.3	51
	Organics other	1.3	19	1.7	38
	Subtotal	**12.8**	**186**	**26.8**	**589**
Ferrous	Primarily ferrous	1.5	22	1.3	29
metals	Steel other	1.9	28	1.6	34
	Subtotal	**3.4**	**50**	**2.9**	**63**
Non-ferrous metals		**0.6**	**8**	**0.7**	**16**
Glass	Recyclable	0.8	11	1.5	33
	Glass other	1.2	18	1.0	21
	Subtotal	**2.0**	**29**	**2.4**	**54**
Textiles	Clothing/textiles	2.2	32	2.1	45
	Multi-material/other	6.3	92	4.7	103
	Subtotal	**8.5**	**124**	**6.7**	**148**

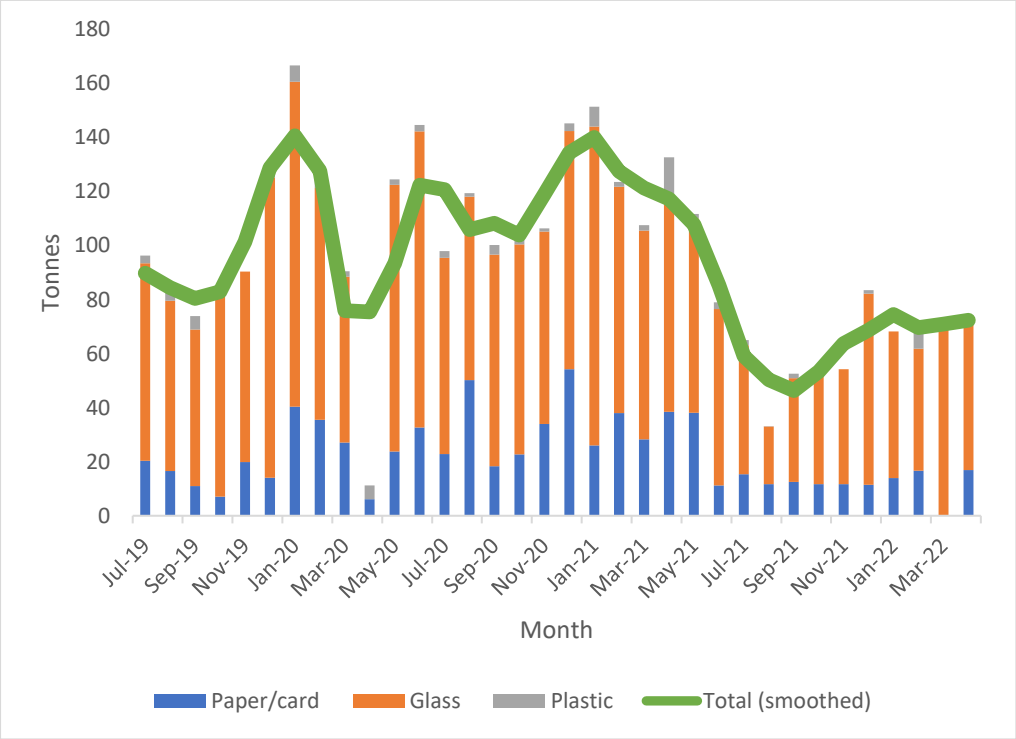
Sanitary paper		**2.7**	**40**	**4.8**	**105**
Rubble	Cleanfill	4.5	66	3.0	66
	New plasterboard	4.6	67	3.0	67
	Other	11.2	162	8.9	196
	Subtotal	**20.3**	**295**	**14.9**	**329**
Timber	Reusable	1.6	23	1.0	23
	Unpainted & untreated	4.9	71	3.2	71
	Non-recoverable	21.8	316	14.9	329
	Subtotal	**28.2**	**409**	**19.2**	**422**
Rubber		**1.3**	**19**	**1.0**	**21**
Potentially hazardous		**0.7**	**9**	**1.1**	**25**
TOTAL		**100.0**	**1,451**	**100.0**	**2.202**

4.5 Transfer Station and RRP Waste

A large proportion of RTS/RRP waste will pass through Te Maunga, which is a Tauranga City Council-owned site, operated on their behalf by EnviroNZ.

However, Council does also operate a number of smaller sites through the district. The figures below show the quantities of recovered materials passing through these sites.

Figure 4: Tonnes of Material Diverted through RRCs (2019 - 2022)



This clearly shows the drop in recyclable material passing through the RRCs from the beginning of the new kerbside services in July 2021. This presents an opportunity to reconfigure the RRCs to focus on other materials that are not captured through the new services, such as greenwaste, e-waste, and perhaps some C&D wastes. Anecdotally, quantities of greenwaste received at the RRCs has increased since July 2021.

4.6 Kerbside-collected Waste

Council commissioned a composition survey of waste collected in the new council kerbside rubbish collection. This survey was carried out in December 2021. The results of this survey, along with an earlier survey carried out in October 2018, are shown below. On average, one wheeled bin weighs 10.36kg, compared to 7.48kg in 2018.

Table 8: Composition of Household Kerbside Rubbish (2018 and 2021)

Material Type	Proportion of total (%)		Weight (kg) per container/household[20]	
	Oct 2018	**Dec 2021**	**Oct 2018**	**Dec 2021**
Recyclable Paper	7.6	6.6	0.57	0.68
Non-Recyclable Paper	1.2	2.0	0.09	0.20
Recyclable Plastic	2.3	1.8	0.17	0.18
Non-Recyclable Plastic	7.8	11.3	0.58	1.17
Organics – Kitchen Waste	35.9	33.7	2.69	3.49
Organics – Greenwaste/Other	11.6	10.7	0.87	1.11
Ferrous Metals – Steel Cans	1.4	0.7	0.11	0.07
Ferrous Metals – Other	1.0	3.4	0.08	0.35
Non-Ferrous Metals – Aluminium Cans	0.7	1.1	0.05	0.11
Non-Ferrous Metals - Other	0.2	0.3	0.01	0.04
Glass – Bottles/Jars	8.0	1.6	0.60	0.17

[20] In the 2018 survey, one 'container' of waste was surveyed from each household whether they used a wheeled bin for collection, or a bag. Therefore, in some cases a 'container' would not actually represent the full extent of a household's waste. This is why the 'weight per container/household' is so much higher in 2021 than in 2018.

Glass - Other	0.4	1.4	0.03	0.15
Textiles	5.6	5.1	0.42	0.53
Nappies & Sanitary	9.3	12.3	0.69	1.28
Rubble, Concrete, Timber, Rubber	5.6	6.1	0.42	0.63
Potentially Hazardous	1.4	1.8	0.10	0.18
Total	**100.0**	**100.0**	**7.48**	**10.36**

There are several points to make when considering this data:

- The significantly higher container weight in the 2021 survey reflects the fact that some households were using bags for their rubbish collection at the time, which made it difficult to know how many households had been surveyed. A total of 360 items were collected, but one household could have placed out more than one bag for collection.
- It may also, however, suggest that households may be putting their rubbish bins out for collection less often, as each collection incurs the same charge no matter how full the bin is. However, there is no data on set out or participation rates to enable this to be explored further.
- If the average weight of a wheeled bin is adjusted to reflect the average total 7.48kg weight observed per container in 2018, the 2021 results show decreases in recyclable paper, plastic, steel cans, and glass bottles/jar. There are either increases or very similar numbers seen for all other material types.
- The very significant decrease in glass bottles/jars (from 8% to 1.6%) can be attributed to the fact that there was no kerbside glass collection available in 2018.
- Not all operators gave permission for their customer's containers to be surveyed in 2018.

An added complicating factor is that not all households in Western Bay receive the food waste collection service. It would be assumed that there would be less food waste present in rubbish bins that are eligible for the food waste collection service compared to those that are not.

The data presented above in Table 8 can be split between households that receive the full service, and those that receive the restricted service of rubbish and recycling (but no food waste).

Table 9: Composition and Quantities for Full Service and Partial Service

Average weight per household	Full Service		Partial Service	
	2018	**2021**	**2018**	**2021**
Recyclable paper	0.56	0.64	0.59	0.82
Non-recyclable paper	0.07	0.20	0.11	0.23
Recyclable plastic	0.17	0.18	0.18	0.19

Non-recyclable plastic	0.55	1.17	0.62	1.18
Organics – food scraps	2.54	2.69	2.88	6.47
Organics – greenwaste and other	0.84	1.25	0.91	0.59
Steel cans	0.09	0.08	0.12	0.05
Other ferrous metal	0.04	0.34	0.12	0.39
Aluminium cans	0.05	0.12	0.05	0.07
Other non-ferrous metal	0.01	0.03	0.01	0.06
Glass – bottles/jars	0.54	0.11	0.67	0.39
Other glass	0.02	0.15	0.04	0.15
Textiles	0.28	0.50	0.56	0.65
Nappies & sanitary	0.79	1.32	0.61	1.12
Rubble, concrete, timber, rubber	0.21	0.64	0.64	0.60
Potentially hazardous	0.10	0.14	0.11	0.34
TOTAL	**6.88**	**9.57**	**8.23**	**13.30**

Highlighted above is the contrast in food scraps quantities between a rubbish bin from a household that has access to the food waste collection, and one that does not – a difference of around 4kg. There is also a notable reduction in proportion – food waste makes up 28.1%, compared to 37% in 2018 prior to the introduction of the new service. This can be compared to households with access only to a partial service, where food waste is now 48.7% compared to 35% in 2018 (6.47kg compared to 2.88).

The higher figure measured in 2021, compared to 2018, may be explained by the more frequent use of rubbish bags for collection in these areas, compared to the peri-urban and urban areas.

A rubbish bin from a household that has access to the full service is also significantly lower in glass bottles/jars, and has a much lower weight overall at 8.23kg compared to 13.30kg for a household with the partial service.

It should be noted that there were less samples included in the survey that received the partial survey, so the results will be less accurate.

4.7 Divertible Material

4.7.1 Waste to Class 1 Landfill

Of the 25 secondary classifications of the composition of waste to landfill shown in **Error! R eference source not found.**, nine are commonly recycled or recovered in New Zealand. A further four materials are compostable. There are currently diversion options available in Bay of Plenty region for most of these 13 materials.

Based on these 13 materials, Table 10 shows the proportions of overall waste from Western Bay that could potentially be diverted from landfill disposal. The tonnages are based on the annual disposal figure of 23,989 tonnes for 2020/21 presented in Table 6.

Table 10: Diversion Potential of Waste to Class 1 Landfills

Diversion potential of waste to Class 1 landfills from Western Bay of Plenty District	Overall waste - includes kerbside rubbish, general, and special wastes	
	% of total	Tonnes per annum
Recyclable and recoverable materials		
Paper - recyclable	3.8%	906
Paper - cardboard	3.2%	758
Plastic - recyclable	1.0%	247
Ferrous metals	2.9%	688
Non-ferrous metals	0.7%	169
Glass - recyclable	1.5%	356
Textiles - clothing	2.1%	493
Rubble - cleanfill	3.0%	718
Timber - reusable	1.0%	249
Subtotal	**19.1%**	**4,583**
Compostable materials		
Kitchen food scraps	14.4%	3,446
Compostable greenwaste	8.4%	2,011
New plasterboard	3.0%	726
Untreated/unpainted timber	3.2%	769
Subtotal	**29.0%**	**6,953**
TOTAL - Potentially divertable	**48.1%**	**11,535**

Recyclable/recoverable materials accounted for 19.1% of overall waste to landfill from Western Bay of Plenty District and compostable materials 29.0%. Approximately 48.1% of the overall waste stream disposed of at Class 1 landfills could be readily diverted either by recycling/recovering or by composting.

4.7.2 Household Kerbside Waste

The audit carried out in December 2021 identified the materials in kerbside rubbish bins that could have been diverted through other means. This is shown in the table below.

Material Type	Partial Service	Full Service	All waste surveyed
Recyclable Paper	6.1% 0.82kg	6.7% 0.82kg	6.6% 0.68kg
Recyclable plastic	1.4% 0.19kg	1.9% 0.18kg	1.8% 0.18kg

Food scraps	48.7% 6.47kg	28.1% 2.69kg	33.7% 3.49kg
Compostable garden waste	0.7% 0.10kg	8.9% 0.85kg	6.7% 0.69kg
Steel cans	0.4% 0.05kg	0.8% 0.08kg	0.7% 0.07kg
Aluminium cans	0.5% 0.07kg	1.3% 0.12kg	1.1% 0.11kg
Glass bottles/jars	3.0% 0.39kg	1.1% 0.11kg	1.6% 0.17kg
TOTAL	**60.1%** **8.09kg**	**48.80%** **4.85kg**	**52.2%** **5.39kg**

While there are noticeable differences between those with the partial service and those with the full service, and an apparent reduction in food scraps in the order of roughly 4kg per rubbish bin; there is still significant opportunity to achieve more in kerbside diversion.

5 Performance Measurement

5.1 Current Performance Measurement

This section provides comparisons of several waste metrics between Western Bay and other territorial authorities. The data from the other districts has been taken from a variety of research projects undertaken by Eunomia Research & Consulting (in some cases, with Waste Not Consulting Ltd).

5.1.1 Per Capita Waste to Class 1 Landfills

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 2-4 landfills
- seasonal fluctuations in population (including tourism).

By combining Council population estimates and the Class 1 landfill waste data in section 4.3.1 , the per capita per annum waste to landfill in 2020 from the Tauranga/Western Bay sub-region can be calculated as in Table 11 below. The estimate excludes special wastes and non-levied cleanfill materials.

Table 11: Waste Disposal per Capita[21]

Calculation of per capita waste to Class 1 landfills	
Population (2020)	205,355
Total waste to Class 1 landfill	115,085 tonnes per annum
Tonnes/capita/annum of waste to Class 1 landfills 2020	0.560

This figure varies significantly throughout New Zealand. Other similar cities/districts where this has been calculated recently include Hamilton (0.668 tonnes/capita/annum),

[21] Estimate provided by Waste Not Consulting based on a number of datasets held

Palmerston North (0.553), the Otago region (0.608) and Rotorua (0.533[22]) . The national average figure is approximately 0.750 per person per annum.

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 or with large numbers of tourists.

5.1.2 Per Capita Domestic Kerbside Refuse to Class 1 Landfills

5.1.3 Council Share of Domestic Kerbside Refuse Market

During the service review carried out in 2018, the implications of different collection systems for Council market share were analysed. There is relatively little data available on market share for user-pays wheeled bin-based systems, with most user-pays rubbish collections involving a bag-based system. Provision of a wheeled bin for rubbish collection is one of the most common reasons why people choose to use a private collection system, which is not a factor in the Western Bay district. Council-contracted wheeled bin-based collection systems also involved a bin being delivered to every property, which means that a householder that chooses to use a private sector service would need to undertake the additional task of returning the council bin, or storing the bin onsite.

Although there is no specific data on market share in the Western Bay, anecdotally it appears that a very high proportion of householders that are eligible for the council service are using it for rubbish collections.

5.1.4 Greenhouse gas emissions

When waste is landfilled, it decomposes anaerobically and methane (CH_4) is produced. Methane is one of the six greenhouse gases (GHG) recognised in the international climate change agreement, the Kyoto Protocol. For GHG accounting purposes, all six greenhouse gases are measured and expressed in terms of carbon dioxide equivalent units, in tonnes (tCO_2-e unit). As discussed earlier in section 1.5.5, New Zealand's emissions trading scheme requires all Class 1 landfills to surrender carbon credits, based on the quantity of waste the landfill receives.

Large Class 1 landfills (over 1 million tonnes total capacity) in New Zealand are required to operate landfill gas capture systems, which reduce the amount of methane gas emitted to the atmosphere. A landfill gas recovery scheme does not, however, capture all the methane gas that a landfill generates and a proportion is still released. Hampton Downs landfill, where virtually all waste from Western Bay of Plenty District is disposed, has a landfill gas capture system.

The Climate Change (Unique Emissions Factors) Regulations 2009[23] provides a process through which a Class 1 landfill may apply for a unique emissions factor (UEF), based on the proportion of landfill gas that is captured. Gaining approval for a UEF reduces a Class 1

[22] Estimated from publicly available information
[23] https://www.legislation.govt.nz/regulation/public/2009/0286/51.0/DLM2378401.html

landfill's liability for surrendering carbon credits. A UEF stays in effect until there is a material change in any of the information or factors on which the approval is based.

UEFs are published annually in the New Zealand Gazette. In 2021, approval for a UEF was given to EnviroWaste Services Limited (owner of Hampton Downs landfill), by the Environmental Protection Authority. The UEF, for 0. 0.1345 tCO_2e/t waste, indicates an 89% reduction in GHG emissions at the facility compared to the default emissions factor, which was 1.19 tCO_2e/t waste at the time.

Landfill methane emissions are calculated based on the composition of waste, with a different emissions factor being applied to each type of material with methane-generating potential. Table 10 lists the materials currently disposed of to landfill from Western Bay of Plenty District that could potentially be diverted from Class 1 landfill disposal. Many of these materials are organic in nature, so diverting them from landfill will not only reduce the tonnage of waste to landfill but will change the methane-generating potential of the materials that remain.

Table 12 presents:

- the carbon emissions potential of all waste disposed of to Hampton Downs Landfill from Western Bay of Plenty district, before and after landfill gas has been captured
- the carbon emissions potential from the same waste after all divertible materials have been removed, before and after landfill gas has been captured.

Table 12: Carbon Emissions from Waste to Hampton Downs Landfill

Carbon emissions from Western Bay of Plenty District waste to Hampton Downs Landfill	All waste	Waste after removal of divertable materials	Change
Tonnes to Hampton Downs Landfill	23,989	12,454	-48.1%
Calculated emissions factor in tCO2-e per tonne of waste	1.418	1.442	1.7%
Emissions potential, based on calculated emissions factor, in tCO2-e	34,009	17,954	-47.2%
Actual emissions, with landfill gas capture, in tCO2-e	3,844	2,029	-47.2%

Based on the waste composition shown in **Error! Reference source not found.**, the 23,989 t onnes per annum of waste disposed of to Hampton Downs Landfill from Western Bay of Plenty district in 2020/21 has the potential to emit 34,009 tonnes of carbon. Landfill gas capture at the landfill (as calculated using Hampton Downs Landfill's UEF) reduces this potential to 3,844 tonnes of carbon.

Removal of all possible divertible materials (as per Table 10) from the existing waste stream would reduce the tonnage of waste by 48.1% (to 12,454 tonnes) and the emissions factor of the waste by 1.7%. Potential emissions would be reduced by 47.2% to 17,954 tonnes. The landfill gas capture systems currently in place at Hampton Downs Landfill would reduce this emissions potential to 2,029 tonnes.

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.

The last couple of years have also demonstrated how unpredictable factors can influence demand and provision of services; with COVID-19 pandemic management making normal waste services difficult to deliver at times due to lock-downs and staffing shortages, and disaster-related wastes requiring management often with very short notice.

6.1.1 Population

Population projections are shown in the following table:

Table 13: Population Projections to 2043

2018	2021	2026	2031	2036	2041	2046	2051	Change 2018 – 2051 (number)	Change 2018 – 2051 (percent)
51,318	57,355	62,219	66,300	69,102	70,620	71,203	71,367	**20,049**	**28.1%**

Population growth through to 2031[24] is expected to be primarily around the urban centres; particularly Katikati, Ōmokoroa, and Te Puke.

Council, as part of SmartGrowth, are investigating future settlement patterns within the sub-region. Previous work by SmartGrowth has identified the potential for future large scale housing growth in the east of our district.

The demographics of the district are expected to change as the impacts of an ageing population and the impacts of immigration are felt. With the elderly more likely to live alone, and the national trend towards smaller households, the average household size is

[24] Strategic Assumptions for the 2021 LTP – available on westernbay.govt.nz

likely to reduce. This may be balanced to an extent by the norms of some cultures of having multiple generations in one household, but this effect is more difficult to predict. There will be variation between communities as people move and places grow; for example, Te Puke's average age dropped in the last census.

6.1.2 Economic Activity

The Western Bay district has been reasonably well insulated against the economic impacts of the COVID-19 pandemic management, due to the relatively diverse economy and a strong rural sector, and low reliance on international tourists. Economic growth is expected to quickly return to 2019 levels, and grow strongly from 2022 onwards.

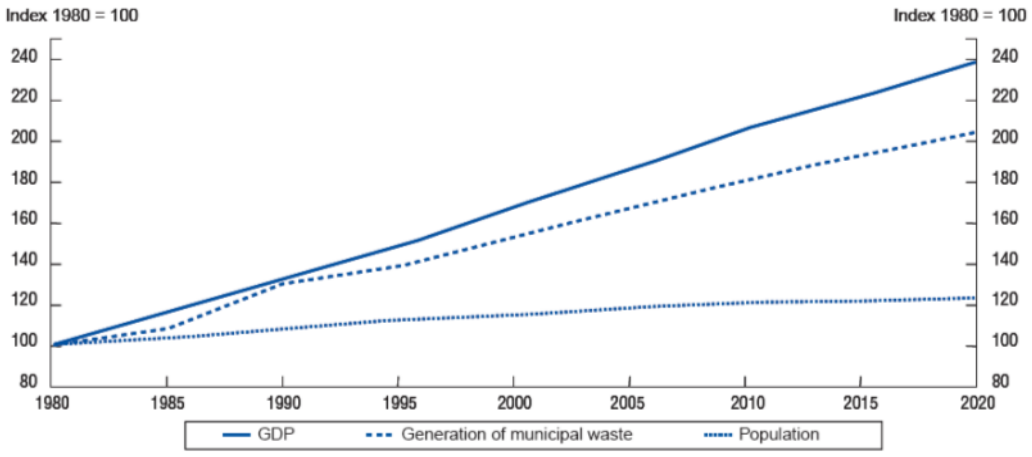
This growth is particularly expected in the kiwifruit and avocado industries, and in domestic tourism.

Industrial and commercial growth is expected to occur in Ōmokoroa and predominantly at Rangiuru Business Park. The Rangiuru Business Park has 148 hectares net yield, and is the largest greenfield consented industrial zone in the Bay of Plenty, providing a high-quality industrial development. There are implications of this for waste management – firstly from the construction waste that would arise from such a development, and secondly from the waste services that the established businesses would subsequently require. For a ground-up development of this kind, there is potential for Council or a business agency such as the Chamber of Commerce to work with the tenants and owners in the Business Park to identify waste management service needs as a site, and negotiate a good value service offering to meet these needs. Often bespoke marginal services such as recycling collections for difficult materials can become achievable through collaboration of this nature.

GDP has a strong relationship with waste generation, and so this strong growth is likely to result in ongoing increases in consumption and hence waste generation.

For reference, Figure 5 below shows the growth in municipal waste in the OECD plotted against GDP and population.

Figure 5: Municipal Waste Generation, GDP and Population in OECD 1980 - 2020



Source: OECD 2001.

Research from the UK[25] and USA[26] 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.

As Western Bay's population is anticipated to experience steady growth, alongside economic growth, it is likely that the district will experience an approximately similar increase in waste generated assuming no change to waste behaviour or resource recovery rates.

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.[27] 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 COVID-19 pandemic management has seen an increase in online purchasing, including regular purchases such as groceries. This is likely to result in an increased proportion of cardboard boxes and paper bags in homes; although this is not yet a measurable impact.

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 computer[28].

Government policies such as the proposed container return scheme and standardised kerbside recycling materials, and bans of items such as PVC food containers/trays and polystyrene packaging, are likely to have an impact on brand owners and packaging manufacturers. Some likely consequences will be an increase in the use of #5 (PP) plastic for

[25] Eunomia (2007), *Household Waste Prevention Policy Side Research Programme*, Final Report for Defra, London, England
[26] EPA, 1999. National Source Reduction Characterisation Report For Municipal Solid Waste in the United States
[27] http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=10833117
[28] Data from www.stats.govt.nz 'Household Use of Information and Communication Technology' accessed September 2018

packaging, and the consistent use of #1 (PET or rPET) for clear meat trays. There may be a shift, even if just a temporary one, to more compostable alternatives (e.g. wooden sticks for stirrers, and compostable alternatives to expanded polystyrene packaging). However, MfE's position on compostable packaging[29] discourages this and most compost operators do not welcome compostable packaging at their facilities. The concern about PFAS (poly-fluroalkyl substances, commonly used to form a moisture-proof layer on fibre or compostable packaging) is growing and is a factor in discouraging the use of compostable packaging particularly for products that require wet-strength packaging.

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:

- Revised New Zealand Waste Strategy. The consultation draft had a strong focus on a circular economy approach, which is a change in strategic direction.
- 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.
- 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 $30 per tonne) and the New Zealand Emissions Trading Scheme. The current price for carbon credits, and the ongoing increases in the landfill levy, will make disposal prices a more significant consideration in waste management practices.
- Household collection systems: the current consultation on standardising kerbside collections will have little impact for Western Bay, given that the new kerbside services are strongly aligned with the recommended standardised kerbside service. There are likely benefits that will accrue from increased national education campaigns.
- Business collection systems: There may be implications for Western Bay, as kerbside standardisation proposals for business food waste collections at various scales may be adopted by the MfE. Council may be looked to as a provider of those collection services, at least to those businesses that only produce small quantities of food waste and may be able to simply use the Council's domestic kerbside collection (on a user-pays basis).
- 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.

[29] https://environment.govt.nz/news/ministry-position-on-compostable-products/

- Local policy drivers, including actions and targets in the WMMP, bylaws, and licensing; and an increasing expectation from community that Council will provide waste solutions (with the recent new kerbside services setting a precedent).
- 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.
- Performance standards and targets. The current consultation from MfE proposes that there are minimum performance standards for recycling diversion.

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 Western Bay, this new demand is likely to be largely related to ongoing efforts to divert organic waste from landfill, including possible business food waste diversion and recovery of construction wastes.

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 significant 'gaps' or key issues have been identified:

6.2.1 Reliance on Tauranga City Council Infrastructure

Western Bay is currently heavily reliant on waste infrastructure located in Tauranga, including facilities owned and/or operated by Tauranga City Council or its contractor. This includes the Te Maunga RRP, which is currently the only option for public disposal of residual waste in the sub-region.

Although Western Bay residents are frequent users of Tauranga City Council infrastructure, there is no requirement for Tauranga City Council to consult with these residents or to negotiate with Council about the management of these facilities. An example of this is the closure of Maleme Street RTS to the public, which had a significant impact on residents in the central and northern Western Bay.

This gap is exacerbated by the expected growth in two population centres in the north of the district, which is furthest from Te Maunga RRP.

6.2.2 National Initiatives

As previously discussed, central government has made significant progress in waste management and minimisation over the last few years. The last WMMP was prepared in the context of relatively slow national progress.

Particularly relevant initiatives include:

- Waste infrastructure investment and strategic direction
- Emissions Reduction Plan and the corresponding increased focus on diverting organic wastes from landfill
- Kerbside standardisation, including food waste diversion from businesses
- Container return scheme and the potential implications for kerbside recycling collections
- Performance standards for councils

These national initiatives will have a significant impact on the district, yet this is difficult to predict until further details are known.

6.2.3 Household Waste Diversion

While Council has made significant improvements in household waste diversion through the introduction of its council-contracted services, analysis shows that residents are still not using these services to divert wastes effectively.

There is still a significant quantity of food waste in household kerbside rubbish collections, as discussed earlier in section 4.5 (33.7% on average). Similarly, rubbish collections also still contain quantities of common recyclables such as recyclable paper (6.6%) and recyclable plastic (1.8%, although this is by weight and plastic containers are one of the least dense waste materials).

Anecdotally, participation in the kerbside food waste collection can be lower in some areas, presenting an opportunity to focus engagement and education to targeted parts of the district. Participation in the services overall in some rural areas can be low.

There are few options for householders to recycle or otherwise divert construction and demolition waste, cleanfill, reusable items, whiteware in parts of the district, and textiles. Anecdotally, increased illegal dumping at charity shops around Te Puke has been noticeable over the last 12 to 18 months. This may be due to the additional time people have been spending at home due to COVID-19 pandemic management-related lockdowns, providing opportunities to sort through household items for donation.

6.2.4 Non-Household Waste Diversion

There is a general lack of access to services to divert business waste, apart from the key recyclables of aluminium cans, glass, and paper/card. There are more services for diversion of recovered food than there have been in the past, with a number of initiatives starting up in and near the district.

In particular, there are few services that enable the diversion of construction and demolition waste. This is a particular issue, given the ongoing growth in both residential and industrial construction; e.g. Ōmokoroa and Rangiuru.

Businesses may also soon be faced with the need to comply with central government regulation requiring the diversion of food waste.

Although there are licensing provisions in the Council waste bylaw, these have not yet been fully implemented and so there is little data available on private operators' activities and non-Council waste streams in general.

The closure of Maleme St to the public, and the complete closure of the Jack Shaw cleanfill, mean that businesses now have much greater distances to travel to access RTS and other diversion and disposal services.

6.2.5 Iwi Liaison

The usual consultation methods were used during the development of the 2017 WMMP, although no proactive iwi liaison was undertaken. Engagement with Council's Partnership Forum and individual hapu did inform the development and implementation of the Council-led kerbside services.

With the national focus on a circular economy approach to waste management (which closely aligns to the Māori world view), there is increasing awareness of the need for the wider waste management industry to engage more proactively with iwi, and to be good treaty partners.

This waste assessment covers off the Māori world view in a generic sense only.

6.2.6 Specific Waste Streams

Composition data discussed earlier in section **Error! Reference source not found.** showed t hat there is significant scope to divert more from the domestic residual waste stream, and also scope to divert from the commercial waste stream (although less certain in quantities).

Priority waste streams that could be targeted to further reduce waste to landfill would include: (e.g.)

- Standard recyclables (paper/card, tins/cans, plastic containers) from both householders and commercial properties
- Organic waste, particularly more food waste from householders, and from commercial properties;
- Recovery of construction and demolition waste or diversion to Class 2 facilities;
- E-waste;
- Waste tyres may not be a large proportion of the waste stream, however the effectiveness of the management of this waste stream is unknown. Issues with management of this waste stream have recently been highlighted nationally;
- Medical waste;
- Diversion of cleanfill to Class 4/5 facilities;
- Recoverable items such as clothing, mattresses, and furniture; and
- Difficult to manage waste streams such as end-of-life mattresses and textiles

Associated infrastructure to manage increased quantities and new waste streams will be required. Some of these waste streams are discussed in more detail below.

6.2.6.1 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.

Anecdotally, a significant proportion of in-home medical waste is disposed of through general waste and recycling systems[30]. This could result in significant health and safety concerns for the collection and processing staff.

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:[31]

> *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.

6.2.6.2 E-waste

Without a national product stewardship scheme, the e-waste treatment and collection system will continue to be somewhat precarious. Currently, companies tend to cherry-pick the more valuable items, such as computers and mobile phones. As a result, the more difficult or expensive items to treat, such as CRT TVs and domestic batteries, will often still be sent to landfill.

6.2.6.3 Reuse

There is no provision for the recovery of reusable items in the district.

In other areas, such as Auckland, this material is recovered both through a charged collection service, and by establishing a network of community resource recovery centres

[30] Of 7,145 patients cared for at home by Capital & Coast DHB staff in 2016, only 200 had a specific medical waste collection service in place. https://www.stuff.co.nz/dominion-post/news/93705822/needles-sanitary-waste-and-pharmaceuticals-putting-waste-workers-at-risk

[31] https://nzpharmacy.wordpress.com/2009/06/09/disposal-of-unwanted-medicines/

(CRRCs). Western Bay already has plans in place to investigate the provision of community-led reuse centres, set through the Long Term Plan 2021-2031.

6.2.6.4 Rural Waste

Council's kerbside services are not provided to a number of rural properties (around 3,500). These properties rely on RDOPs and RTSs to manage their waste materials. The geographical nature of the district, with the bisection of state highway 2 and the perpendicular state highway 29, suggests that most rural residents would naturally travel close to one of the existing RDOPs on regular journeys for work or shopping. However, there may be some demand for additional RDOPs (e.g. in the Kaimai Ranges area, Oropi and upper Ohauitu areas and this is exacerbated by the recent closure of Maleme St RTS and Jack Shaw landfill.

Access to RTS or RRPs for residents in the northern and central parts of the district, that don't have access to kerbside services, is now more difficult than before with the closure of Maleme St to the public and the complete closure of the Jack Shaw cleanfill.

All residual waste in the district must be transported to Te Maunga RTS, or to another RTS out of the district such as Waihī in Hauraki Council's district.

7 Review of the 2017 Waste Management and Minimisation Plan

As required by the WMA, Council has carried out a review of their last WMMP, which was adopted in 2017.

This is the second WMMP adopted by Council; with the first being a joint WMMP with Tauranga City Council which was adopted in 2010. Council subsequently carried out a joint Waste Assessment with Tauranga City Council in 2016, and agreed on a shared vision "Minimising Waste to Landfill".

The vision was supported by four goals, which were further supported by thirteen objectives.

Goal	Objectives
G1: Reduce and recover more waste	O1: To reduce the total quantity of waste to landfill, with an emphasis on wastes that create the most harm. O2: Increase diversion of waste that is currently disposed of to landfill for reuse, recovery, or recycling.
G2: Apply the latest proven and cost-effective waste management and minimisation approaches	O3: To investigate and, where appropriate, develop partnership, joint working and cooperation across the private and community sectors as well as territorial and regional councils, including shared services. O4: To investigate the use of available recovery and treatment technologies and service methodologies and apply these where appropriate. O5: To engage the community and provide information, education, and resources to support community actions. O6: To use Council influence to advocate for increased or mandatory producer responsibility. O7: To work with local businesses and organisations to achieve waste reduction at a local level.
G3: To collect information to enable informed decision-making	O8: To take actions that will improve information on waste and recovered material activities in the district, including both Council-contracted and private sector activities O9: To work towards aligned data collection and reporting systems across the districts, region, and nationally
G4: To create benefit for our community	O10: To work with service providers to identify efficiencies while maintaining and/or improving service levels. O11: To consider both short and long term cost impacts of all actions across the community including economic costs and benefits.

	O12: To consider the environmental impact of all options and ensure that the overall environmental impact is taken into account in decision-making. O13: To consider the public health impacts of all waste management options and seek to choose options which effectively protect human health.

7.1 Targets

The target in the 2017 WMMP was based on diverted waste. The baseline was set according to the best data available relating to the 2014/15 year, which suggested a current diversion achievement of 957kg per household and 292 kg per capita.

The action plan was analysed and the potential contribution to waste diversion estimated, and on that basis a target of increased diversion was calculated. By the conclusion of the plan, the target was to increase diversion by 80% - to 1,721kg per household, and 525 kg per capita.

Most of this contribution was to come from the new kerbside services, with a target of 308kg per household and 94kg per capita. The new services so far have achieved a capture of 505kg per household (673.5kg pro rated out to 12 months) and 104kg per capita (139kg pro rated out to 12 months). Given that this has been achieved a time when kerbside services around the country were significantly affected by COVID-19 pandemic management, and associated staff and vehicle shortages, this is considered a significant step towards achieving the target.

7.2 Key Issues

The over-riding key issue at the time of the last Waste Assessment and WMMP was the lack of control that Western Bay had over waste management and minimisation, with significant quantities of potentially divertible material going to landfill through kerbside collections. The provision of private sector services resulted in duplication and additional cost to the community.

Other key issues included:

- The risk inherent in the current structure, with the private sector able to change or reduce services at any time without any requirement to consult with Council or the community or give any notice
- Associated uncertainty about whether services would meet the needs of a growing population, new residential areas, holiday peak populations, etc.
- The high loss rate from processed recyclables due to contamination
- Lower local authority rates, but high overall community cost for services
- Low recovery of construction and demolition waste
- Growing customer expectation that Council would control or provide services for residents
- Data availability and gaps (cleanfills, ‘farm dumps’)
- Organic waste going to landfill due to lack of alternatives
- Reusable items being dumped due to lack of alternatives

These issues were all addressed in the 2017 WMMP action plan.

7.3 Actions

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

Table 14: Review of the Previous WMMP Action Plan

Action	Planned timeframe and progress	Contribution to target and commentary
Investigate alternative recycling and rubbish collection models to achieve better oversight and management of solid waste and recycling throughout the district.	Planned for 2018 Completed March 2019	Additional 308 kg diverted per household; 94 kg per capita
Implementation of Council led kerbside services	Not in WMMP – implementation of investigations described above Completed July 2021	Additional 308 kg diverted per household; 94 kg per capita
Establish a recycling centre at Ōmokoroa, similar to existing centres at Katikati and Te Puke	2021/22	Suitable land has been purchased by Council. The scope of any centre is being considered. Delayed by COVID-19 pandemic management.
Investigate a future transfer station for the district.	2018 – 2023	Feasibility partially considered through a sub-regional report. The scope of any centre is being considered through a current project.
Investigate options for more cost-effective and efficient greenwaste management in the district	2019/20	The service review completed in March 2019 concluded that council-contracted household greenwaste collection services were not required at that time. Discussions continue regarding processing options at Te Maunga. There have been discussions with a community group from Katikati to trial initiatives.
Continue to carry out waste audits	On-going	Post kerbside-implementation SWAP waste audits completed December 2021.
Continue to support waste minimisation education and communications programmes	On-going	On-going.
Advocacy to improve waste management practices	On-going	On-going. Submissions to central government and involvement in sector improvement work. Collaboration with Waikato and Bay of Plenty Councils on joint submissions.

Continue to support the Pare Kore programme	On-going	Discussions to restart the initiative after a hiatus.
Continue to provide residents with access to recycling and green waste disposal	On-going	RDOPs at Te Puke, Katikati, and Athenree provide for recycling and green waste. Ōmokoroa currently only provides for greenwaste diversion, but work is ongoing here as described above.
Investigate additional community recycling drop-off points	2017-2023	A trial was carried out of a rural RDOP at Pongakawa/Pukehina from November 2019 to June 2021. Further recycling opportunities for rural areas are being explored.
Continue alternative recovery for bio-solids	On-going	Continued use of Waihī Beach land application underway. Continued vermicomposting of biosolids from WWTP in the east of the district including biosolids from Katikati WWTP.
Campaign for the introduction of a refundable container deposit levy, mandatory product stewardship and increasing Central Government's waste levy	2017-2023	Submissions from Council to central government consultations on this matter. Continued involvement in sector led organisations. Central Government progress in this space with consultation released in March 2022.
Investigate opportunities to recover construction and demolition waste	2017-2023	A study undertaken with TECT and Tauranga City Council explored the potential for CRRCs to accommodate C&D waste, and enable community led action. Budget has been allocated through the LTP to establish community-led sites. LTP budget to establish community led sites; a feasibility study is underway to better understand the potential of sites alongside community groups. Te Maunga is the only significant site that could accommodate large C&D waste volumes. Tauranga City Council are currently developing plans for this site.
Continue to monitor and maintain closed landfill sites in the district	On-going	On-going. Initial work was undertaken to consider future risks associated with the district's closed landfills. Further mitigation planning may be required.
Ensure that all illegal dumping activities are recorded and where possible, infringement notices issued	On-going	This is being managed through customer call centre records.

Review the WMMP	On-going	The next full review of the WMMP is due 2023. The waste assessment will be reviewed in 2022.
Review the Waste Management and Minimisation Bylaw 2013	2018/19	Completed. Bylaw reviewed and consulted on. Adoption of updated bylaw due April. Council is involved in a cross-regional project with Waikato and Bay of Plenty councils to implement a licensing and data collection system.
Monitoring of: level of service, compliance with legislative requirements and regulations and, waste reduction and diversion.	On-going	Annual reporting to MFE; all MFE audit requirements have been met.

Not only has Council completed the majority of the planned actions, in some cases the outcomes of the planned action has subsequently been implemented. A significant example is the implementation of council-contracted kerbside collection services.

Significant progress has been made on other actions, such as public education and engagement, and these will continue to be a core part of solid waste activities for Council.

8 Statement of Options

This section sets out the range of options available to the Council to address the key issues that have been identified in this Waste Assessment. Options presented in this section would need to be fully researched, and the cost implications understood before being implemented.

8.1 Key Issues to Be Addressed by WMMP

The key issues identified in this Waste Assessment are listed below. Addressing these issues will ensure that Council is meeting their statutory obligations, and improving waste management and minimisation in Western Bay.

- Reliance on waste infrastructure located in Tauranga, particularly the Te Maunga RRP, but with little control over how the facility is managed or what diversion options are provided. This presents risk for the district, already seen in the case of Maleme St being closed to the public, for both Council-led services and for the Western Bay community's access to waste diversion opportunities in the wider sense.
- Significant travel distances to a range of waste infrastructure; including RTS/RRPs (as mentioned above) but also cleanfills and C&D fills.
- Significant national initiatives are underway which will have implications for waste management and minimisation in the district.
- Despite making significant improvements to household recycling services in the district, and introducing a food waste collection to urban households, there are still notable quantities of recyclables and food waste in residential residual waste bins.
- Participation in the kerbside food waste collection appears low, and there is little data on participation and/or set out rates for any Council services.
- Although there is a significant Māori population in the district, little proactive engagement has been undertaken with local iwi with respect to strategic waste management decisions.
- Some specific waste streams require concerted attention – organics, C&D, medical waste, e-waste, reusables, rural waste (including 'farm' wastes); these may have implications for infrastructure either within or near the district.
- Industrial and commercial waste generally presents scope for increased diversion, with paper/card and glass the main material types currently diverted.

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. For each option, we have identified the issue being addressed, the extent to which we expect the issue to be addressed or the future demand to be met, and what Council's role may be.

8.2 Regulation

Ref	Option	Issues Addressed	Impact on Current/Future Demand	Council's Role
R1	Implement the solid waste bylaw provisions	Data collection and maintenance of performance standards	Encourages better management of waste streams and gives access to better data	Regulator
R2	Continue to work with the waste liaison group to implement the cross-regional waste operator licensing and data system	Ensures consistency in data quality and availability on a larger scale	Gives access to better data and enables wider benchmarking and performance assessment	Member of steering group or working group

8.3 Measuring and Monitoring

Ref	Option	Issues Addressed	Impact on Current/Future Demand	Council's Role
M1	Status quo – occasional SWAP audits, recycling audits, and monitoring through service delivery		No impact – status quo	Maintain existing arrangements
M2	Increase monitoring to provide data on participation and set out rates for all services, and monitor both food waste and recycling collection for contamination, by locality	Better understanding of the community's use of Council services, particularly participation in the food waste collection	Will enable Council to identify localities where there is low participation in services, or high contamination, and target education and engagement accordingly	Increased quality of recycling and food waste collected, and higher participation in preferred services
M3	Increase monitoring to provide more information on commercial and industrial waste streams, and changes	Better quality data on wider range of waste types	Addresses current gaps in understanding on certain waste streams. Better data could enable Council to improve and target	Improve data collection and analysis in-house, and make use of regulatory tools to collect data on non-

	in Council data over time		services more appropriately	council waste streams

8.4 Education and Engagement

Ref	Option	Issues Addressed	Impact on Current/Future Demand	Councils' Role
EE1	Status quo – engagement with the community and industry via the waste minimisation advisor, continue schools education, website improvements etc.	No change	No impact – status quo	Maintain existing arrangements
EE2	Targeted direct engagement in localities where there is low participation in recycling and/or food waste service, and/or high contamination	Education and engagement is more effective and efficient as it is targeted in areas where it is needed	Need for education/ engagement (i.e. demand) is proactively identified and addressed	Employ 'waste educators' or similar (or fund via contractor) to undertake direct targeted engagement.
EE3	Initiate wider engagement with	Opportunity for community and	Improved understanding of	Initiate group and facilitate, possibly

	industry, community, and other agencies through a community waste action group (or several)	industry to improve their engagement, understanding, and awareness of waste issues, and build closer relationships with other agencies such as DHB	needs in the city and service gaps, and who is best to address them. Increased responsibility for waste management within the community.	with low-level funding for project work.

8.5 Collection & Services

Ref	Option	Issues Addressed	Impact on Current/Future Demand	Council's Role
CS1	Status quo	No issues	No impact – status quo	Continue to contract user-pays household rubbish collection, and household kerbside recycling and food waste collection
CS2	Survey targeted rural areas regarding possibly discontinuation of the rubbish and recycling service	The service appears to be poorly used in some rural areas. These householders may prefer to	Service provision would be more closely aligned to demand. Demand would increase for suburban	Liaise with contractor to redefine service areas. Ensure transferred demand is met at

		manage their waste themselves	infrastructure, i.e. transfer stations and recycling centres	recycling centres and transfer stations.
CS3	Introduce a user-pays garden waste collection to urban areas	May encourage further diversion of green waste and reduce need for recycling centres and transfer stations	Demand appears to be low for this service, given the small quantities of garden waste that are present in rubbish bins	Liaise with contractor to facilitate provision of user-pays service
CS4	Consider funding rubbish collection through rates, and reducing collection frequency	User-pays charges are not sufficient to drive preferred behaviour, with proportions of food waste and recyclables still present in rubbish bins	Encourages increased use of existing diversion options such as kerbside recycling, home composting and garden waste collections due to reduced capacity of rubbish collections	Consider political support of user-pays service (enables flexibility for customers) on a regular basis; i.e. once per political term
CS6	Provide access to kerbside services to the commercial sector on a user-pays basis	Will meet demand from commercial premises that only need a household-type service	Some increased diversion through easier access to recycling and food waste services for those it is appropriate for.	Negotiate with contractor to provide service and administer customers

			May meet some of the demand established by government's proposed policies for business food waste diversion.	
CS7	Withdraw from collection services altogether and take a regulatory role only	Customers have options through the private sector market	This option is unlikely to increase diversion	Consider political position. Council have undertaken a lengthy and involved process to reach the position they are in now. Very unlikely to change again during the term of this plan.

8.6 Infrastructure

Ref	Option	Issues Addressed	Impact on Current/Future Demand	Council's Role
IN1	Status quo	No change	No impact – status quo	Maintain operation of existing centres

IN2	Improved recycling /greenwaste centre in Omokoroa	Demand for recycling services in Omokoroa	Improved diversion of recyclables and greenwaste Would meet some demand from rural households if kerbside services are reduced	Develop centre and provide for ongoing management
IN3	Resource recovery centre in Omokoroa	Extend the Omokoroa service provision to a resource recovery centre	Meet demand resulting from the closure of Maleme St Would meet some demand from rurul households if kerbside services are reduced	Develop centre and provide for ongoing management
IN4	Reuse centres	Work with community groups to develop reuse centres	Meet need for diversion of reusables, some timber, construction and demolition waste, etc	Support community groups. Potentially part fund or support through submitting Waste Minimisation Fund applications
IN5	Maintaining access to infrastructure	Develop a formal MoU with Tauranga City Council around access and input to	Reduce risk around decisions being made regarding infrastructure that do	Negotiate with Tauranga City Council

		infrastructure owned and/or managed by them	not meet the needs of Western Bay residents	
IN6	Responding to new demand in Rangiuru and any other similar new developments	Work with planners and developers to ensure waste is managed during the development phase, and that provision of a central coordinated waste management facility is considered	Minimise C&D waste to landfill during development, and provide more effective and efficient waste management services once operational	Work internally with planners, and facilitate discussions with site developers.

8.7 Leadership and Management

Ref	Option	Issues Addressed	Impact on Current/Future Demand	Councils' Role
LM1	Advocate to central government for extended producer responsibility	Addresses problem waste streams at the source	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	Advocate to central government for stronger regulation and extended producer responsibility. Work with other councils and agencies

			streams such as e-waste and tyres will help Council provide management options for these waste streams.	to support similar lobbying efforts.
LM2	Work closely with mana whenua, community groups, and the private sector to progress opportunities for increased waste diversion	Successful implementation will enable increased waste diversion	Encourage the community be more involved in waste management, and potentially increase waste diversion.	Coordinate and support initiatives.
LM3	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	Provide information as requested, and any other input required.

9 Statement of Council's Intended Role

9.1 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).[32]
- The WMA also requires TAs to have regard to the New Zealand Waste Strategy 2010. The Strategy has two high levels goals: 'Reducing the harmful effects of waste' and 'Improving the efficiency of resource use'. These goals must be taken into consideration in the development of the Council's waste strategy.
- 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

[32] 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.

reviewing and updating the Health Act 1956, but it contains similar provisions for sanitary services to those currently contained in the Health Act 1956.

- 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.

9.2 Overall Strategic Direction and Role

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

10 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 are put forward. Specific actions and timeframes for delivery of these 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.

10.1 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.

10.1.1 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 and through central government regulation.

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

10.1.2 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

TOI TE ORA
PUBLIC HEALTH
Bay of Plenty + Lakes Districts

BAY OF PLENTY DISTRICT HEALTH BOARD HAUORA A TOI

LAKES DISTRICT HEALTH BOARD

Toi Te Ora Public Health
PO Box 2120
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27 May 2022

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Tēnā koe Matthew

Medical Officer of Health Review of Western Bay of Plenty's Waste Assessment 2022

I appreciate this opportunity to provide comment on the April 2022 draft waste assessment.

Medical Officers of Health have a responsibility through their designated positions for reducing conditions within their local community which are likely to cause disease or be injurious to health. My comments seek to assist Council in promoting a healthy and safe environment for their communities now and into the future.

Waste management is important for the health of the public. If not disposed of properly, waste can present a health hazard through physical injury, chemical poisoning, exposure to infectious material and encouraging pests such as vermin, flies and mosquitoes. Waste can also block stormwater systems, contaminate land and water, and create odours.

Waste services and infrastructure should be provided in ways which do not increase the risk to health, are affordable, and are accessible to everyone. Services that provide the least complex system, and that are most accessible and affordable are encouraged. This is because it is these that enable the highest level of participation and achieve the highest compliance.

In this context I make the following comments:

1. I am pleased to see Council address the key issue identified in the feedback provided by the Medical Officer of Health in the 2016 waste assessment – and so wish to acknowledge Council's significant progress with increasing their involvement in waste management by working through actions in the 2017 waste management and

minimisation plan (WMM Plan). I am particularly pleased that Council is now able to divert organic waste from landfill and has made significant progress in providing uniform and widespread collection services.

I note that the waste assessment mentions that the majority of residences that have access to the improved collection services are utilising them. I encourage Council to continually review and make improvements to waste collection streams. Those services which provide the least complexity, increase accessibility and respond to societal trends and behaviours will increase the level of community buy-in and compliance, raise participation and result in the least waste going to landfill.

2. This office has previously expressed concern to Tauranga City Council that that the sub-regional approach taken in 2016 to assess waste in the Western Bay of Plenty region has not continued. It is important to consider how waste is managed across the region given that the two communities are closely connected and interdependent. This concern was raised further with the closure of Maleme Street Refuse transfer station significantly reducing easy access to methods of properly disposing waste, particularly to residents in the Western Bay of Plenty District Council area.

   Local government and resource management reforms are signalling councils will need to plan regionally and work together more.

   I would encourage short term actions that provide reassurance that waste and waste diversion services are conveniently provided and located throughout the district and for the whole community. And, whenever possible I encourage Western Bay of Plenty District Council and Tauranga City Council to collaborate on all sanitary services.

3. The waste assessment notes that Council collection services are not accessible to all households, with 20% being not eligible. The provision of waste services for all rural areas and any new areas should be the default position of Council. I would like to see services provided to every property because services that are accessible to everyone and enable everyone to do the right thing will be more protective of health.

4. The assessment notes there was no proactive Iwi liaison in the development of the 2017 WMM Plan, and notes that existing Iwi and Council partnership forums may provide an opportunity for Iwi to provide an iwi view on waste management and minimisation in the consideration of this waste assessment and development of the next WMM Plan.

   I encourage Council proactively engaging with local Iwi in the urban and rural environs to ensure council waste assessments set out all perspectives and information necessary to identify the key issues and priority actions when developing this and future waste assessments.

5. I recognise that this assessment informs the WMM Plan. It is suggested Council considers the findings of the Toi Te Ora Public Health, Issues of Health and Wellbeing Population Survey 2020 when developing the WMWM plan actions. This survey reflects the Bay of Plenty community views, including Western Bay of Plenty across a range of public health topics. Of relevance to waste management and minimisation is the level of satisfaction with rubbish disposal systems and recycling systems and their importance. For people in the Bay of Plenty health district this was 59% and 46% respectively. The survey is available on the Toi Te Ora website.[1]

6. In feedback to previous waste assessments and plans, this office has previously raised the issue of how local councils fund waste services. I note the rationale for Council choosing a user pays system for refuse and recycling services in the 2022 draft waste assessment. However, because waste services are a core sanitary service for local councils and they have district wide benefit, they are a public good. Waste services and infrastructure funded by the entire community help protect the health of everyone. I would like to see the rate-based system for recycling services extended to include refuse collection.

7. The waste assessment identifies the industrial and commercial growth expected to occur in Ōmokoroa and at Rangiuru Business Park. There is potential for Council or a business agency to work with tenants and owners in the Business Park to identify waste service needs and negotiate providing a good value service to meet those needs. I encourage Council to include this as a priority in the WMM Plan. Council may also wish to consider collaborating with other councils in the Bay of Plenty and Waikato regions to fund a regional role to work with the business parks and commercial sectors.

8. I note the issues raised relating to future demand and information gaps in section 6.2 of the assessment. I look forward to seeing priority actions to improve waste diversion services along with measures to improve specific waste stream composition data. Medical and hazardous, and rural waste have been highlighted as needing improved management in previous waste assessments. I would like to see these areas prioritised in the WMM Plan. I encourage council to also prioritise electronic waste to ensure the matters raised in section 6.2 are addressed.

   Decisions that reduce environmental contamination, reduce resource use and the impacts of climate change are supported because these will contribute to safeguarding the health of current and future populations.

   As Council develops their WMM Plan, I encourage Council to have regard to Bay of Plenty District Health Board Waste Management and Waste Minimisation Position Statement.

[1] https://toiteora.govt.nz/assets/Toi-Te-Ora-Public-Health/Publications-and-Resources/Population-Surveys/2020_Population_Survey_Low_Res_FINAL.pdf

If you wish to discuss this feedback please contact Cushla Vanstone or Annaka Davis, Health Protection Officers in the first instance.

Nāku noa, nā

Dr Neil De Wet
Medical Officer of Health

Copy to
Chief Executive
Tauranga City Council

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 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
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 or 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

There are two ways landfills are currently defined. An industry-led project resulted in the 'Technical Guidelines for Disposal to Land' (2018). MfE have subsequently classified disposal facilities under two regulations, which enable the application of the disposal levy and the collection of data.

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 nonhazardous 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 – Landfill

A Class 5 landfill accepts only clean fill material. The principal control on contaminant discharges to the environment from Class 5 landfills 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 incidental5 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 landfill should pose no significant immediate or future risk to human health or the environment.

The WAC for a Class 5 landfill 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 landfill 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 facilities[33] and the second to require data reporting from 'cleanfills' and transfer stations[34].

These regulations establish definitions for a range of disposal 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:

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		Types of waste may include (but not limited to):

[33] https://www.legislation.govt.nz/regulation/public/2021/0068/latest/LMS474556.html
[34] https://www.legislation.govt.nz/regulation/public/2021/0069/latest/whole.html

	• 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 (eg, hospitals, educational facilities and aged-care facilities) green waste (eg, 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.		• 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 (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	Mixed construction and demolition waste including: • rubble, plasterboard, treated and untreated timber • wood products,including softboard, hardboard, particle board, plywood, MDF, customwood, shingles, sawdust • concrete, including reinforced or crushed concrete blocks • clay products including pipes, tiles • asphalt (all types), and roading materials,

		• Is not a class 3 and 4 managed or controlled fill facility	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 • inert waste material from earthworks or site remediation	Does not accept: • household waste • waste from commercial or industrial sources • waste from institutional sources (eg, hospitals, educational facilities, and aged-care facilities • waste generated from a single industrial	Types of waste may include (but not limited to): • lightly contaminated soil below applicable consent limits and inert construction and demolition materials, including: site facilities clearance and excavation materials including

		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).	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 (eg, steel or aluminium-making, or pulp and paper-making) carried out in one or more locations.	• household waste • waste from commercial or institutional sources (eg, 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 long-term storage for waste or material derived from that waste.	N/A (no disposal of waste occurs)	N/A

A.4.0 National Legislative and Policy Context

A.4.1The New Zealand Waste Strategy 2010

The New Zealand Waste Strategy 2010 provides the Government's strategic direction for waste management and minimisation in New Zealand. This strategy was released in 2010 and replaced the 2002 Waste Strategy.

The New Zealand Waste Strategy has two goals. These are to:

- reduce the harmful effects of waste
- improve the efficiency of resource use.

The strategy's goals provide direction to central and local government, businesses (including the waste industry), and communities on where to focus their efforts to manage waste. The strategy's flexible approach ensures waste management and minimisation activities are appropriate for local situations.

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.

MfE has released a draft revised 'New Zealand Waste Strategy' (the Strategy), which was open for consultation until 10th December 2021. The new draft Strategy has a focus on achieving a more 'circular economy' for waste and sets out a multi-decade pathway towards this.

The MfE are currently reviewing submission responses, and the final form of the strategy is not yet known.

The consultation document[35] includes:

- A review of the current situation with waste management in New Zealand, including our performance in the global context
- A proposed new vision and principles for New Zealand
- A staged transition process, with three stages described
- A more detailed description of what stage one might look like
- Targets

[35] https://environment.govt.nz/assets/publications/waste-strategy-and-legislation-consultation-document-.pdf

- Proposals to review associated legislation.

These sections are discussed in more detail.

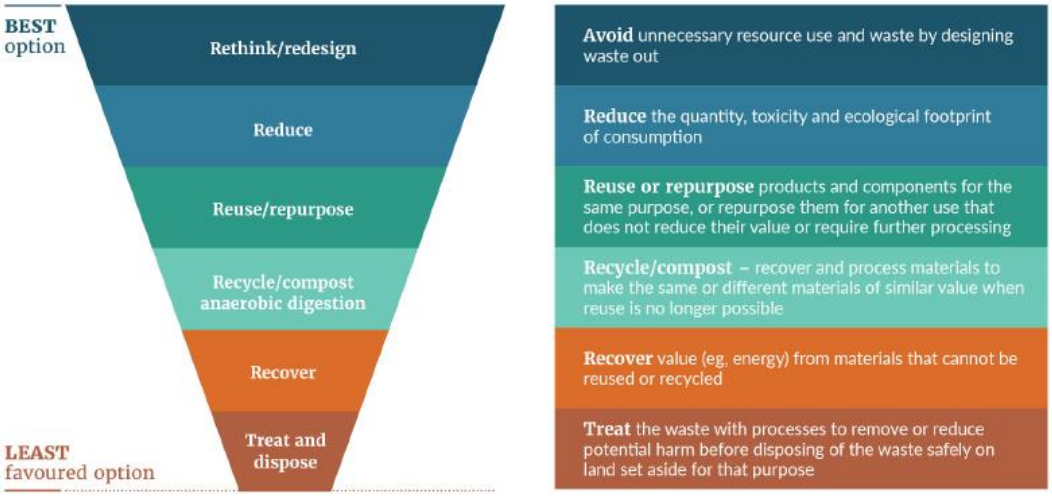
A.4.1.1 Our Waste Challenge

This section of the consultation document describes the current approach to resource use in New Zealand as strongly linear, with a 'take, make, dispose' approach. The issues with this approach are described, including negative environmental impacts from production and consumption and inefficient resource use.

The document recognises the global shift towards a circular economy, with heightened international awareness of the consequences of linear systems. This shift is also strongly aligned with the Sustainable Development Goals[36], and is more consistent with an approach that could meet our emissions reduction targets[37].

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 6: Revised Waste Hierarchy



Source: MfE's Waste Strategy and Legislation Consultation

The consultation document 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.

[36] https://sdgs.un.org/goals
[37] https://www.mpi.govt.nz/consultations/emissions-reduction-plan

- On average, 750 kg of waste per capita goes to municipal landfills[38] 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
- Historical management has been poor, with numerous legacy disposal sites around the country causing local environmental harm.

While recent years have seen significant improvements, a wider strategic change in direction is warranted to align with global direction and to achieve targets.

A.4.1.2 The Proposed Strategy

The direction of the strategy is important in many very practical ways; it will have 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.

The strategy will coordinate with, and support, a long-term waste infrastructure investment plan – and vice versa. 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 strategy will be implemented through a series of 'action and investment plans' (AIPs), which will set out the more immediate priorities and key actions.

The proposed vision is: *A Circular Economy for New Zealand Aotearoa in 2050* – looking after resources, respecting environmental connection, and wasting nothing.

Six supporting principles are proposed; three of which are aligned with global circular economy principles, and three of which were developed specifically following discussions with leading waste strategists in Aotearoa.

1. Design out waste
2. Keep products/materials at highest value
3. Regenerate natural systems
4. Take responsibility for environmental protection
5. Think in systems – interconnectedness
6. Equitable and inclusive solutions

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:

[38] 'municipal landfill', 'municipal solid waste landfill' 'sanitary landfill' and 'Class 1 landfill' are all terms that essentially refer to the same type of facility.

1. 2022 – 30: catching up – get the basics in place, prepare for transformational change, bring resource recovery systems up to global standards, reduce emissions
2. 2030 – 40: pushing ahead – widespread changes in mindset, systems, and behaviour, with resource recovery optimised for circularity, and major efforts made to remediate and regenerate
3. 2040 – 50: embedding a new normal – systems are circular across society and resource recovery, production and use systems are regenerative

The first stage has been outlined to a reasonable level of detail, and largely builds on work programmes already published.

Relevant priorities from the 'catching up' phase include:

- getting resource recovery systems working well – simplifying materials, investing, developing end product markets
- reducing emissions from organic waste by… diverting more from landfill (possibly by introducing bans on the disposal of organic material in landfills)

A.4.1.4 Targets

Due to the current lack of comprehensive data on waste flows in New Zealand, targets through to 2030 have been set based on what reliable data is held. This largely relates to Class 1 disposal facilities.

The proposed targets from the consultation document are shown below.

Figure 7: Proposed Targets To 2030

Area	Responsibility	Strategic target (by 2030)
Waste	Whole country	Reduce waste generation by 5–10% per person
	Public sector	Reduce waste generation by 30–50%
	Businesses	Reduce waste disposal by 30–50%
	Households	Reduce waste disposal by 60–70%
Emissions	Whole country	Reduce biogenic waste methane emissions by at least 30%
Litter	Whole country	Reduce litter by 60%

A.4.1.5 Summary

The proposed direction of the draft New Zealand Waste Strategy, the supporting actions, and the suggested 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

- The targets focus on reducing waste generation and waste disposal by 2030 – by quite significant proportions.

While the Waste Strategy is still in draft, it is clear that the overall tone of the strategic direction is not in support of continued or extended disposal of waste; and particularly not organic wastes. Given that the draft was developed in partnership with an industry focus group with representatives from across the sector, it presumably has wide-ranging support and seems unlikely to change significantly in its final form. The alignment with work to reduce emissions makes this particularly unlikely for the aspects that relate specifically to organic waste.

A.4.2 Waste Minimisation Act 2008

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. Councils "must promote effective and efficient waste management and minimisation within its district" (section 42).

Part 4 requires councils 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 aspects of the Waste Minimisation Act are discussed in more detail below.

A.4.3Waste Levy

From 1st July 2009 the Waste Levy came in to effect, adding $10 per tonne to the cost of landfill disposal at sites which accept household solid waste. 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.

Currently the levy is set at $10/tonne and applies to wastes deposited in landfills accepting household waste. The MfE published a waste disposal levy review in 2014.[39] The review indicates that the levy may be extended in the future:

"The levy was never intended to apply exclusively to household waste, but was applied to landfills that accept household waste as a starting point. Information gathered through the review supports consideration being given to extending levy obligations to additional waste disposal sites, to reduce opportunities for levy avoidance and provide greater incentives for waste minimisation."

A.4.4Product 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.[40] No Priority Products have been declared as of October 2017.

The following voluntary product stewardship schemes have been accredited by the Minister for the Environment:[41]

- 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

[39] Ministry for the Environment. 2014. Review of the effectiveness of the waste disposal levy, 2014 in accordance with section 39 of the Waste Minimisation Act 2008. Wellington: Ministry for the Environment
[40] Waste Management Act 2008 2(8)
[41] http://www.mfe.govt.nz/waste/product-stewardship/accredited-voluntary-schemes

- 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

A.4.5Waste 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 Ministry recently announced that the next Waste Minimisation Fund round would work in quite a different way. Instead of opening for a fixed period of time in May, it will instead open later in the year and will consider applications as they are received, and will agree to fund successful applications until funds are exhausted.

Further details will be released soon on how the restructured fund would work.

A.4.6Local 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 ww.dia.govt.nz/better-local-government.

A.4.6.1 Section 17 A 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 have 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 happens 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.4.7Resource 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 is currently one enacted NES that directly influences the management of waste in New Zealand – 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.

A.4.8New Zealand Emissions Trading Scheme

The Climate Change Response Act 2002 and associated regulations is 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.

The NZ ETS was introduced in 2010 and, from 2013, landfills have been required to surrender New Zealand Emissions Units for each tonne of CO_2 (equivalent) that they produce. Until recently however the impact of the NZETS on disposal prices has been limited. There are a number of reasons for this:

- The global price of carbon crashed during the GFC in 2007-8 and has been slow to recover. Prior to the crash it was trading at around $20 per tonne. The price has been as low as $2, although since, in June 2015, the Government moved to no longer accept international units in NZETS the NZU price has increased markedly (currently sitting at around $19 per tonne[42]) .
- The transitional provisions of the Climate Change Response Act, which were extended in 2013 (but have now been reviewed), mean that landfills have only

[42] https://carbonmatch.co.nz/ accessed 25 October 2016

had to surrender half the number of units they would be required to otherwise. These transitional provisions were removed in January 2017 which will effectively double 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 into CO_2) 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, two for one surrender only required, and methane destruction of 80-90%) these mean that the actual cost of compliance with the NZETS has been small for most landfills – particularly those that are able to claim high rates of gas capture. Disposal facilities have typically imposed charges (in the order of $5 per tonne) to their customers, but these charges have 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 2-4 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 and 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. Reasons for this include:

- In June 2015, the Government moved to no longer accept international units in NZETS. This has had a significant impact, as cheap international units which drove the price down cannot be used. Many of these were also of dubious merit as GHG offsets[43]. This has resulted in a significant rise in the NZU price.
- The transitional provisions relating to two-for-one surrender of NZUs were removed from 1 January 2017, meaning that landfills will need to surrender twice the number of NZUs they do currently – effectively doubling the cost of compliance.
- The United Nations Climate Change Conference, (COP21) held in Paris France in November – December of 2015, established universal (but non-binding) emissions reduction targets for all the nations of the world. The outcomes could

[43] http://morganfoundation.org.nz/wp-content/uploads/2016/04/ClimateCheat_Report9.pdf

result in growing demand for carbon offsets and hence drive up the price of carbon. Balanced against this however is the degree to which the United States, under the new Republican administration, will ratify its commitments.

These changes to the scheme mean that 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 could put further pressure on small (predominantly Council owned) facilities and drive further tonnage towards the large regional facilities (predominantly privately owned).

If for example, the price of carbon were to rise to $50 per tonne, the liability for a landfill without gas capture will be $65.50 (based on a default emissions factor of 1.31 tonnes of CO_2e per tonne of waste), whereas for a landfill claiming 90% gas capture (the maximum allowed under the scheme), the liability will be only $6.55. 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.4.9Litter Act 1979

Under the Litter Act 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 may be reviewed alongside the review of the Waste Minimisation Act.

A.4.10 Health Act 1956

The Health Act 1956 places obligations on TAs (if required by the Minister of Health) 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). It specifically identifies certain waste management practices as nuisances (S 29) and offensive trades (Third Schedule). 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. Section 54 only applies where resource consent has not been granted under the RMA. The Health Act enables TAs to raise loans for certain sanitary works and/or to receive government grants and subsidies, where available.[44]

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 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

[44] From: MfE 2009: Waste Management and Minimisation Planning, Guidance for Territorial Authorities.

stringent controls relating to the use of land for storing, using, disposing of or transporting hazardous substances.[45]

A.4.12 Health and Safety at Work Act 2015[46]

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.

A.4.13 Other legislation

[45] From: MfE 2009: Waste Management and Minimisation Planning, Guidance for Territorial Authorities.
[46] http://www.legislation.govt.nz/act/public/2015/0070/latest/DLM5976660.html#DLM6564701

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

- Hazardous Substances and New Organisms Act 1996
- 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.4.14 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.