Waikato District Council
Waste Assessment

February 2018

Waikato
DISTRICT COUNCIL
Te Kaunihera aa Takiwaa o Waikato

Prepared by:

Sandra Murray
Zenzic Consulting
sandra@zenzic.nz
Mobile: 021 890 629

Approved by:

Karl Pavlovich
Waters Manager
Waikato District Council

PREFACE

The Waste Assessment (WA) is a technical document. The key purpose of the WA is to present a clear picture of what happens with waste in the Waikato District area, what forces are driving current behaviours and outcomes, and to highlight the key issues and the basic options for addressing those issues.

This document is based on the Waste Assessment Template developed for the Councils of the Waikato and Bay of Plenty regions, and includes reference material from a number of sources.

Issue		Author	Reviewer	Date
1	Version 1	Sandra Murray	Medical Officer of Health	04/01/2017
2	Version 2	Sandra Murray	Patricia Cronin	27/01/2018
3	Final	Sandra Murray	Karl Pavlovich	08/02/2018

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PART 1 - EXECUTIVE SUMMARY

Waikato District generates an estimated 52,182 tonnes of waste to landfill each year (excluding farm waste) - an average of 750kg per person every year.

Indications are that per capita waste to landfill volumes have increased by approximately 47% compared to 2012. This is higher than with national trends, with a national increase of 20% waste to landfill in the past three years. However, the difference is largely due to changes in the type and amount of waste date we now collect compared to 2012.

In addition, an estimated 112,662 tonnes of rural (on-farm) waste is estimated to be generated in the District (47% of waste).

Based on data obtained from council services and private waste operators, an estimated 71,000 tonnes of material were diverted from landfill (e.g. through reuse, recycling or composting) in the 2016-2017 year. This equates to around 1,020 kg diversion per person per year. Recyclable material recovered appears to have increased from 0.03 per capita in 2012 to 0.05 in 2016 – a 66% increase. The increase in recyclable material is likely to be a result of a combination of low estimates in 2012 and a genuine increase in recyclable recovery as markets have opened and private operators have moved to take advantage of these opportunities.

However, some caution should be noted as data collection from private waste operators is voluntary, and data quality was low for some operators. Estimates of volumes have been made for some private operators.

Key opportunities for Waikato District are to:

- Review waste services to ensure council are able to meet their waste minimisation objectives, particularly around data on waste flows and effectiveness of waste minimisation initiatives
- Introduce of a waste operator and facility licencing system to increase Councils access to waste flow information, and improve control over waste flows within the District.
- Introduce cost effective waste minimisation by supporting community-based resource recovery activities that promote a zero-waste approach to living – this is likely to include the development of new resource recovery facilities.
- Work with other councils in the region to introduce education programmes, investigate regional facilities and share services (where appropriate)
- Investigate rural waste needs and consider ways to encourage on-farm waste minimisation and resource recovery

Without improving access to waste data, resource recovery facilities and increasing the level of influence council has over waste flows, Waikato District may face cost increases for services and difficulty meeting future resident demand for improved services.

PART 2 - INTRODUCTION

2.1 What is the purpose of the Waste Assessment?

The key function of the Waste Assessment is to form a clear picture of waste flows and management options in the District. It will provide the foundation for Council to update its Waste Management and Minimisation Plan (WMMP) in an informed and effective manner.

It is a technical document that presents as clear a picture as possible of what happens with waste in the Waikato District, what forces are driving current behaviours and outcomes, and from that to highlight the key issues and the basic options for addressing those issues.

2.2 Legislative Context

2.2.1 Waste Minimisation

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

"encourage waste minimisation and a decrease in waste disposal in order to

(a) protect the environment from harm; and

(b) provide environmental, social, economic, and cultural benefits".

To further its aims, the WMA requires Territorial Authorities (TAs) to promote effective and efficient waste management and minimisation within their district. To achieve this, all TAs are required by the legislation to adopt a WMMP.

The WMA requires every TA to complete a formal review of its existing WMMP at least every six years. The review must be consistent with the following WMA sections:

- Section 44 of the WMA requires councils to consider the waste hierarchy, ensure that the collection, transport, and disposal of waste does not, or is not likely to, cause a nuisance; have regard to the New Zealand Waste Strategy. Councils must have regard to their most recent Waste Assessment when developing a WMMP and use a special consultative procedure to consult with the public.
- Section 50 of the WMA also requires all TAs to prepare a 'waste assessment' prior to reviewing its existing plan.
- 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.

This document has been prepared in fulfilment of that requirement.

Further detail on key waste-related legislation is contained in Appendix A.3.0.

2.2.2 Public Health

Protecting public health is one of the original reasons for local authority involvement in waste management. Protection of public health is currently addressed by a number of legislative enactments, including Health Act 1956 and Health and Safety at Work Act 2015.

The Health & Safety At Work (Regulations) 2016 provide added emphasis on workplace health and safety under the Health and Safety at Work Act 2015. This legislation and the associated regulations impact on the choice of collection methodologies and working practices and the design of waste facilities.

Further discussion of the implications of the legislation is contained in Appendix A.3.0.

2.3 Scope

2.3.1 General

The WMA requirements for the waste assessment means that it must take into consideration all waste and recycling services carried out by private waste operators as well as Waikato District Council services.

While Council has data on the waste flows that it controls, data on services provided by private industry is limited. Reliable, regular data on waste flows is important to allow Waikato District Council to plan for the future and to include waste reduction targets in their WMMP.

In preparing this document, reference has been made to the Ministry for the Environment's 'Waste Management and Minimisation Planning: Guidance for Territorial Authorities'.

2.3.2 Period of Waste Assessment

The WMA requires WMMPs to be reviewed at least every six years. This Waste Assessment was developed between August 2017 - February 2018 and informs the 2018-2024 WMMP process.

2.3.3 Consideration of Solid, Liquid and Gaseous Wastes

This Waste Assessment, and the subsequent WMMP, is focused on solid waste, biosolids and special wastes that are managed through solid waste facilities.

Solid wastes include all solid waste material that is disposed of to land or diverted from land disposal, for example general municipal waste and recyclables.

Special wastes included in this WA include sewage milliscreenings from the Council's wastewater treatment plant and road sweepings.

Liquid and gaseous wastes (such as refrigerant gases and LPG) are not included except where they interact with solid waste systems.

2.3.4 Consideration of Public Health

Public health issues are dependent on the local context and actions taken. As well as meeting the legislative requirements the key issues that are likely to be of concern in terms of public health include the following:

- Population health profile and characteristics
- 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
- Stockpiling of wastes

Some systems may exacerbate the problem, such as infrequent collection, user-charges, inconveniently located facilities etc. However, 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 for addressing issues that arise.

This WA and the WMMP will give consideration to public health impacts, with particular consideration of the potential effects on vulnerable groups. Where identified, planning will aim to anticipate, avoid or mitigate issues.

2.4 Strategic Context – National

The following national and international strategies, projects, reviews and plans have been taken into consideration in the preparation of this Waste Assessment.

2.4.1 Review of the effectiveness of the Waste Disposal Levy 2017

For the review period of 1 July 2013 to 30 June 2016, levied waste disposal facilities received a total of 10,681,295 gross tonnes of waste. From this, 1,207,786 tonnes of material were diverted, leaving total net waste to landfill at 9,473,509 tonnes.
Total gross tonnage of waste increased by 16.4% from the 2014 review, while the quantity of waste diverted decreased by 6.3%. As a result, the total net tonnage disposed to levied landfills has increased by 20.1% since the 2014 review[1].

	2010/2013	2013/2016	Difference	% Increase/decrease
Total gross tonnage	9,178,592	10,681,295	1,502,703	16.4%
Total diverted tonnage	1,288,766	1,207,786	-80,980	-6.3%
Total net tonnage to levied landfills	7,889,826	9,473,509	1,583,683	20.1%

Table 1 Total gross, diverted and net tonnages of waste at levied waste disposal facilities

[1] Review of the effectiveness of the Waste Disposal Levy 2017, Ministry for the Environment

Net waste to levied landfills has increased every year since the levy was introduced (except for 2012). New Zealanders are now producing about 734kg of levied waste per person annually.

The 2017 review also identified that only 11% of consented waste disposal facilities were levied. The report noted "annual levied waste is increasing, indicating that the levy is not currently achieving its objective. Added to this, the majority of New Zealand's waste disposal facilities are exempt from the levy and no data is available about the waste that is disposed at these facilities".

The Ministry[2] intends to:

- Develop a clear vision, strategy and set of outcomes for the future direction of the waste disposal levy. Develop an aligned approach to invest funding into projects that are targeted, measurable and provide the greatest returns (over 2 years).
- Invest in developing a national waste data collection and evaluation framework that targets key information to prioritise waste issues and measures effectiveness of the waste disposal levy (over 3 years).
- Develop and implement a staged approach to applying the waste disposal levy across additional classes of landfills and assess the role of a differential rating system (over 5 years).

2.4.2 New Zealand Waste Strategy

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

The 2010 *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

The NZWS provides high-level, flexible direction to guide the use of the legislation, regulation and conventions that relate to the management and minimisation of waste in New Zealand. These conventions are set out in Section A.5.0.

The flexible nature of the NZWS means that councils are able to decide on solutions to waste management and minimisation that are relevant and appropriate to local situations and desired community outcomes.

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

2.4.3 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

[2] Review of the effectiveness of the Waste Disposal Levy 2017, Ministry for the Environment

4. Waigani Convention – bans export of hazardous or radioactive waste to Pacific Islands Forum countries

2.4.4 National Projects

A number of national projects are underway, aimed at assisting TAs, business and the public to adopt waste management and minimisation principles in a consistent fashion.

(a) National Waste Data Framework Project

The National Waste Data Framework (NWDF) project, led by WasteMINZ[3] sets out a consistent methodology for the collection and categorisation of waste data.

The first stage of the Framework includes data on waste disposed of at levied disposal sites (Class 1 landfills) and information on waste services and infrastructure as well as other areas where practicable. Subsequent stages of the Framework will include more detailed data on diverted materials and waste disposed of at non-levied disposal sites. The Framework will only be successful if it is widely adopted and correctly applied. The implementation report clearly sets out a range of options to move the Framework forwards.

The Council intends to be a part of the implementation of the NWDF by using the categories and terminology of the Framework in the Waste Assessment and the forthcoming WMMP.

(b) National Standardisation of Colours for Bins

In October 2015 WasteMINZ, the Glass Packaging Forum, and councils around New Zealand agreed on a standardised set of colours for mobile recycling and refuse bins, crates and internal office bins[4].

The recommended colours are:

Bin bodies	For 240 litre and 120 litre wheeled bins, black or dark green should be used. These colours maximise the amount of recycled content used in the production of the bins.
Red	Refuse
Yellow	commingled recycling (glass, plastic, metal and paper combined)
Lime green	food waste and food waste/garden (referring to green) waste combined
Dark Green	garden waste
Light Blue	commingled glass collections (white, brown, green glass combined)
Grey	paper and cardboard recycling

Table 2 Recommended bin and bin lid colours for MGB's

It is intended that any services provided or funded by Waikato District Council will comply with this National Standard.

[3] WasteMinz is the largest representative body of the waste, resource recovery and contaminated land sectors in New Zealand
[4] More information is available from WasteMINZ - http://www.wasteminz.org.nz/sector-groups/behaviour-change/standardising-the-colours-of-mobile-waste-and-recycling-containers/

2.4.5 Emissions Trading Scheme[5]

The Climate Change (Unique Emissions Factors) Amendment Regulations 2010 require landfills to surrender New Zealand Emissions Units (NZUs) for Carbon-dioxide equivalent gases (CO2-e) generated and released into the atmosphere. Landfills are required to surrender units only for methane that is released, not for CO2, as CO2 is considered biogenic (part of the natural carbon cycle). The regulations required landfills to begin reporting from January 2012, and to surrender emissions units from January 2013.

The purpose of the ETS is to impose a cost on greenhouse gas generating activities, and provide a market-based incentive to invest in low carbon or carbon reducing activities. In the case of waste management, the ETS should provide an incentive to reduce the amount of biodegradable waste going to landfill as well as encourage better management of landfill methane through landfill gas capture and destruction. How effective this incentive will depend on the price of carbon.

Reviews in 2013, and again in 2016 caused changes to the Act; and it is likely that further changes will be implemented over the next two years as the government elected in 2017 campaigned on climate change policies.

Landfill operators are passing on ETS charge to waste, as well as other related costs such as administration and scheme compliance costs, and risk premiums.

The ETS regulations allow for landfills to reduce their ETS liabilities by applying for a Unique Emissions Factor (UEF). There are two types of UEFs:

- If a landfill captures and destroys methane generated in a landfill through a gas capture system, they can reduce their liabilities in proportion to the amount of methane captured and destroyed by applying for a methane capture and destruction UEF (up to 90% capture and destruction is allowed to be claimed under the regulations).
- Where a landfill can show that they accept less biodegradable waste than is assumed by the default emissions factor they can apply for a 'waste composition UEF'. This means they can then surrender NZUs based on the lower level of emissions they are estimated to generate.

ETS exposure for Waikato District Council is indirect. Landfills compete for tonnage not only against other proximate facilities but against other recovery options. The extent to which landfills pass ETS costs on will determine the extent of exposure for council. Disposal contracts are usually negotiated where there is a council service contract, and ETS costs should be specifically set out in such contracts.

2.5 Local and regional context

The actions and objectives identified in this Waste Assessment reflect, intersect with, and are expressed through other Waikato District Council and regional planning documents.

Key planning documents and waste-related goals and objectives that have been taken into consideration include:

2.5.1 Waikato District 2015-2025 Long Term Plan

[5] Service Review: Analysis of Current Services (April 2014); Eunomia

The Long-Term Plan (LTP) sets out the following Community Outcomes & Goals:

People

We will develop and maintain relationships and partnerships and provide accessible services, facilities and activities that create a supported, healthy, safe and engaged community.

Economy

We will promote sustainable growth, maintain accessible, safe and connected infrastructure and services, create an attractive business environment and provide sound financial governance.

Energy

We will provide active leadership, empowerment and collaboration in our business environment and we will effectively and sustainably manage natural resources.

The LTP also sets out levels of service for waste services.

Community Outcomes	Level of Service	Performance Measure	Performance Target 2017/18	Performance Target 2018-25
To ensure communities are well informed about the effects of waste and opportunities they have to reduce waste.	Information on Councils waste and recycling services is available to communities	The percentage of schools in the district that receive solid waste education.	55%	55%
To ensure that our waste and recycling services are efficient and effective and protect our natural environment.	Refuse and recycling services are convenient, reliable and efficient.	The number of times that bags or bins are missed in Council's kerbside collection	<200 per annum	<200 per annum
		The percentage of kerbside collection complaints that are resolved within agreed timeframes.	97%	97%

Table 3 Waste Levels of service (LTP)

2.5.2 Waikato District Plan

WDC are reviewing the District Plan through the same time period that this Waste Assessment is under development. The draft District Plan is expected to be notified for public submission during the first part of 2018.

2.5.3 Future Proof Strategy

Future Proof is a growth strategy specific to the Hamilton, Waipa, and Waikato sub-region and has been developed jointly by Waikato District Council, Waikato Regional Council, and Waipa and Waikato District Councils, as well as Tangata Whenua, the NZ Transport Agency (NZTA) and Matamata-Piako District Council.

The Future Proof growth strategy aims to manage growth in a collaborative way for the benefit of the Future Proof sub-region both from a community and a physical perspective. The growth strategy provides a framework for ongoing co-operation and implementation. This will ensure

the costs and resources required to fund and manage infrastructure such as transport, wastewater, stormwater, recreation and cultural facilities are provided for.

Population figures in this Waste Assessment are taken from the Future Proof Strategy: Planning for Growth 2017 (2016: households= 24,892; population = 69,887).

2.5.4 Waikato Regional Policy Statement

The Regional Policy Statement looks 100 years into the future. This accords well with the purposes of sustainable management of our natural and physical resources, and meeting the reasonably foreseeable needs of future generations. It recognises the long life of community infrastructure, including the fact that many critical infrastructural elements in the region are either the same structures or have been in the same location for the last century. Additionally, the effects of current activities are projected to take many years for their full impacts to be realised.

2.5.5 Waikato-Tainui Environmental Plan

The Waikato-Tainui environmental plan provides high-level guidance on Waikato-Tainui objectives and policies, with respect to the environment, to resource managers, users and activity operators, and those regulating such activities, within the Waikato-Tainui rohe. With regard to waste management the following objective and policy are particularly relevant:

Objective - liquid, solid, and hazardous waste

26.3.3 Liquid, solid, and hazardous waste management is best practice and manages social, cultural, spiritual, economic and environmental effects.

Policy – liquid, solid and hazardous waste

26.3.3.1 To ensure that liquid, solid and hazardous waste management is best practice and manages social, cultural, spiritual, economic, and environmental effects.

Method

(a) The full life cycle of waste from generation to assimilation/disposal is considered in developing waste management strategies.

(b) Manage waste including solid, liquid, gas, and sludge waste, according to the following hierarchy:

i. reducing the amount of waste produced (including composting and mulching of green waste);

ii. reusing waste;

iii. recycling waste;

iv. recovering resources from waste;

v. treating residual waste; and

vi. appropriately disposing of residual wastes.

2.5.6 Maniapoto Environment Management Plan

Geographically, the Maniapoto Environmental Management Plan (the Plan) covers the Maniapoto rohe, including the areas commonly known within Te Ao Māori as Te Rohe Pōtae and Te Nehenehenui.

It is anticipated that the objectives, policies, and actions in the Plan will inform the review, development and implementation of regional and district plans, policies and strategies. The Plan

is also a tool to support the leadership of Maniapoto at the forefront of exercising kaitiakitanga and rangatiratanga within the Maniapoto rohe.

Part 24.0 – Waste Management, includes three polices and a number of activities.

Policy: 24.2.2.1 Incentives and initiatives to reduce the volume of waste are supported.
Actions
(a) Ensure Maniapoto participation and input to initiatives to reduce waste
(b) Require discharge to land activities associated with solid and hazardous waste and by-products to be effectively controlled and monitored
(c) Incentivise systems that promote waste minimisation or deal with waste as close to point of origin as possible
(d) Promote product stewardship initiatives where the costs of waste disposal are met by product manufacturers (imported materials are taxed to cover eventual disposal costs) and other waste generators at source
e) Promote education initiatives on waste minimisation programmes and zero waste – (see Parakore model)
(f) Support and provide for low waste trading practices, including no packaging supermarkets, farmers' markets and bulk suppliers
(g) Establish accessible community recycling, composting facilities, swap or exchange facility for unwanted items
Policy: 24.2.2.2 Waste disposal facilities are appropriately sited and managed to avoid adverse effects.
Actions
(h) Ensure Maniapoto participation and input to any new proposals for waste facilities and review of existing facilities to avoid any adverse effects on Maniapoto values and interests in a manner
(i) Undertake remedial work at closed landfill sites where leaching of contaminants is occurring, or could occur, to prevent contamination of groundwater, waterways, and coastal waters
(j) Ensure disposal facilities are designed and managed to ensure no leaching to or contamination of the environment
(k) Ensure new waste disposal facilities are sited so as to prevent any impact on wāhi tapu, mahinga kai, kura, marae, urupā
Policy: 24.2.2.2 Unsafe disposal of waste, including hazardous waste and by-products, is eliminated.
Actions
(a) Solid and hazardous waste disposal practices are safe and avoid any adverse effects on Maniapoto values and interests

(b) Enforce regulation of disposal of hazardous products
(c) Promote education initiatives to the public regarding appropriate disposal options for different types of waste
(d) Ensure penalties for illegal dumping provide a significant deterrent
(e) Report, investigate and enforce penalties for illegal dumping

2.5.7 Waikato Waste and Resource Efficiency Strategy 2015-18 (WRES)

The Waste and Resource Efficiency Strategy (WRES) describes how Waikato Regional Council will work with key stakeholders to achieve collective regional waste minimisation objectives.

The Strategy has a vision of: *"working together towards a zero-waste region"*.

Two key goals of the strategy are to:

- protect our communities, land, water and air from harmful and hazardous wastes; and
- encourage resource efficiency and beneficial reuse that creates sustainable, economic growth.

The Strategy also contains ten strategic guiding principles:

1. Prioritising waste prevention and reduction
2. Exploring onshore and sustainable solutions
3. Closed loop or cyclical solutions
4. Recognising kaitiakitanga (stewardship)
5. Keeping the big issues in front of decision makers
6. Supporting the valuable role of community enterprise
7. Working collaboratively with others to share responsibilities
8. Advocating for product stewardship
9. Getting the most from external funding
10. Exploring how to lower barriers to waste minimisation

A Waste Strategy Advisory Group (WSAG) was established and includes representation from industry, local authorities (including HCC), community enterprises, Bay of Plenty Regional Council, and the Ministry for the Environment.

The role of the WSAG is to monitor and review the effectiveness of the strategy, provide feedback, advice, and recommend changes, and to report back to their respective organisations. The group also investigates opportunities for joint working at a regional or sub-regional level.

2.5.8 Cross-regional 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. Waste assessments and waste management and minimisation planning
2. Solid waste bylaws, licensing and data
3. Education and communication
4. Procurement
5. Rural waste

Projects are currently under way for the first two of these priorities and there is also ongoing collaborative work among the constituent councils of the two regions on rural waste, tyres and education and communication.

2.5.9 Sub-Regional Waste Awareness Group (SWAG).

Waikato District, Hamilton City, Waipa District and Waikato Regional Councils are working together as part of a Sub-Regional Waste Awareness Group (SWAG). The SWAG, in collaboration with the community, developed and is implementing a Sub-Regional Waste Awareness and Communications Strategy. The strategy has the vision of working together towards a zero-waste region.

Collaborating across the sub-region on waste education programs and campaigns increases efficiencies and broadens the reach of the Councils' engagement and supports all Councils in achieving their waste minimisation objectives.

2.6 International considerations

While they do not immediately impact on Waikato District's waste flows, it is worth noting the potential impact of international activities on New Zealand's waste industry.

Much of the recycling collected in NZ is exported, particularly to Indonesia and China. China has in recent years tightened measures around the acceptance of recycled materials. The most recent initiative, translated into English as "National Sword 2017," targets "foreign waste," including plastics, industrial waste, electronics and other household waste materials[6]. It comes four years after China initiated its Operation Green Fence, an imports-enforcement campaign that required a higher standard of recycled product in order to gain approval for import into China.

Restrictions on the acceptance of recyclable material will mean changes to collection and sorting methodologies in order to achieve export standards. This may impact the costs associated with recycling with some estimates indicating recycling costs could double within the 5-10-year period (regardless of collection methodology).

It is recommended that councils indicate these potential increases to the community Procurement processes and contracts can be used to make recycling proposals more attractive to contractors and share the risks associated with contamination and cleaning up the recycling. Some councils may start to consider in-house service provision (council owned trucks and staff rather than contracted out services).

Also, of concern is the potential for climate change and rising instability to cause unrest in many countries. International conflict and unrest has the potential to disrupt recycling supply chains. As New Zealand has limited processing facilities for kerbside recyclables, we are potentially vulnerable should export markets be disrupted.

2.7 General data limitations, completeness and assumptions

This waste assessment compiles and analyses available information on waste and diverted materials being generated in Waikato District. It considers future demand for waste facilities and services; and reasonably practicable options available to meet demand, while achieving Council's objectives including waste management and minimisation objectives.

The options considered in this waste assessment will be incorporated into Council's draft WMMP for public consultation, prior to formal adoption and implementation.

[6] https://resource-recycling.com/recycling/2017/02/21/china-announces-sword-crackdown-illegal-recyclable-material-imports/

This document was prepared using information gathered from a variety of sources. While every effort has been made to achieve a reasonable degree of accuracy in this assessment, limitations due to the low-level detail and quality of data available should be noted.

The information obtained in this waste assessment was considered appropriate when giving regard to:

- the significance of the information;
- the costs of, and difficulty in, obtaining the information;
- the extent of the Council's resources; and
- the possibility that the Council may be directed under the Health Act 1956 to provide the services referred to in that Act.

PART 3 - THE WASTE PROBLEM

An estimated 235,844 tonnes of waste are generated in the Waikato District annually, with 47.8% of this being waste estimated to be generated on-farm.

Based on information from collectors and facility operators, an estimated 123,182 tonnes of waste were collected by waste services and facilities and services in the Waikato District in 2016/2017.

Of this amount, 52,182 tonnes (22.1%) were sent to landfill and 71,000 tonnes (30.1%) were recovered for reuse or recycling through resource recovery facilities and collection services.

This does not represent all the waste and diverted materials generated in the District as an unknown volume of material is currently collected, re-used, recovered, recycled or disposed of through other means or via facilities out of the District. In addition, provision of information from private waste companies is voluntary, therefore not all information was accessible.

3.1 How much waste is going to landfill from the WDC area?

The identified volumes of waste disposed of to landfill from the Waikato District is summarised in Table 4 below.

Waste disposed of to land	Tonnes (2016/2017)	% of total waste generated (2016/2017)	Tonnes/capita/annum[7] (2016/2017)
Levied waste to Class 1 landfills			
Council kerbside refuse	7,522	3.2%	0.11
General waste to landfill	20,000	8.5%	0.29
Special waste e.g. hazardous and medical wastes	60	0.0%	0.00
Wastewater screenings	24,600	10.4%	0.35
Total waste to landfill	**52,182**	**22.1%**	**0.75**
Waste diverted from landfill			
Council kerbside recycling*	3,631	1.5%	0.05
Other waste (diverted)	67,369	28.6%	0.96
Total waste diverted from landfill	**71,000**	**30.1%**	**1.02**
Total waste collected (waste to landfill + diverted waste)	**123,182**	**52.2%**	**1.76**
Farm waste disposed of on-site	**112,662**	**47.8%**	**1.61**
Total waste generated	**235,844**	**100.0%**	**3.37**

Table 4 Summary of waste generated in the Waikato District 2016/2017

*Note: does not include food waste collections now in place in the Raglan area.

Waste disposed of to landfill was equivalent to approximately 0.75 tonnes per person; while diversion from landfill equates to approximately 1 tonne per person.

Note: These figures exclude waste to non-levied landfills, as this amount is unknown. It also excludes waste going to the North Waikato Regional Landfill at Hampton Downs, as most material received by this facility is generated out of the District.

[7] Future Proof population projections

Of the information provided, a large proportion of the total waste to landfill is comprised of waste from industrial, commercial and institutional (ICI) sources. While data on the source of waste is poor – ICI waste may comprise approximately 65% of the waste sent to landfill. Potentially, this material may be related to the three large scale waste generators in the District - Affco, Brinks Chickens and Goodman Fielder Quality Bakers. It may be useful for council to undertake further investigation and, potentially, provide educative support for these companies in order to reduce waste to landfill.

However, the reliability of estimate for different types of waste varies. Some waste to landfill data comes unverified from private waste operators, while other waste data and wastewater screening tonnages are verifiable as they have been provided by WDC staff or council contractors.

Information from private operators is also variable in terms of data collection methodology, with some data comprised of estimates of tonnages collected within vs without the area. For example, if a collection truck route includes 40% of customers from within the District – the total tonnages WDC collected will be estimated at 40% of the tonnages collected for that route.

3.1.1 Council kerbside refuse collection

The WDC kerbside refuse service collect approximately 9,140 tonnes of refuse per annum. This is an average of 130kg per person per annum, servicing on average 24,892 households. This is approximately 17% of the total waste to landfill for the Waikato District, although this is likely to be an underestimate as not all residents receive a kerbside service.

Tonnages of refuse collected in the different collection areas within the District vary, this is in part related to the differing number of households in each area.

Council provided refuse services			
Area	**Service provider**	**Number of households charged for service**	**Annual tonnage collected (approx.)**
Raglan	Xtreme Zero Waste	2,632	1,820
Central	MetroWaste Waikato	15,741	6,000
Northern area	Smart Environmental	6,606	1,320
Total refuse (kerbside collections)		**24,979**	**9,140**

Table 5 Summary of council refuse service tonnages

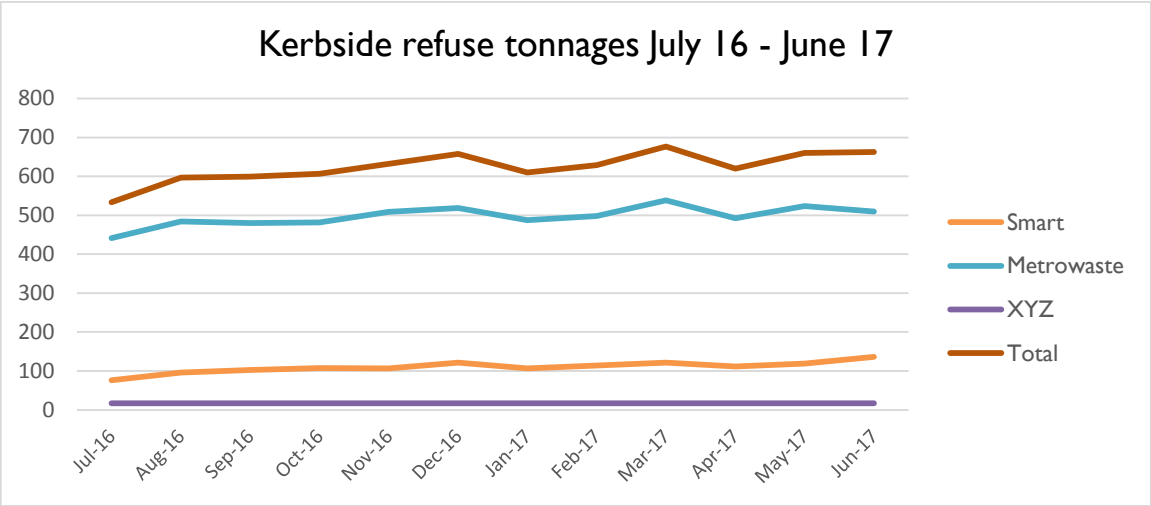


Figure 1 Tonnages of refuse collected from council kerbside collections

The per capita weight of refuse is slightly lower than for similar sized councils in New Zealand. A comparison of the amounts of refuse material collected compared to comparable councils is shown in Table 6 below.

District and year of survey	Kg/capita/annum	Comment
Matamata Piako District 2016	62	Only 66% of properties have kerbside refuse services
Hauraki District 2016	78	Only 73% of properties have kerbside refuse services
Thames Coromandel 2016	131	91% of properties have kerbside refuse services
Waikato District 2016	**132**	**Variable services – bags and MGB bins**
Hamilton City 2016	152	a maximum of two bags, not exceeding 60 litres or 20 kilograms

Table 6 Kerbside refuse comparison with other councils

3.1.2 Composition of council kerbside refuse[8]

A compositional audit of council provided kerbside refuse was last undertaken in November 2013 and can be seen in the table below.

Primary category - as % of total	Waikato urban refuse bags	Waikato rural refuse bags	Franklin rural refuse bags	Tuakau 120-litre wheeled bins
Paper	15.9%	17.7%	17.3%	12.8%
Plastics	14.0%	15.9%	14.0%	12.3%
Organics	45.3%	39.7%	38.5%	48.2%
Ferrous metals	2.5%	3.1%	3.2%	3.1%
Non-ferrous metals	0.6%	1.1%	1.1%	1.0%
Glass	3.0%	4.0%	9.8%	2.2%
Textiles	6.1%	5.9%	3.6%	6.1%
Sanitary paper	9.9%	9.3%	8.5%	11.7%
Rubble	0.8%	1.6%	1.5%	0.9%
Timber	0.7%	0.4%	0.4%	0.8%
Rubber	0.1%	0.4%	0.2%	0.5%
Potentially hazardous	1.0%	1.1%	1.7%	0.3%
Refuse set out weight by household	**8.37 kg**	**9.02 kg**	**11.83 kg**	**11.22 kg**

Table 7 Comparison of kerbside refuse streams

While the compositions of the four kerbside refuse streams were generally similar, both of the rural bag collections contain more recyclable materials and less organic material than the urban collections. Rural households are more likely to compost or use food waste for feeding animals.

In general, urban households in the district set out less refuse than their rural counterparts. However, there is no information as to whether urban and rural households set out refuse with the same frequency. Without being able to compare set out rates, a definitive comparison between set out weights cannot be made. Rural properties may find it less convenient to set out refuse and may do so less frequently.

The average household set out weight for Tuakau wheeled bins was higher than the urban and rural Waikato District refuse bags but lower than the Franklin rural bags.Tuakau households set out the highest weight of sanitary paper, which may be associated with the demographics of the

[8] Section taken from: Service Review: Analysis of Current Services (April 2014); Eunomia

different areas. A higher proportion of young children usually results in greater quantities of disposable nappies, which are classified as sanitary paper.

An estimate of the composition of council kerbside refuse from 2013 can be seen in the figure below:

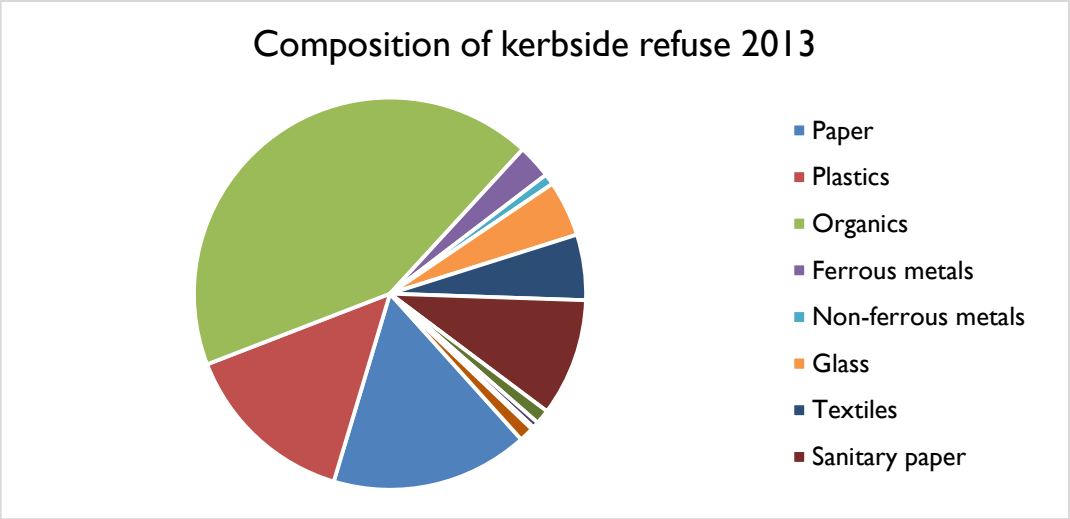


Figure 2 Composition of kerbside refuse 2013

3.1.3 Transfer Stations and other recovery facilities

Transfer stations and other material recovery facilities accept a range of materials such as waste from:

- Construction & demolition (C&D)
- Industrial/commercial/institutional
- Landscaping & earthworks
- Residential
- Special waste e.g. hazardous and medical wastes
- Kerbside waste collections

While it is known that a number of private facilities provide C&D, commercial, landscaping or earthworks disposal – some of these companies did not voluntarily provide data around their tonnages. Therefore, it is not possible to know what proportion of each waste material is being handled by facilities in the District.

3.1.4 Wastewater sludge / biosolids

The sewage sludge in the Waikato district accumulates in ponds, and is de-sludged every 15-20 years. WDC records indicate that approximately 60 tonnes of wastewater screenings are sent to landfill annually.

3.1.5 Road sweepings

Approximately 437 tonnes of road sweepings are collected annually. This material is taken to various disposal facilities including the Waste Management facility in Hamilton, the Envirowaste landfill at Hampton Downs and the Hamilton Organic Centre for composting.

3.1.6 Inorganic collection

Approximately 1000 tonnes of material is collected annually from an inorganic collection provided to parts of the District. All of this material goes to landfill. In 2017 the inorganics collection cost $285,000 (approximately $285 per tonne).

3.1.7 Hazardous material

No data is available to identify the volumes of hazardous waste disposed of from Waikato District. Types of hazardous waste collected for disposal include E-waste, medical waste, used oil and oil filters from automotive repairers, commercial hazardous materials disposed of via the private sector and hazardous materials collected by NZTA contractors as part of roadside maintenance.

3.1.8 Farm waste disposed of to land

Waikato District Council has a responsibility to consider all waste generated in the district when planning waste infrastructure and services. This includes farm waste.

The farm waste stream includes materials such as scrap metal, treated timber, fence posts, plastic wraps and ties, crop netting, glass, batteries, and construction and demolition wastes.

The 2014 Rural Waste Surveys Data Analysis: Waikato & Bay of Plenty indicated that over two-thirds of rural waste is organic materials, which the survey found to include animal carcasses and crop residues. The survey identified the three most commonplace rural waste management practices as burning, burial, or bulk storage for an indefinite time.

A comparison of the Waikato/BoP survey with a similar survey carried out in Canterbury indicates data for average tonnages of rural waste is substantially higher in the Waikato / BoP.

Waste Stream	Waikato / BoP survey (tonnes)	Canterbury survey (tonnes)
Average rural waste	31.9	9.3
Average organic/animal waste	3.9	14.0
Average household domestic waste	1.3	0.5

Table 8 Waste generation per farm surveyed in Waikato/BoP and Canterbury[9]

As different farm types create different volumes of waste, NZ Statistics data on farm types specific to the Waikato District, along with average waste volumes for farm type from the national *Rural Waste Risk Assessment and Waste Prioritisation* report have been used as the basis for identifying the volume of farm waste (Table 9 below).

[9] GHD Rural waste surveys data analysis Waikato & Bay of Plenty July 2014

	Dairy		Livestock		Arable		Horticulture	
Number of Farms	747		1326		42		204	
	Average (t)	Total (t)	Average (t)	Total (t)	Average (t)	Total (t)	Average (t)	Total (t)
Inorganic	1.71	1,277	5.96	7,903	1.80	76	3.32	677
Organic	1.17	874	17.08	22,648	0.80	34	17.82	3,635
Hazardous	6.74	5,035	49.59	65,756	3.42	144	21.92	4,472
Sub-Total (t/farm/annum)	**10**	**7,186**	**73**	**96,307**	**6**	**253**	**43**	**8,784**
Total (t/Waikato District)	**112,662**							

Table 9 Farm waste tonnages for the Waikato District

The 2,319 farms in the District (excluding forestry) are estimated to generated approximately 112,662 tonnes of waste per annum. However, this total includes material such as carcasses which would not normally be considered as solid waste from the council's perspective.

This is an average of 48.5 tonne of waste per farm across the District. However, some farming types create larger volumes of waste than others. For example, livestock farming creates an average of 73 tonnes per farm, while arable farming creates an average of 6 tonne per farm.

Within the livestock category, there is also considerable variation, with piggeries and poultry farming creating considerably more waste than sheep, beef or deer farming (Table 10 below), while horticulture creates high volumes of hazardous waste.

	Inorganic	Organic	Hazardous
Beef cattle (incl. young stock)	0.08	0.2	1.03
Horticulture	**3.32**	**17.82**	**21.92**
Piggery	1.14	3.16	**13.07**
Poultry	**4.03**	**11.19**	**18.8**
Sheep	0.06	0.2	0.87
Arable	1.8	0.8	3.42

Table 10 Volumes of waste by waste and farm type

It is not currently known how farm waste is being disposed of in the Waikato district. The *Rural Waste Surveys Data Analysis: Waikato & Bay of Plenty* indicates that 80% of farms use a farm dump. Farmers typically burn off a lot of materials in the dump to reduce the volume within the dump and to extend the lifespan of the dump.

In addition, 91% of farms in the Waikato region admitted to having a burn pile, or some form of brazier for waste disposal. All farmers surveyed that used burning had an annual burn off, and at

least 50% had two or more burn piles a year (usually coinciding with a change in farming season). All of the farms surveyed also used bulk storage practices.

3.1.9 Large scale waste generators

The Waikato District has three known large-scale waste generators:

- Affco (Horotui)
- Brinks Chickens (Tuakau)
- Goodman Fielder Quality Bakers (Huntly)

Waste material for these is includes in the waste volumes for service providers and facilities. Specific details on the waste generated by these companies is unknown. However, based on available information, as much as 65% of Waikato Districts waste to landfill may be related to industrial, commercial and institutional (ICI) sources - including these three large scale waste generators.

3.1.10 Regional waste stocktake

An estimate of the total volume of waste to landfill in the Waikato region is provided in the 2013 report, Bay of Plenty and Waikato Regions *Waste Stocktake; Report for Bay of Plenty and Waikato Regional Councils* summarised in the table below.

Waste Stream	**Bay of Plenty**	**Waikato**	**Total**	**% of Overall waste stream**
Kerbside refuse	48,192	78,929	127,121 t/annum	35.9%
C&D waste	8,644	16,629	40,578 t/annum	11.5%
ICI waste	26,997	51,937	126,735 t/annum	35.8%
Landscaping waste	4,680	9,004	21,971 t/annum	6.2%
Residential waste	6,657	12,806	31,248 t/annum	8.8%
Subtotal – General Waste	75,427	145,105	220,532 t/annum	62.3%
Special Waste	3,574	2,853	6,427	1.8%
Total	**127,193**	**226,887**	**354,080 t/annum**	**100%**
Other Land Disposal Sites – Bay of Plenty and Waikato Regions Combined				
Other diverted materials	T/annum		T/capita/annum	
All waste to other land disposal sites	787,000		1.13 tonnes	
Waste other than natural, excavated material	411,300		0.59 tonnes	

Table 11 Tonnage of waste to landfill from Waikato and Bay of Plenty[10]

[10] Source: Bay of Plenty and Waikato Regions Waste Stocktake; Report for Bay of Plenty and Waikato Regional Councils; April 2013

Bay of Plenty and Waikato Regions Waste 2013 Stocktake estimates a total of 354,080 tonnes of waste are disposed of to landfill annually from Bay of Plenty and Waikato Regions. As the tonnage data has been taken from a number of different sources, no specific year has been attached to the figure.

Of the total amount disposed of to landfill, just over one third (35.9%) was kerbside refuse, and a further third was Industrial, Commercial & Institutional (ICI). Construction & Demolition (C&D) waste made up nearly 12% while less than 2% was special waste. The figure for special waste, which primarily includes biosolids, is the least reliable, as the smallest dataset was used for its calculation. The stocktake report also estimates that 787,000 tonnes of material are disposed of at other land disposal sites annually. This is more than twice as much as is disposed of to landfills. Slightly more than half of this waste is other than natural, virgin, excavated materials.

3.2 How much is being recycled or diverted from landfill

Of the total waste collected in the District[11], an estimated 56% is reused, recycled, composted or otherwise diverted. Total weights of material recycled or otherwise diverted from landfill in 2016 are shown in Table 12 below:

Waste diverted from landfill	Tonnes	% of total waste collected	Tonnes/capita/annum
Kerbside recycling	3,631	5%	0.05
Other recycling or diversion	65,669	92%	0.94
Composted / vermicomposted	1,700	2%	0.02
Total	71,000	100%	1.02

Table 12 Recycled and diverted material – summary[12]

Of the waste diverted from landfill, 5% was from council kerbside services and 92% from private facilities and services. Only 2% was composted or vermicomposted in either council or private facilities[12].

3.2.1 Council kerbside recycling collections

Recycling tonnages vary across the collection areas due to population differences. Overall approximately 3,631 tonnes of recycling were collected in 2016/2017, with a noticeable upward trend in volumes across the district.

[11] Excluding farm waste
[12] Based on information provided by WDC staff and private operators

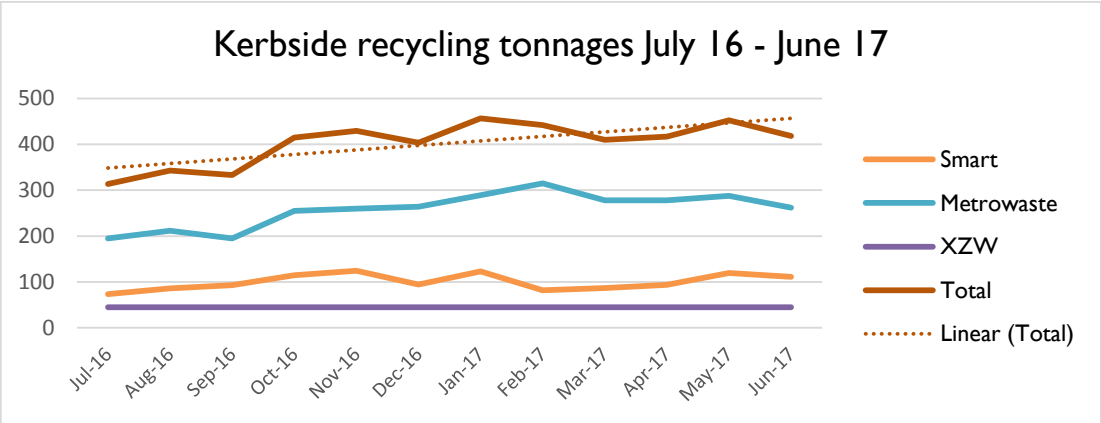


Figure 3 Tonnages of recycling collected from council collections

Note: the Xtreme Zero Waste tonnages are averaged out over 12 months and therefore do not reflect seasonal changes. In addition, the food waste collection trial is not reflected in the figure above. The WDC recycling service accepts plastics 1 and 2 (1-7 in Raglan), glass, steel and aluminium cans; and crates paper and cardboard. This service collected 3,631 tonnes of recyclables in 2016, an average of 52kg per capita per annum.

3.2.2 Council kerbside food waste collection

While a foodwaste service is now in place in Raglan, it did not commence until August 2017. As the data provided in this Waste Assessment is for the period July 2016 – June 2017, food waste tonnages diverted from landfill are not included.

3.2.3 Private recycling services and facilities

Information from private waste and recycling operators is provided on a voluntary basis. As a result, not all operators provided detailed information of recycling volumes, and there were differences in methodology for how volumes were calculated.

Based on information from council and private operators, approximately 67,369 tonnes of waste were diverted from landfill by private services and non-council services. This is 94% of waste diverted from landfill in the District.

It is unclear what materials are being diverted, although it can be identified that organic material makes up only 2-3% of diverted materials.

PART 4 - WASTE INFRASTRUCTURE

The two regional landfills which receive the bulk of waste generated within the Waikato District are the North Waikato Regional Landfill (located within the District) and Tirohia landfills. Both landfills also accept waste from other parts of the Waikato and Auckland Regions.

There are three transfer stations located in the District, at Raglan, Huntly and Te Kauwhata. A number of council provided drop off points are also available. Two large transfer stations and an organics processing centre are also available in nearby Hamilton City.

WDC provides two drop-off centres for recycling and in outlying areas. These are typically a concrete pad and a shipping container or plastic drums to receive material. These are located at Te Mata, and Te Uku.

4.1 Key issues related to waste infrastructure

- Insufficient resource recovery infrastructure in the District to meet future demand
- Inconsistent infrastructure provision for resource recovery - while the Raglan area is well serviced for resource recovery, other areas are lacking access to resource recovery, reuse and repair facilities.

4.2 Waste to land

4.2.1 Landfills

There does not appear to be a need for a council owned landfill to be developed within the District. While some longer-term planning may be required to ensure the Waikato region as a whole has suitable landfill capacity in the 20-50-year term, this is a discussion more suitable as a private venture or a joint council initiative.

Note: Data and information on the volume and composition of waste being received by landfills outside of the area is provided at the discretion of the landfill owner.

The table below lists the landfills that may receive municipal waste from the Waikato District.

Name & Owner/Operator	**Accepts**	**Location**	**Capacity and Consent**
North Waikato Regional Landfill **(EnviroNZ)**	Non-hazardous residential, commercial and industrial solid waste, including special wastes. Sludges with less than 20% solid by weight are prohibited.	Hampton Downs, Waikato District	Consented to 2030
Tirohia Landfill **(Waste Management)**	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

Table 13 Class 1 landfills accessible from Waikato District

(a) North Waikato Regional Landfill (Hampton Downs)

There is one privately owned landfill disposal facility within the Waikato district – North Waikato Regional Landfill (Hampton Downs) owned and operated by EnviroNZ. This landfill receives a high proportion of refuse generated within the district as well as from Auckland and the rest of the Waikato. However, the bulk of material received at Hampton Downs is from outside the district with less than 0.4% of waste coming from within the district.

The Hampton Downs landfill also includes facilities for composting and worm farming - dealing with food waste and green waste from Auckland and Waikato and Tauranga. The food waste and green waste tonnages are growing and is estimated to be at 10k tonnes by mid-2018 due to additional contracts. Bulk scrap steel is also removed from the refuse stream with approximately 20t recycled per annum.

Good monitoring for compliance of resource consents is required for this facility to ensure no material or leachate leaks into the Waikato River; or causes other environmental harm.

(b) Tirohia landfill

Tirohia landfill is located within the Hauraki District Council area, and is owned and operated by Waste Management Ltd.

4.2.2 Closed Landfills

The closed landfills for which the council has ongoing management and monitoring responsibility are located in Huntly, Ngaruawahia, Raglan, Te Kauwhata and Horotiu. The 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.

Closed Landfill	Status	Consent Number	Expiry
Parker Lane, Tuakau	Consented	950575 – Leachate 950576 – Stormwater 950577 – Air	30 Jun 2035
Kowhai Street, Tuakau	Unconsented	-	-
Elbow Road, Tuakau	Consented	950578 – Leachate 950579 – Stormwater 950580 – Air	31 Jan 2038
Les Batkin Reserve, Tuakau	Unconsented.	-	-
Te Kauwhata	Consented	118817 – Land, water, and air	20 Aug 2029
Huntly	Consented	950586 – Leachate 950587 – Stormwater 950588 – Air	07 Jul 2035
Ngaruawahia	Consent issued but under appeal.	135911.01.01- Landfill gas to Air 135911.02.01 - Leachate	To be confirmed once appeal decided (approx. 2052)
Raglan	Consented	950582 – Leachate 950583 – Stormwater 950584 – Air	31 Dec 2034

Table 14 Summary of closed landfills in the Waikato District

There are also two closed landfills in the district under private ownership – a Department of Corrections facility at Waikeria, and a timber waste landfill in Pokeno.

4.2.3 Cleanfills

Cleanfill sites accepting less than 2500m3 per annum are permitted under the Waikato Regional Council rules and are not required to provide information to the Council on volumes or composition of accepted material. Monitoring of cleanfills is a responsibility of the Waikato Regional Council.

Risks associated with cleanfills are disposal of unsuitable material (i.e. material not defined as appropriate for cleanfill), settlement, slope failure, and erosion.

Typically, cleanfills are not strongly regulated, although the MfE is investigating the need for further regulation of cleanfills, and in general there is a need for more stringent conditions and monitoring of registered cleanfills as there is some evidence that some cleanfills may be accepting municipal waste.

4.3 Reuse, recycling, recovery and disposal facilities

Transfer Stations and drop off points provide a local option for residents and businesses to drop off their refuse and recycling. As most of these facilities are private providers, provision of information on their activities (including tonnages diverted from landfill) is at the discretion of the business owner. Therefore, council is unable to identify the volume of waste managed by private providers.

4.3.1 Xtreme Zero Waste (XZW) - Raglan

Located at 186 Te Hutewai Rd, Raglan, Xtreme Zero Waste is a community enterprise using business as a tool to meet the needs of their community.

They accept a wide range of materials and aim to divert as much material from landfill as possible. They currently divert approx. 75% of material from landfill.

XZW accepts batteries (nickel cadmium (NiCd), nickel-metal hydride (NiMH), lithium ion (Li-ion) and other batteries which contain hazardous metals), car batteries, clean fill, EWaste, fluorescent tubes, farm chemicals, fridges, freezers, washing machines, furniture, paint, silage wrap, greenwaste, metal, rinsed empty farm containers, spray/aerosol cans, waste oil and wood. They do not accept asbestos.

XZW is contracted by Waikato District Council to operate the Raglan Resource Recovery Centre, and provide a weekly kerbside collection for refuse and recycling, empty litter bins and provide Zero Waste Education. They are also trailing a kerbside foodwaste service for the Raglan area.

XZW also provides a reuse shop, metal yard and wood yard, E-waste drop-off, business recycling, consultancy, mentoring, waste audits and site tours.

4.3.2 Huntly refuse transfer station

The Metrowaste owned refuse transfer station at 93 McVie Road, Huntly accepts both commercial and residential refuse and recyclables including car batteries, clean fill, E -waste, fridges, freezers, washing machines, greenwaste, metal, rinsed empty farm containers, spray/aerosol cans, tyres, waste oil and wood. Charges apply to most waste which comes across the weigh bridge.

All refuse from the facility is disposed of at the North Waikato Regional Landfill at Hampton Downs. The facility does not accept asbestos, household batteries (nickel cadmium (NiCd),

nickel-metal hydride (NiMH), lithium ion (Li-ion) and other batteries which contain hazardous metals), fluorescent tubes, farm chemicals, furniture, paint or silage wrap.

4.3.3 Te Kauwhata refuse transfer station

The Metrowaste owned refuse transfer station at Rata Street, Te Kauwhata car batteries, clean fill, fridges, freezers, washing machines, greenwaste, metal, rinsed empty farm containers, spray/aerosol cans, waste oil and wood. Charges apply to most waste which comes across the weigh bridge. All refuse from the facility is disposed of at the North Waikato Regional Landfill at Hampton Downs.

The facility does not accept asbestos, household batteries (nickel cadmium (NiCd), nickel-metal hydride (NiMH), lithium ion (Li-ion) and other batteries which contain hazardous metals), fluorescent tubes, farm chemicals, furniture, paint or silage wrap.

4.3.4 Other nearby recovery and refuse facilities

The following facilities receive material from both the Auckland and Waikato regions, but do not record information on volumes sourced from each council area. Therefore, it is not possible to identify how much material from the Waikato District is disposed of to each facility.

(a) Pukekohe Refuse and Recycling Transfer Station

The Pukekohe Refuse Transfer Station owned by Envirowaste is located just over the boundary with the Auckland region at 10 Austen Place, Pukekohe. While the facility accepts both commercial and residential refuse material, there are no free recycling drop off services. All waste into the facility is charged at the weighbridge and some recyclables are separated out of the waste stream (such as metals). They do not provide services for separate paper or plastics recycling.

(b) Waiuku Zero Waste

Located in the Auckland region, the facility at 5 Hosking Pl, Waiuku Zero Waste Ltd is a charitable company formed by two Charitable Trusts for the purpose of running the Waiuku Community Recycling Centre. The facility accepts most types of waste, including general rubbish, green waste, building materials, recyclable materials.

This centre is run by locals for locals and has a focus on re-using, recycling and upcycling as many items as possible from what is brought to the site. These goods are then sold at the on-site shop.

(c) Lincoln Street TS

The Lincoln St TS (also known as the Hamilton Recovery Park) is situated at 60 Lincoln Street, Frankton. The facility is owned by Hamilton City Council and leased to Waste Management (WM). WM contracts site management to Essential Recycling.

Recycling staff recover significant quantities of materials from the transfer pit. These materials are stored temporarily adjacent to the transfer pit before being aggregated and removed. Re-usable items are transferred to the re-use shop for sale.

(d) Sunshine Ave TS

Sunshine Avenue TS is located at 99 Sunshine Avenue, Te Rapa. The facility is owned and operated by EnviroWaste Services Ltd.

The site comprises a recycling drop-off area, which is available for use at no charge, and a transfer shed, which includes separate drop-off areas for residual refuse and green waste. All vehicles carrying waste must stop at the weighbridge kiosk, where the kiosk operator assesses the load.

Bags and small loads are not weighed, but are charged at a flat rate. Vehicles with trailers and trucks are weighed over the weighbridge entering and leaving the facility and are charged by weight. Vehicles carrying only recyclable materials do not stop at the weighbridge kiosk, but proceed directly to the recycling drop-off area.

Sunshine Ave TS receives primarily commercial waste delivered by commercial waste operators. A relatively small number of residents and small businesses use the facility.

4.3.5 Construction & demolition waste facilities

A range of companies provide residential and commercial construction, deconstruction, dismantling and demolition waste and recycling services in or close to the Waikato District. These include:

- Nikau Group (Nationwide)
- The Green Demolition Co Ltd (Pukekohe)
- Thames Demolition (Kopu)
- Jacob Demolition & Building Supplies (Drury)
- Demolition Traders (Hamilton)

4.3.6 Organic material processing facilities

As well as many of the transfer stations and recycling centres accepting green waste and other putrescible waste, the following facilities specifically process organic material that would otherwise be sent to landfill:

- Envirofert (receives green waste from the Auckland, Waikato and Bay of Plenty regions)
- Lowe Corporation (processing of hides, skins and pelts)
- Hamilton Organic Centre (receives green waste from the Hamilton area).

4.3.7 Hazardous Waste facilities

Hazardous waste 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
- Fuel, solvents and oils, particularly those containing volatile organic compounds
- Hydrocarbon-containing wastes, such as inks, glues and greases
- Contaminated soils
- Chemical wastes, such as pesticides and agricultural chemicals
- Household hazardous waste such as garden or kitchen chemicals, bleaches and glues
- 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 landfill 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 small proportion of hazardous wastes are ‘intractable’, and require exporting for treatment. These include polychlorinated biphenyls, pesticides, and persistent organic pollutants.

4.3.8 Other destination facilities for recyclables

Recycling processing facilities which may receive material from the Waikato District include[13]:

- O-I NZ Ltd (paper and cardboard)
- SIMS Pacific (metals, plastics, e-waste)
- Oji Fibre Solutions (fibre board)
- Visy MRF (plastic, paper, cardboard, aluminium, steel cans)
- CHH Fullcircle (paper and cardboard)
- South Waikato Achievement Trust (plastic, paper, cardboard, aluminium, steel cans)
- Envirowaste MRF – Taupo (– plastic, paper, cardboard, aluminium, steel cans)
- Smart Environmental MRF – Kopu (plastic, paper, cardboard, aluminium, steel cans)
- International – China / Indonesia / Jakarta (various)

The term 'recyclables processing facilities' refers to material recovery facilities (MRFs). At a MRF, dry recyclables/commodities are sorted and bulked for transport to recycling facilities outside the region for processing.

4.4 Assessment of infrastructure and council role

In general, the collection and processing of dry recyclables/commodities from commercial premises is a mature market, with limited opportunity for expansion. The Waikato region has a particularly wide range of recovered materials processing facilities, particularly for scrap metal, organic wastes, including wood wastes, and to a lesser extent, C&D materials such as concrete.

While there are limited facilities for recycling or reprocessing in Waikato District, access to such facilities currently meet the District's needs. There may be some need to develop repair, reuse and recycling facilities to meet future demand.

Due to its proximity to the main centres of Auckland and Hamilton; and main transport routes; the Waikato District is generally well placed for access to landfills, transfer stations and recyclable processing facilities.

The main issues for infrastructure are around access to reuse and recycling facilities, for example:

- In the northern area, residents are closer to the Pukekohe Transfer Station (located within Auckland Council's boundary but only 10km away) than the Te Kauwhata Transfer Station (33 km away). The Pukekohe station provides minimal recycling services. For example, it does not collect paper or plastics for recycling. This limits the ability of northern residents to engage in waste minimisation activities beyond council provided services.
- While the Xtreme Zero Waste facility in Raglan provides a wide range of reuse, recovery and recycling options, other parts of the District have considerably less access to such services, potentially leading to landfill disposal of materials that could be recovered.

Population growth, including migration from areas where waste services are more available, may mean community demand for reuse, recovery and diversion facilities will increase.

[13] This list is not exhaustive, it is extracted from information provided by the waste operators who provided Waikato District Council with data for this waste assessment

PART 5 - WASTE SERVICES

5.1 Key issues related to waste services in Waikato District

This section of the waste assessment has identified the following as being the key issues related to waste services in the Waikato District Council area:

- Increasing quantity of waste to landfill
- The need to ensure effective and affordable provision of waste services
- Poor data quality and management
- Potential for greater joint working in Council service delivery and regional and sub-regional collaboration
- Potential for greater community partnership, engagement and understanding of waste issues

In addition to the above issues, there is potential for Waikato District Council internal roles, responsibilities and systems to be streamlined to improve:

- Data capture and management across all departments within council
- Efficiency and cost effectiveness
- Councils ability to meet the goals and objective of the 2018 WMMP

5.2 Council-provided waste services

WDC provides a range of waste services including:

- Kerbside refuse and recycling collection services
- A food waste collection service in Raglan
- Recycling drop off points and monthly recycling for the Glen Murray area
- Inorganic collections provided throughout the District excluding the Raglan area where a Resource Recovery centre is available central and south area, and properties that used to be part of Franklin District Council
- Refuse and recycling services are only provided to commercial properties in Tuakau. This is due to the area previously being within the Franklin District Council area, with services continued after the amalgamation of the councils of Auckland into Auckland Council. This service is the same as residential services.

Council services are provided in differently throughout the region. The different service areas are separated into four areas of service – Tuakau, North Waikato, Central and Raglan.

5.2.1 Council kerbside refuse collection service

Council refuse services are provided for residential properties, excluding very rural areas. Approximately check households are eligible for a council service. Commercial properties are not included in council service provision except in Tuakau township.

Council provided refuse services			
	Raglan	**North & Central**	**Tuakau township**
Receptacle	Either a 60L or a 25L pre-paid bag	Any bag up to 60 litres and up to 20Kg	120L wheelie bin
Frequency	Weekly in all 3 areas in the district		
Funded	User-pays pre-paid bags 60L and 25L bag options	One pre-paid sticker per bag (RRP $1.50 per sticker)	Pay-per-lift using pre-paid tag (RRP $3.00 per tag)
Service provider	Xtreme Zero Waste (Raglan)	MetroWaste Waikato (central and southern most areas)	Northern Area (Smart Environmental)

Table 15 Council provided refuse services

5.2.2 Kerbside refuse market share

Waikato District Council operates part user-pays services for refuse. Residents purchase a pre-paid bag, sticker or tag to ensure their refuse is collected. User pays services are shown to encourage waste minimisation, as residents have to pay for the refuse while the recycling is rate-funded and therefore appears "free." Ensuring recyclables are removed from the refuse stream reduces the cost of refuse disposal.

Manipulation of the refuse price will theoretically provide greater incentive to divert recyclables from refuse and into recycling services. However, there are several disadvantages observed with a user-pays scheme including:

- If the cost of refuse is too low, it may have insufficient diversionary impact
- If the cost is too high it may encourage illegal dumping
- Reducing the size of the MGB bin provided may have similar results (if MGB's are provided) without the risk of loss of market share
- If private refuse collectors operate in the area, a competitive market is created. Council services may become economically unviable as councils are not structured to operate in a competitive market.
- Councils ability to encourage diversion of recyclables and compostable material from the refuse stream is reduced with a high uptake of private services.

In order to meet their obligations under legislation councils have few options. These include:

- Ceasing provision of refuse services and allowing the private sector to provide all services. This runs the risk that less profitable areas do not have a service available to them, services are excessively priced or are inconsistently priced. Council subsidisation may be required.
- Introduce a licensing system to ensure private operators meet standards such as consistent service provision, full service provision across the district, provision of data, provision of recycling services as well as refuse services etc
- Make all services rates funded – ensuring sufficient budget to meet legislative requirements.

All three options reduce the ability for council to disincentive refuse disposal via manipulation of refuse disposal price - an option which can only be used if council maintains a high market share while competing in an open user pays market.

Tauranga City Council has recently made the decision to return to rates-funded kerbside collections for Tauranga. They plan to introduce waste, recycling and compostable collections for all households by the 2020/21 financial year to enable and encourage residents to recycle more and send less waste to landfill.

This decision was to enable Tauranga City Council to have greater influence over the range of materials that could be recycled, which was not possible with privately managed services.

It is recommended that Waikato District Council re-evaluate the funding mechanism for the provision of waste services across the District, in order to identify if the current model is financially sustainable, allows maximum resource recovery and diversion from refuse, allows council to obtain data on waste flows and provides best value for ratepayers.

5.2.3 Council kerbside recycling collection service

Council recycling services are provided for residential properties, excluding very isolated rural areas. Approximately 21,700 households are eligible for a council service. Commercial properties are not included in council service provision, other than in Tuakau. In addition, a - monthly recycling drop off service is available currently available to residents in the rural areas in Northern part of District and 2 in Rural Raglan.

Council provided recycling services			
	Raglan	**Central and South**	**Tuakau / Northern Area**
Receptacle	Two council provided 55L crates for glass, plastic, tin and aluminium per household. Paper and cardboard placed inside a box, plastic bag or tied with string and placed next to the recycling crate.		
Frequency	Weekly in all 3 areas in the district		
Funded	Rates funded		
Accepted material	Plastics #1-7 Paper. Glass. Aluminium cans and foil. Steel cans	Plastics #1, 2, and 5. Paper. Glass. Aluminium cans and foil. Steel cans	Plastics #1, 2, and 5. Paper. Glass. Aluminium cans and foil. Steel cans
Service provider	Xtreme Zero Waste (Raglan)	MetroWaste Waikato (in most areas)	Smart Environmental

Table 16 Council provided recycling services

5.2.4 Council drop off points and monthly recycling

As kerbside recycling is unavailable in some parts of the District, Council provides drop off points and monthly recycling in rural ex-Franklin District Council and rural Raglan areas:

(a) Monthly recycling collection

- Glen Murray - Glen Murray Hall carpark. First Saturday of each month from 8.30am-12.30pm.

(b) Recycling points

- Te Uku- Located at the back of the Te Uku Store- 3440 SH23
  The Te Uku drop off centre is a modified sea freight container which collects separated recyclables and has a place to drop off pre-paid bags. Some difficulties have been identified related to large seasonal volumes, accessibility to the main road, the size of the catchment area and poor responsibility for aesthetics, illegal dumping. The Te Uku community has increased and may now be sufficient to warrant a kerbside collection rather than the drop off point. The future feasibility of a kerbside service could be evaluated for potential when District-wide service reviews occur.
- Te Mata- Located at the Te Mata School - 778 Te Mata Road.

5.2.5 Food waste collections

Xtreme Zero Waste Raglan operate a kerbside food waste service to approximately 2,000 households in the Raglan

The service commenced in August 2017 and is currently funded by council until 2108/19. After this time the community will be consulted regarding the introduction of a targeted rate to fund the service on a continuing basis from 2019/20.

Information on the performance of the service is limited as it has not yet been in operation for a full year. However, it had an initial 30% put-out rate for bins, and collected 860kg of food waste in its first week of operation.

Figure 4 Raglan food waste HCU

Processing is via a Horizontal Composting Unit (HCU) located at Xtreme Zero Waste in Raglan. The hot-composting process takes 12 weeks and has been designed to handle the average of five cubic meters of food waste anticipated to be collected from the town each week.

5.2.6 Inorganic Collections

An annual inorganic kerbside refuse collection is currently provided to the North, Central and southern areas.

Approximately 1,000 tonnes of material are collected annually from an inorganic collection provided to parts of the District. All of this material goes to landfill. In 2017 the inorganics collection cost $285,000 (approximately $285 per tonne).

The inorganic collection is an inefficient and expensive way to service households for bulky waste material. Resources are not recovered from the waste and it is not in alignment with the Waste Minimisation Act 2008, the WDC Waste Management and Minimisation Plan, or the service change consulted on in 2015-16.

It is recommended that council consider changing this service to an alternative service which allows for resource recovery to occur such an on-property collection or additional resource

recovery centres. This may be facilitated by a period of phasing out the existing service while introducing recovery services.

However, on-property collections with a phone in service can be costly due to the need for multiple trucks (to collect refuse vs recoverable material); or a sorting facility to pull out recoverable material. Costs involved in customer service to manage the phone in booking aspect can also be prohibitive. Therefore, a sound business case would need to be developed showing how the service could be integrated with other services and facilities in order to meet the goals and objectives of the 2018 WMMP.

Additional resource recovery centres, while expensive to establish, reduce the need for an inorganic collection – and can utilise short-distance pick up services year-round rather than an event-based service. This option has potential to cost-effectively maximise resource recovery and minimise waste to landfill.

There is no substantive evidence that ceasing the inorganic collection will lead to increased illegal dumping, particularly if an alternative is available such as a resource recovery centre.

5.2.7 Illegal dumping, abandoned vehicles and litter control and enforcement

Public place refuse & recycling bin emptying and litter collection services are provided under contract. The contract also covers road sweepings.

(a) Litter servicing

International evidence indicates people look for familiar branding when seeing a litterbin. If they are out of their home region, they may not recognise a litter bin in different branding. Therefore, regional or sub-regional standardisation of litter bins, signs and branding may assist in reinforcing litter messaging and could be investigated further.

(b) Illegal dumping

A total of 887 illegal dumping incidents were recorded in the 2016-2017 year. However, tonnage and composition information are not currently recorded by illegal dumping contractors.

Therefore, it is unclear the extent to which illegal dumping is a problem for Waikato District. Improvements in internal data capture systems and the introduction of the Waste Data Framework will improve date quality in this area, and allow a better assessment of illegal dumping activities in the District.

(c) Abandoned vehicles

Abandoned vehicles are collected on behalf of council by various contractors:

- Wills Automotive – Ngaruawahia & surrounds
- Pedens Towing & Salvage – Huntly to Meremere
- Top Garage – Raglan
- Brian Roberts Towing – Meremere to Bombay

5.2.8 Behaviour change programmes

Waste education partnerships with community groups may be beneficial, particularly where they have networks, contacts and low-cost structures for achieving maximum community involvement for waste education and promotion.

WDC currently supports four behaviour change programmes:

- Enviroschools (24 schools) – this is primarily an environmental education program rather than a waste minimisation programme.
- Zero waste education – provided to schools across the district
- Para kore - a marae based zero waste education programme
- Paper4trees – an incentive programme to encourage schools to recycle paper

Current behaviour change programmes have not been recently reviewed for effectiveness, and may not fully meet waste minimisation objectives. A full review of behaviour change programmes is recommended after the adoption of the 2018 WMMP to ensure council support for behaviour change is most effectively contributing towards the goals and objectives of the 2018 WMMP.

In addition, education and minimisation programs are an area where joint working with other councils has the potential to deliver significant benefits. Opportunities include:

- Regional or sub regional education programs for target groups such as farmers
- Regional messaging / branding for litter to account for cross District travel and reinforce litter messages
- Working towards consistent enforcement of litter and illegal dumping

5.2.9 Event waste

Waste minimisation at events is becoming increasingly popular in New Zealand, and the practices involved are increasingly mature and effective. However, events carried out in the Waikato District are not commonly managed in a manner to avoid or reduce waste. This is seen as an area where improvement could be made with some encouragement by council. For example, by promoting companies such as Beyond the Bin event waste management company which operates nationwide, including in the Waikato District.

Waste created at events can be a considerable, and avoidable, volume of waste. Due to growing awareness, around environmental sustainability affects poorly managed waste can leave a bad impression on – particularly international – visitors.

There are a number of factors influencing the amount, and kind, of waste generated at an event. These can include:

- Length of the event (one-day events produce far less waste per person per day than three-day events factoring in camping)
- Community attracted to an event (events that attract people who consume large quantities of alcohol tend produce more waste and more litter)
- Regulation of materials onsite - some events specify what suppliers can bring onsite – e.g. no glass, or compulsory use of biodegradable plates and cutlery
- Deliberate adoption of a waste minimisation strategy during planning and running the event – waste minimisation strategies can substantially reduce waste to landfill if implemented correctly

One company, Beyond the Bin (XZW), provides private event waste management services and operates in the Waikato District.

Waikato District Council could consider developing Event Waste Guidelines to assist event managers in planning for waste generated at events. Guidelines should include details of the consent process for events held in the Waikato District (such as H&S Plan, Traffic Management Plan and Event Waste Minimisation Plan). Completion of these Guidelines, potentially in alignment sub-regionally, is recommended.

5.2.10 Waste Grants

WDC provides rates funded grants through four main grant schemes:

- **Discretionary Grants Fund** - This funding is available for projects happening in Huntly, Taupiri, Raglan, Tuakau or Ngaruawahia and the rural wards of the Waikato district.
- **Conservation Fund** - The Waikato District Council provides the Conservation Fund to assist private land owners undertaking conservation projects on their properties that are within the Waikato district boundaries.
- **Community Wellbeing Trust Fund** - This funding is available for capital projects throughout the Waikato district. The application must also demonstrate broad community support for the project.
- **Heritage Assistance Fund** - The Waikato District Council provides the Heritage Assistance Fund to assist with the conservation, restoration and protection of listed heritage items only, that are within the Waikato district boundaries and are not council-owned.

There is no council funded grant scheme which specifically targets waste minimisation activities. This is reflected in the low level of community engagement in waste minimisation activities across the District.

A specific Waste Minimisation Fund may encourage greater interest in establishing waste reduction, reuse, recovery or recycling initiatives by community groups.

5.3 Funding for council-provided services

All council-provided services are funded out of rates revenue or Waste Levy funding provided by the Ministry for the Environment. The Waste Levy is accumulated from a $10 per tonne levy (excluding GST) on all waste sent to landfill. The levy was introduced under the Waste Minimisation Act 2008. Disposal facility operators must pay the levy based on the weight of material disposed of at their facility. However, they may pass this cost on to the waste producer such as households and businesses.

Half of the levy money goes to territorial authorities (city and district councils) to spend on promoting or achieving the waste minimisation activities set out in their waste management and minimisation plans (WMMPs).

The remaining levy money (minus administration costs) is put into the Waste Minimisation Fund. The fund is for waste minimisation activities in New Zealand.

WDC received $255,184.01 levy funding in 2016/17.

Territorial authorities must spend the levy to promote or achieve waste minimisation. Waste management and minimisation plans (WMMP) prepared by each territorial authority set out how the levy will be used.

5.4 Non-Council Services

There are a moderate number of non-Council waste and recycling service providers operating in the District. Many of the private companies operate out of Auckland or Hamilton bases, and simply service the District.

5.4.1 Private refuse and recycling services

Commercial refuse and recycling is collected by a relatively small number of companies who offer a range of services including front end load (FEL) bins, skip bins, hook bins, compactors, and

wheeled bins. They may accept refuse, recycling and/or green waste.
Private operators include:

Commercial waste service providers	
• Metrowaste • Envirowaste • Waste Management • Xtreme Zero Waste • Nikau Contractors • Smart Environmental • Lowe Corporation • Franklin Refuse Removal • Daisy Garden Bags	• Fullcircle • Envirofert • Allens United (liquid waste) • Flexi Bin • Salters Cartage • J J Richards • Waikato Garden Bins • Demolition Traders • Greenfingers

Table 17 Commercial refuse and recycling service providers

5.4.2 Private reuse organisations

A number of alternatives for the disposal and sale of reusable items are available in the District, such as charity stores and second-hand stores. These include:

- Salvation Army Opportunity Store (Ngaruawahia)
- River Traders (Tuakau)
- Vintage Love (Pokeno)
- St John Opportunity Shop (Huntly)
- House of Treasures (Te Kauwhata)
- Raglan Vintage & Traders (Raglan)
- Xtreme Zero Waste shop (Raglan)

5.4.3 Soft Plastics recycling scheme

The Packaging Forum provide the voluntary Love NZ Soft Plastics Programme in the WDC area at Countdown stores located in Ngaruawahia and Huntly.

The scheme takes all soft plastic bags including bread bags, frozen food bags, confectionery and biscuit wrap, pasta and rice bags, shopping bags. Customers take their used soft plastics back to participating stores and put them in the recycling bin. Bags are collected from stores and transported to Abilities group in Auckland for sorting and then to Melbourne, Australia for processing.

Information on the volumes collected through this scheme are unavailable.

5.4.4 Para Kore

The Para Kore (Zero Waste) programme works with marae to increase the reuse, recycling and composting of waste materials thereby helping to reduce the extraction of natural resources and raw materials from Papatūānuku.

More than 50 Marae in the Waikato District are part of the Para Kore programme.

5.4.5 Farm waste

A 2014 study into farm waste management practices in the Waikato and Bay of Plenty found that most number of farms used at least one of the 'three B' methods of waste management – bury, burn, or bulk storage on property.

Farmers generally agreed that the 'three B' methods are not ideal and indicate interest in access to better options. However, the 'three Bs' are perceived to have 'no cost' compared to the alternatives.

Discussions with waste service providers indicates that there is an increasing uptake of privately provided farm waste services. In most cases, skip bins are provided 'at the wool shed' for the disposal of farm waste. This is in addition to private refuse services provided for farm households.

Indications are farm waste services are dependent on economic conditions (when times are hard the service is cancelled) but that overall uptake is increasing and there are now private waste services targeted the rural community.

As the Waikato District has a high volume of farm waste being disposed of to land, Council could facilitate the uptake of private farm waste services by providing targeted education and messaging, and working with the farming industry to identify and remove barriers to uptake.

5.4.6 Assessment of non-council (private) waste services

There are a range of services offered by private waste collection operators with prices depending on bin size and frequency of collection.

There may also be further opportunities to support the second hand and reuse markets – perhaps via support for 'upcycling' of waste materials into new or unique items for sale. This occurs well at the Xtreme Zero Waste facility but could be encouraged to expand to other areas.
Reuse and upcycling have additional potential benefits around local job creation.

The main area of concern with private services relates to a lack of visibility around the volume and composition of refuse collected via private services.

The most promising mechanism for obtaining information on volume and composition of material collected by private collectors and operators is the introduction of waste licencing. The introduction of licensing will greatly improve data quality for the development of the next Waste Assessment.

5.5 Sustainable procurement and community benefits

For local government, sustainable procurement (frequently used interchangeably with 'social procurement') utilises procurement procedures and purchasing power to create positive environmental and social outcomes. The council still receives the same delivery of cost effective goods, services and works that a commercial supplier could provide but community organisations and social enterprises are instead contracted.

The procurement processes of large organisations like local government have a significant impact on the local environment and economy. Altering how goods and services are acquired, so that cost as well as environmental and social benefits are given equal value may help WDC to deliver strategic goals and build a stronger community.

5.5.1 Benefits of community involvement in waste issues

Community led resource recovery activities can provide positive outcomes for the local economy via employment creation. More labour-intensive activities such as prevention, waste minimisation and re-use, create (on average) 6 – 8 jobs compared to one created through

sending waste to a landfill[14].
The table below illustrates job growth at five community recycling centres around New Zealand that were previously typical transfer stations.

Employment before and after the development of Community Recycling Centres at various sites in NZ		
	Before development of a Community Recycling Centre	**After development of a Community Recycling Centre**
Waiuku	1 part-time	5 full time
Wanaka	0	16 full time
Kaikoura	1-2 full time	13 full time
Raglan	2 full time	17 full time, 23 part-time
Kaitaia	2 full time	18 full time, 16 part-time

Table 18 Employment before and after CRC development

Community or social enterprises tend to prioritise employment creation when compared to privately owned waste companies. Social enterprises create a multiplier effect - meaning that the impact of this additional employment to the local economy is larger than their take home pay might suggest.

Calculating the exact amount of return to local economies via staff spending is difficult however one study suggests that for every $1 spent on staff wages, local economic activity increases by $2.80 due to local staff spending[15]. This compares favorably to organisations which, because of their structure and methodology, take money out of communities – for example by making returns to foreign shareholders.

5.5.2 Key issues and barriers related to community involvement in waste issues

Issues and barriers to new resource recovery activities include:

- **Venue costs:** Commercial leases paid by organisations are expensive and increase regularly. This can contribute to some initiatives becoming financially marginal.
- **Access to processing**: A lack of local processing options means it is uneconomic to provide recycling services for some materials. While facilities do exist regionally, for example e-waste recycling, additional funding would be required for expansion.
- **Operational capacity**: Managing a recycling facility requires operational skills and an understanding of waste markets and waste issues. This capacity is not always available within community groups, nor may council have the internal capacity or institutional knowledge of resource recovery to upskill community groups in these areas.
- **Leadership:** There is a need for leadership in fostering collaboration and integration within council and across community to generate resource recovery and local economic development.

[14] Valuing Recycling Town – Measuring which bucket has the most leaks : 2009 : Gary Kelk : Ministry for the Environment : New Zealand
[15] Valuing Recycling Town – Measuring which bucket has the most leaks : 2009 : Gary Kelk : Ministry for the Environment : New Zealand

Council procurement: Council's procurement approach is traditional and favours large businesses. Community organisations could benefit from a partnership approach to procurement that recognises the social, economic, and environmental benefits of 'buying local'.

PART 6 - REVIEW OF THE 2012-2018 WMMP

This Waste Assessment provides an assessment of the 2012-2018 Waste Management and Minimisation Plan (WMMP) to guide the development of the 2018-2024 WMMP.

The 2012-2018 Waste Management & Minimisation Plan (WMMP) was the first plan developed under the Waste Minimisation Act 2008. A comparison between this first WMMP and the information in this Waste Assessment suggests some progress has been made against the actions set out in the WMMP, but that per capita volumes of waste to landfill have increased. In 2011, the Waikato District sent 509 kg of waste to landfill per capita per year. In 2016 the District sent 750 kg of waste to landfill per capita.

However, this increase is at least in part related to differences in the type of waste measured and methodologies for collecting data between 2012 and 2017. In addition, the lack of accurate data from private waste service and facility providers makes it difficult to assess the exact quantities of waste – both during the development of the first WMMP and the development of this Waste Assessment.

Indications are that waste to landfill volumes has increased by approximately 47% compared to 2012. Recyclable material recovered appears to have increased from 0.03 per capita to 0.05 – a 67% increase compared to 2012. The increase in recyclable material is likely to be a result of a combination of low estimates in 2012 and a genuine increase in recyclable recovery as markets have opened and private operators have moved to take advantage of these opportunities.

For both waste to landfill and diverted materials, 2012 figures were estimates based on audits and regional reports, whereas 2017 figures are based on low quality data obtained via voluntarily provision from some operators. National trends indicate a 20% increase in waste landfill has occurred and it is likely the Waikato District is experiencing a similar increase.

The volumes of waste to landfill and diverted materials for the two periods can be seen in Table 19 below:

Material	**Tonnes**		**Tonnes/ capita/ annum**	
	2011	**2017**	**2011**[16]	2017
General waste to landfill[17]	29,794	**52,182**	0.51	0.75
Recyclables (kerbside)	1,467	**3,631**	0.03	0.05

*Table 19 Comparison of volumes of refuse and recyclables: 2012 WA to 2017 WA * excludes farm waste to land*

[16] 2012 population based on 2009 Census data (43,959)
[17] Note: this figure does not include waste to land on rural properties, as this information was not available in 2012.

6.1 Objectives of 2012-2018 WMMP

The objectives of the 2012-2018 WMMP were:

2012 Goals	2012 Objectives	Progress against objective
Goal: Managing waste locally wherever possible and working with the community	Objective: Work in partnership with the local community to develop and expand waste management initiatives.	Ongoing
	Objective: Build the skill capacity of our community wherever possible when delivering our action plan.	Ongoing
Goal: Reduce the amount of waste sent to landfill or other disposal	Objective: Reflect the waste hierarchy, by emphasising and prioritising reduction, reuse, recycling and recovery in our action plan	Ongoing
	Objective: Improve information collection and analysis to ensure we know what waste is in the district, and where it is going.	Partially achieved, further work required
Goal: Lower the total cost of waste management to our community as a whole, while increasing economic benefit through new initiatives and infrastructure	Objective: Use resources more efficiently.	Ongoing
	Objective: Work with the waste sector and other councils near us to increase the range of reuse, recycling and recovery options available in the district, maximising the economic benefit to the community.	Partially achieved, further work required
	Objective: To look for opportunities to recover the value of waste materials locally.	Ongoing
	Objective: Consider the total cost to our community when choosing waste management options.	Achieved
Goal: Reduce the risk of environmental damage	Objective: Consider the environmental impact of all options and seek to choose options with the least overall environmental impact.	Achieved
Goal: To protect public health	Objective: To consider the public health impacts of all waste management options and seek to choose options which effectively protect human health.	Ongoing

Table 20 Progress against 2012 WMMP Objectives

6.2 2012 WMMP Targets

In 2011, the Waikato District sent 509 kg of waste to landfill per capita per year, and the WMMP anticipated that by 2022 the amount going to landfill would be reduced to 338 kg per capita per year. This gave a target of an overall reduction of 33 per cent in waste to landfill per capita by 2022. The table below shows the key initiatives planned in the 2012 WMMP and how they were expected to contribute to achieving the targets. Progress against the 2012 targets can be seen in the Table below:

Proposed initiatives	Estimated tonnes diverted per year (by 2022)	Tonnes diverted per year (2017)	Estimated Kg diverted per capita (by 2022)	Kg diverted per capita (2017)
Improved kerbside recycling	1,467	3,631	25	50
Food waste collection	3,730	Have not completed a full year of service	64	Have not completed a full year of service
Commercial recycling	1,715	Insufficient data	29	Insufficient data
Construction & demolition waste recycling	1,666	Insufficient data	29	Insufficient data
Reuse stores	579	120	10	1.7
Nappy composting	803	Not measurable	14	Not measurable
Total diverted	9,960	71,000	171	1,020
Remaining waste to landfill	18,666	53,800	338	0.77

Table 21 Progress against 2022 targets

6.3 Key Issues of 2012-2018 WMMP

Key issues identified in the 2012-2018 WMMP were:

- The council and community, particularly the business community, need to work more closely together to achieve our goals and objectives.
- Landfill disposal costs are rising – we need to reduce the amount of waste our growing population sends to landfill.
- Recycling is still ending up in refuse bins even with a recycling collection available.
- A large proportion of waste going to landfill is organic waste – this is a particular problem due to the negative environmental impacts.
- Improving our information collection so that we know how our growing business and commercial sectors are managing their waste, and to be more informed and involved in the flows of waste coming into the district from neighbouring districts and cities.

- The council needs to work with the waste sector and other councils to direct and support the growing waste management industry in the district.
- The council needs to provide ourselves with the regulatory tools to enable all of these issues to be managed.

These issues continue to be relevant and further action is required to address them.

6.4 Review of Actions

The 2012-2018 WMMP initiatives are shown alongside an assessment of progress in the table below.

A1 Communication, education and consultation	**Progress**
A1.1 Community partnerships: Support community waste partnerships where they exist, and encourage establishment of new partnerships.	Ongoing
A1.2 Communication and consultation: Provide for community involvement in waste management planning, whether through partnerships or other means	Ongoing
A1.3 Educate: Provide regular and detailed information about waste services, waste prevention and waste reduction, in partnership with community where possible**.**	Achieved
A1.4 Regional partnerships: Continue partnership working with other local councils and the regional authority, particularly on regional strategies for the management of organic wastes, hazardous waste, and sewage sludge disposal options. Opportunities for regional coordination will be assessed when reviewing or expanding services.	Achieved
A2 Take direct action, foster new ideas	**Progress**
A2.1 Waste Management Sector Working Group: A working group will be established for the waste management sector to encourage communication between this sector, the community and the council.	Achieved
A2.2 Direct sector development: Work with the community, waste sector and other councils to encourage development of facilities for diversion of priority waste streams.	Ongoing
A2.3 Support sector development: Establish an internal council team to focus on appropriate waste sector development – definition and policy approach.	Ongoing
A2.4 Lobbying Central Government: Work with other local government organisations to lobby government on various waste management issues such as cleaner production, product stewardship and other waste minimisation schemes.	Ongoing
A3 Change the rules, monitor and feedback	**Progress**
A3.1 Waste bylaw: Review the existing Franklin district bylaw and revise as appropriate for Waikato district to address issues such as operator licensing,	Not

cleanfill operation, service provision by private sector among others.	completed
A3.2 Review waste charges: Review pricing for all services to ensure true cost waste management is recovered, reuse/recycling is encouraged, and ensure that public funds do not subsidise private operations. Agree any changes to waste charges with community partnerships where these operate.	Underway
A3.3 Enforcement: Investigate options for effective enforcement of bylaw, such as delegating to community partnerships and/or contractors. Review performance of enforcement activity regularly and consult with community to identify key issues to focus enforcement.	Not completed
A3.4 Solid waste analysis surveys: Carry out regular surveys of kerbside collections to identify opportunities and monitor progress. Arrange with contractors for transfer station waste flows to be analysed and monitored.	Not completed
A3.5 Monitor waste flows: Through a waste bylaw (A3.1) collect information and monitor the volumes and movements of waste within, and into/out of the district.	Not Completed
W1 Recyclable commodities	**Progress**
W1.1. Maintain kerbside recycling collection: Continue to provide collection of recyclables at the kerbside, and consider opportunities to expand the collection to new areas of the district	Achieved
W1.2 Expand kerbside recycling collection: Work with contractors and community partnerships to identify ways to expand the kerbside recycling collection. This could include collecting additional amounts of recycling on occasion as negotiated with contractors and community partnerships, and/or providing an additional receptacle which could target specific recyclable material. Alter service as agreed.	Achieved
W1.3 Expand kerbside recycling materials: Identify and investigate additional materials to be included in the kerbside recycling collection based on more detailed waste analysis surveys; negotiate with contractor and/or community partnerships for inclusion where cost/benefit analysis supports inclusion	Completed
W1.4 Commercial recycling collection: Investigate the potential for a commercial recycling collection in parts of the district (for businesses, schools, etc). Work with the Waste Management Sector Working Group to explore options for provision of service and processing. This may mean services are offered by community/private sector, or the council may provide services directly, or a combination of the two. The council should also investigate potential to encourage recycling through bylaw mechanisms. Glass and paper/card are priority materials.	Not Completed
W1.5 Maintain drop-off facilities: Continue to provide drop-off facilities at transfer stations and two other areas.	Achieved
W1.6 Expand drop-off facilities: Investigate options for providing additional drop-off facilities to serve rural areas and busy holiday spots. Negotiate	Achieved

with contractors/ CWPs to provide services.	
W1.7 RTS facilities: Continue to provide refuse transfer station services, but review charging and negotiate with contractors / community partnerships to ensure consistent charging across the district	Achieved
W1.8 Expand RTS facilities: Investigate the capital required to upgrade transfer stations to accommodate reuse (except Raglan), C&D waste recycling (timber, concrete, rubble), and expanded e-waste services.	Not Completed
W1.9 Transport: Continue to transport recyclables to processing/markets	Achieved
W2 Food and garden waste	**Progress**
W2.1 Food waste collection: Monitor progress of Xtreme Zero Waste trial. Based on outcomes, investigate provision of a user-friendly weekly kerbside food waste collection, including collection and processing options.	Achieved
W2.2 Commercial food waste collection: Investigate the potential for a commercial food waste collection in parts of the district. Work with the Waste Management Sector Working Group to explore options for provision of service and processing.	Ongoing
W3 Inorganic/C&D/litter	**Progress**
W3.1 C&D waste recycling: Work with the Waste Management Sector Working Group to identify and support options for increasing segregation of C&D waste on site, providing more services for the collection of separated materials, and expanding use of off-site sorting facilities.	Not Completed
W3.2 Inorganic waste: Investigate making the transition from a rate funded inorganic collection to an on-call user pays service	Achieved
W3.3 Litter bins and collection: Continue existing litter bin and loose litter clearance**.**	Achieved
W3.4 Illegal dumping: Continue to provide a collection service for illegal dumping. Collect information to quantify waste and monitor locations/waste types to identify priority areas for action. Take measures to enforce bylaw and prosecute offenders.	Achieved
W4 Hazardous/liquid/gaseous wastes	**Progress**
W4.1 Quantify biosolids: Review existing biosolids storage and quantify current and future quantities of biosolids requiring management.	Not Completed

W4.2 Management of biosolids: Consider options for management of biosolids in conjunction with other waste streams, through the Waste Management Sector Working Group, focusing on options for beneficial use. Dispose of biosolids appropriately if alternative processing is not feasible.	Not Completed?
W4.3 Hazardous waste: Continue to offer options for hazardous waste management at transfer stations; monitor volumes and types. Work with contractors and community partnerships to extend the range of items that can be accepted at transfer stations.	Achieved
W5 Residual waste	**Progress**
W5.1 Residual waste collection: Investigate the potential to reduce residual waste collection frequencies alongside the introduction of a food waste collection, chargeable garden waste collection, and expanded recycling collection. If a food waste collection and expanded recycling collection are used effectively, residual waste should not need to be collected weekly at unnecessary cost.	Achieved
W5.2 Transfer and disposal: Transfer residual waste to an appropriate disposal facility.	Achieved

Table 22 Review of 2012 WMMP Actions

6.5 Summary of progress

Overall, WDC has made good progress for a number of the actions in relation to the 2012-2018 WMMP Action Plan. However, kerbside refuse per capita has increased by approximately 47% and some objectives have not been achieved. Further effort is required to collect accurate data, set up internal systems that can accurately record the information, and to achieve a real reduction in waste to landfill.

This Waste Assessment is intended to assist in the development of the 2018-2024 WMMP in order to continue and build upon the progress made in the 2012-2018 period.

6.6 New Guidance

New Guidance from MfE on Waste Management and Minimisation Planning was released in 2015. The 2012 WA and WMMP, while consistent with the guidance at the time they were written, do not fully align with the new (2015) MfE Guidance.

The new guidance places more emphasis on funding of plans, inclusion of targets and how actions are monitored and reported. In addition, the 2012 documents did not provide for data to be collected accordance with the National Waste Data Framework, as suggested by the new guidance.

PART 7 - FUTURE DEMAND AND GAP ANALYSIS

7.1 Waikato District Council area

Waikato District, in the northern part of Waikato Region is bordered by Auckland on the north and Hamilton on the south. The area takes in much of the northern Waikato Plains and also the Hakarimata Range. The main population centres are Ngaruawahia, Huntly, Raglan, Pokeno, Tuakau and Te Kauwhata.

In November 2010, the Waikato district expanded by approximately 100,000 hectares as a result of boundary changes when the Auckland Council was formed. The Waikato district absorbed a large part of the former Franklin district area. The district's southern boundary with Hamilton City was adjusted in May 2011, with parts of Ruakura and Te Rapa formerly in the Waikato district becoming part of Hamilton City.

The proximity to major population centres and major transport corridors ensures access to several major waste processing and disposal facilities that serve the wider Auckland and Waikato regions.

The main industries in the district are dairy farming, forestry, and coal mining. There is a major coal-fired power station at Huntly and Te Kauwhata is at the centre of a major wine region. The district relies on industry, education and a growing adventure tourism and events industry.

The Waikato River flows through the district and is of great significance to the area – a significance which has been formalised through a Joint Management Agreement between the council and Waikato-Tainui.

7.2 Future Demand

The factors likely to impact future demand for waste minimisation and management vary over time and location and therefore create inherent uncertainties with any predictions.

Factors which influence future demand include:

- 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.

7.2.1 Assessment of key towns within the Waikato District[18]

The Future Proof Strategy indicated approximately 80% of growth in the Waikato District will be in the areas of Pokeno, Tuakau, Te Kauwhata, Huntly, Pokeno, Tuakau, Ngaruawahia, Raglan and various rural villages.

- Rapidly growing settlement on Auckland's doorstep with potential to become a town catering for an additional 2000 households.
- Sought after by Aucklanders looking for more affordable homes (compared to Auckland) yet within easy commuting distance to the city.

[18] from draft Future Proof Strategy: Planning for Growth 2017

- Rapid development of the existing zoned industrial land with potential for further growth acknowledging existing constraints (topographical, geographical and physical).

(a) Tuakau

- Planned to accommodate residential growth recognising that many people may choose to live in Tuakau and commute to Auckland to work; with potential to become the biggest town in the Waikato district as growth is less constrained by geological, topographical and network infrastructure compared to Pokeno.
- Primary satellite town to Pukekohe, and a major service town for the northern Waikato.

(b) Te Kauwhata

- Principally planned as a residential village with amenity benefits.
- The village has played and continues to play an important role as a service centre for the farming areas to the east and west and is likely to grow on the back of growth in Pokeno and the lower median houses prices.

(c) Huntly

- Opportunities for redevelopment and growth, recognising its potential due to affordable housing and accessibility to Auckland and Hamilton.
- Economic development planned to stimulate positive economic and social outcomes e.g. industrial and residential aspirations potentially providing an employment alternative to coal mining; and services and employment opportunities for surrounding areas.

(d) Ngaruawahia

- Potential to become the cultural and heritage capital of New Zealand, Ngaruawahia will keep its sense of spaciousness and heritage as a town with a predominantly residential function.

(e) Raglan

- Seaside settlement that maintains the established desirable character of the Raglan coastal environment. It is a destination town with a high number of holiday houses.

7.2.2 Population growth[19]

The report *2014 Review of Demographic, Households and Labour Force Projections for the Waikato Region for the Period 2013 – 2063* estimates the population of Waikato District is projected to grow from 64,910 in 2013 to 82,733 in 2033 (+27.5%), and to 94,862 in 2063 (+46.2%).
It also suggests natural growth will peak around 2025 and then diminish, with net migration projected to remain positive – averaging 351 p.a between 2013 and 2033.

[19] Jackson, N.O., Cameron, M. and Cochrane, B, 2014 Review of Demographic, Households and Labour Force Projections for the Waikato Region for the Period 2013 - 2063

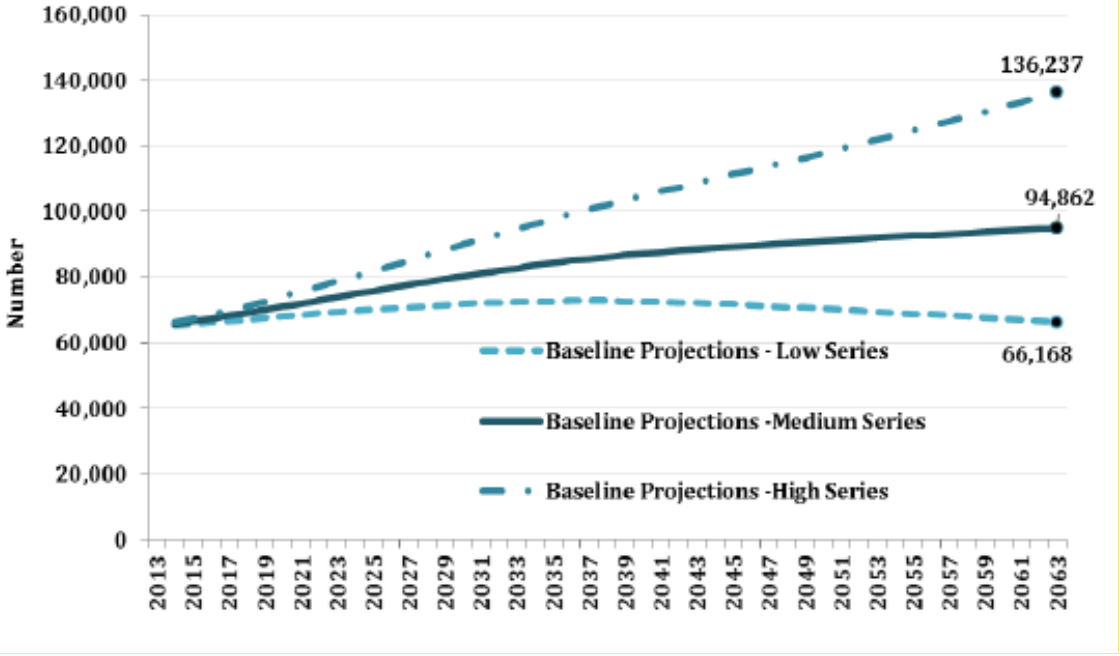


Figure 5 Projected high, medium and low baseline population, Waikato District[20]

By 2033, 22.2% of the Waikato District's population is projected to be aged 65+ years, up from 12.2% in 2013. By 2063 that proportion is projected to reach 29.5%.

The age profile of residents is changing with an increasing proportion of elderly residents. Analysis carried out by WRAP (UK) in 2007 found older people generated approximately 25% less food waste than other age groups, once household size factored into analysis. Further research carried out by WRAP has found that those over 65 years old are also more likely to home compost.

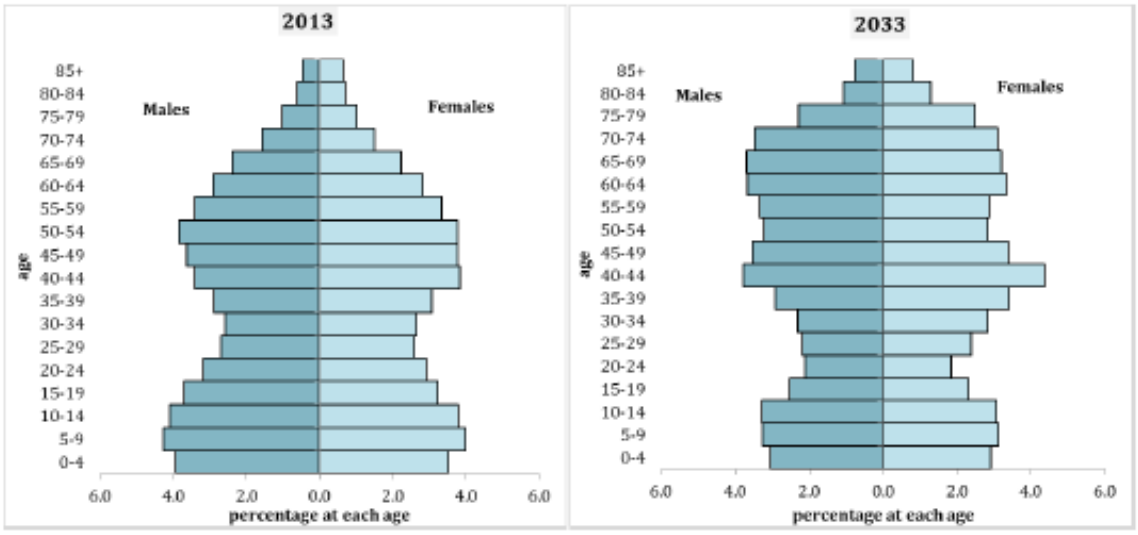


Figure 6 Age-sex structure, percentage of each, 2013-2033, Waikato District[21]

[20] Source: 2014 Review of Demographic, Households and Labour Force Projections for the Future Proof Sub-Region for the Period 2013 - 2063

Taking the aging population into account, it may be appropriate to tailor waste minimisation communication campaigns and waste reduction initiatives to an older age group.

Another issue that may emerge as the population ages is an increase in healthcare-related waste generated in the home as healthcare services are increasing pushed to home-based healthcare.

7.2.3 Economic Activity

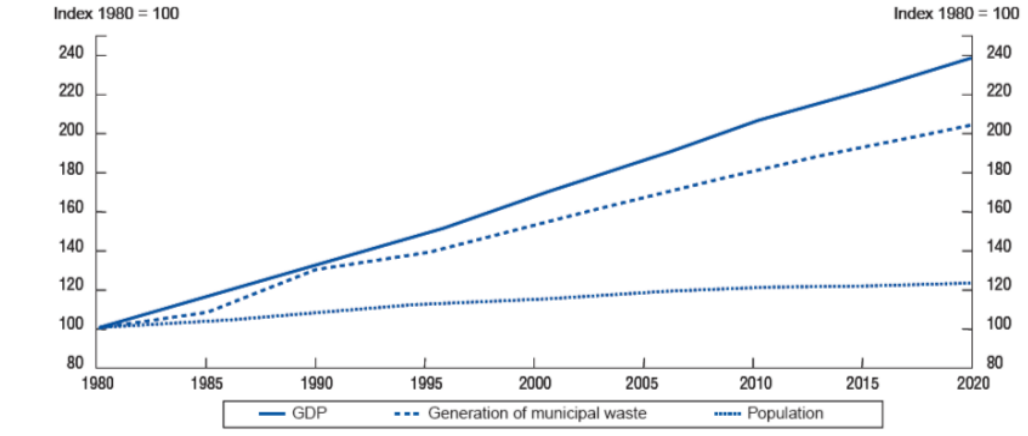
Research from the UK[22] and USA[23] suggests that underlying the longer-term pattern of household waste growth is an increase in the quantity of materials consumed by the average household and that this in turn is driven by rising levels of household expenditure.

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. Figure 7 below shows the relationship between growth in municipal waste in the OECD plotted against GDP and population.

Total GDP is also a useful measure as it takes account of the effects of population growth as well as changes in economic activity. In general, 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.

In effect as a country becomes richer, the volume and composition of its waste changes. With more money comes more packaging, imports, electronic waste, toys and appliances. Solid waste can thus be used as a proxy for the environmental impact of urbanization.

As Waikato District's population is anticipated to experience a steady growth, increasing +27.5% by 2033, it is likely that Waikato District would experience an approximately similar increase in waste (approximately 30%) generated within that time period assuming no change to waste behavior or resource recovery rates.



Source: OECD 2001.

Figure 7 Municipal waste generation, GDP and population in OECD 1980 – 2020[24]

[21] Source: 2014 Review of Demographic, Households and Labour Force Projections for the Future Proof Sub-Region for the Period 2013 - 2063
[22] Eunomia (2007), *Household Waste Prevention Policy Side Research Programme*, Final Report for Defra, London, England
[23] EPA, 1999. National Source Reduction Characterisation Report For Municipal Solid Waste in the United States
[24] Eunomia (2007), Household Waste Prevention Policy Side Research Programme, Final Report for Defra, London, England

7.2.4 Changes in Lifestyle and Consumption

Community expectations relating to recycling and waste minimisation are anticipated to lead to increased demand for resource recovery and recycling services. This will include raised expectations for services based on migration and travel.

Consumption habits will affect the generation of waste and recyclables. For example, 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[25].

Conversely, growth in the consumption of electronic products has led to a rapidly increasing problem with electronic waste.

7.2.5 Changes in Waste Management Approaches[26]

It is anticipated that the methods and priorities for waste management will continue to evolve, with an increasing emphasis on diversion of waste from landfill and recovery of material value. These drivers include:

- The statutory requirement in the Waste Minimisation Act 2008 to encourage waste minimisation and decrease waste disposal – with a specific duty for TAs to promote effective and efficient waste management and minimisation and to consider the waste hierarchy in formulating their WMMPs.
- A requirement in the current New Zealand Waste Strategy 2010 to reduce harm from waste and increase the efficiency of resource use.
- Increased costs of disposing of waste to landfill. Landfill costs have risen in the past due to higher environmental standards under the RMA, the introduction of the Waste Disposal Levy (currently $10 per tonne) and the New Zealand Emissions Trading Scheme. While these have not been strong drivers to date, there remains the potential for their values to be increased and to incentivise diversion from landfill
- A general trend to introduce more convenient collection systems. In brief, more convenient systems encourage more material recovered. For example, more convenient recycling systems with more capacity help drive an increase in the amount of recycling recovered.
- The waste industry is changing to reflect a greater emphasis on recovery and developing models and ways of working that will help enable effective waste minimisation in cost-effective ways.
- Local policy drivers, including actions and targets in the WMMP, bylaws, and licensing.
- Recovery of materials from the waste stream for recycling and reuse is heavily dependent on the recovered materials having an economic value, particularly for recovery of materials by the private sector. Markets for recycled commodities are influenced by prevailing economic conditions and most significantly by commodity prices for the equivalent virgin materials. The risk is linked to the wider global economy through international markets.

7.2.6 Projections of Future Demand

The analysis of factors driving demand for waste services in the future suggests that changes in demand will occur over time but that no dramatic shifts are expected. If new waste management approaches are introduced, this could shift material between disposal and recovery management.

Population and economic growth are likely to drive moderate increases in the waste generated. The biggest change in demand is likely to come through changes within the industry, with economic and policy drivers leading to increased waste diversion and waste minimisation.

[25] http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=10833117
[26] WDC 2015 Waste Services report

7.3 Gap Analysis - Future Demand

The aim of waste planning at a territorial authority level is to achieve effective and efficient waste management and minimisation. An assessment of this was undertaken using a gap analysis based on the information in this Waste Assessment. The following 'gaps' have been identified:

- Insufficient systems in place for obtaining waste data from private operators in the District
- Increasing population affecting waste streams and waste reduction messaging
- Infrastructure to manage increased quantities and some waste streams may be insufficient to meet future demand
- Inadequate internal council systems to collect, record and monitor waste streams
- Potential for improved services targeting the rural sector and C&D waste
- Opportunities for improved sub-regional, regional and national collaboration to achieve reduction and minimisation of waste
- Insufficient leadership from central government to address national waste issues

7.3.1 Key waste Streams to be addressed

Priority waste streams that could be targeted to further reduce waste to landfill could include:

(a) National problematic waste streams

Waste tyres, refrigerant gases, e-waste and packaging waste are national issues and are best managed via national product stewardship schemes. Arguably, councils have little ability to reduce or manage these waste streams due to the scale of the problem and the lack of council control over those waste streams. Such issues are most effectively managed at a national level. WDC, in conjunction with other councils, has the ability to strongly advocate for the introduction of national schemes to assist in the management of these waste streams.

(b) Farm waste

A 2014 study into farm waste management practices in the Waikato and Bay of Plenty found that most number of farms used at least one of the 'three B' methods of waste management – bury, burn, or bulk storage on property.

Farmers generally agreed that the 'three B' methods are not ideal and indicate interest in access to better options. However, the 'three Bs' are perceived to have 'no cost' compared to the alternatives.

Discussions with waste service providers indicates that there is an increasing uptake of privately provided farm waste services. In most cases, skip bins are provided 'at the wool shed' for the disposal of farm waste. This is in addition to private refuse services provided for farm households.

Indications are farm waste services are dependent on economic conditions (when times are hard the service is cancelled) but that overall uptake is increasing and there are now private waste services targeted the rural community.

As the Waikato District has a high volume of farm waste being disposed of to land, Council could facilitate the uptake of private farm waste services by providing targeted education and messaging, and working with the farming industry to identify and remove barriers to uptake.

(c) Construction and Demolition waste

Construction & demolition (C&D) waste may be a waste stream which, if addressed, could significantly reduce the volumes of waste being sent to landfill. The increasing volumes of C&D waste are associated with increases in development activity in the region. Targeted programmes

aimed at reducing waste associated with C&D have been developed both internationally and within NZ with some success. These include resources to assist developers to better predict and manage materials (reducing waste associated with procurement); education around waste management practice and working with waste service providers to ensure infrastructure and services are available to meet demand.

7.3.2 Hazardous Wastes

(a) Household hazardous waste

Continued access to council services for household hazardous waste and used oil is likely to be of benefit for the District. A significant driver for the disposal of household hazardous waste relates to elderly residents moving or disposing of long-held homes. 'Grandads shed' is likely to contain a range of hazardous substances, including a number of harmful chemicals which are no longer available such as DDT, 2,4,5,T, Dialdrin and mercury.

(b) Medical Waste

As hospitals continue to shorten patients' lengths of stay, home health care is increasingly relied upon to address the needs of patients at home. From one point of view, health care in the home environment is more comfortable for patients, offers less risk of infection, saves health care dollars, and lends itself to the promotion of ongoing strategies to improve patients' quality of life.

However, health care produces medical waste which may require specialist treatment and disposal. In the hospital environment medical waste is treated and disposed of appropriately; while for the home healthcare patient, medical waste is problematic.

In most cases, medical waste is prohibited in both the refuse and recycling streams. Some medical waste includes sharp items (e.g. syringes) or bodily fluids – both of which pose risks to waste handlers either during collection or processing of waste.

In addition, medical waste packaging, not being a household item, is sometimes unable to be processed in MRF facilities. For example – hemodialysis may involve containers of saline which are too large to be processed by the largest MRF (Visy). In many cases, the volume of waste created by home healthcare is greater than the normal capacity of kerbside waste receptacles.

Ideally, home healthcare providers will provide waste solutions for the medical waste created. However, barriers to provider responsibility include:

- Lack of awareness of the issue
- Cost
- A belief that council will provide appropriate waste services

An ageing population and healthcare policy indicate home healthcare will increase, and the associated waste problems will become more prevalent.

For non-home healthcare related waste issues, the Pharmacy Practice Handbook[27] sets out guidelines for appropriate disposal of medical waste:

> *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*

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

many pharmaceutical types. Handling and disposal should comply with the guidelines in NZ Standard 4304:2002 – Management of Healthcare Waste.

In summary, while council is not responsible for home healthcare waste, there is likely to be an increase in queries from home healthcare patients regarding waste services. Working proactively with home heathcare providers and DHB's to assist the establishment of heathcare waste take-back programs may be a suitable solution to the issue.

(c) E-waste

Without a national product stewardship scheme, the e-waste treatment and collection system will continue to provide limited opportunities for resource recovery. Currently, companies tend to cherry-pick the more valuable items, such as computers and mobile phones while products that incur a cost to recycle are sent to landfill unless the product owner is willing to pay for recycling. 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.

The 2015 report *E-Waste Product Stewardship: Framework for New Zealand* commissioned by the Ministry for the Environment, concluded that although priority product status (for mandatory products stewardship) was supported by a number of stakeholders, there was insufficient data to satisfactorily prove the current management of e-waste caused significant environmental harm; and therefore, they could not recommend priority product status.

Improving the framework for capturing data on waste flows has therefore been shown to be a critical factor in the implementation of nationwide waste management schemes.

Introducing a data capture system, such as a waste licencing system under the Solid Waste Bylaw, would assist WDC to identify problematic waste streams, plan for future management, support regional and national initiatives and develop waste management systems for problematic waste streams.

E-waste is a national issue and is best managed via a national product stewardship scheme, however, local services and infrastructure could be strengthened within the city to provide improved access to e-waste recycling; and the ensure e-waste recyclers meet the joint Australian and New Zealand Standard AS/NZS 5377:2013 Collection, storage, transport and treatment of end-of-life electrical and electronic equipment.

PART 8 - OPTIONS

This section sets out the range of options available to Council to address the key issues 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 the 2018 – 2024 WMMP

Issues identified during the development of this Waste Assessment are:

- Increasing quantity of waste to landfill
- The need to ensure effective and affordable provision of waste services
- Poor data quality and management
- Potential for greater joint working in Council service delivery and regional and sub-regional collaboration
- Potential for greater community partnership, engagement and understanding of waste issues
- Insufficient resource recovery infrastructure in the District to meet future demand
- Inconsistent infrastructure provision for resource recovery - while the Raglan area is well serviced for resource recovery, other areas are lacking access to resource recovery, reuse and repair facilities.
- Internal roles, responsibilities and systems do not currently provide an integrated approach to contract management, resource recovery and waste minimisation.

8.2 Options: Data & regulation

8.2.1 Data

Throughout this Waste Assessment, the issue of data availability has been raised as a concern. Issues include:

- Inability to obtain accurate information from private collectors and operators regarding waste flows
- Difficulty planning for future demand due to a lack of knowledge about the status quo
- Inability to support regional or national initiatives to establish nationwide waste management systems by providing data on district waste flows
- Lack of internal council system to collect, record and process data across council departments

Addressing the inability to obtain quality waste data must be a priority. Options for addressing the data issue include:

1. Implementation of a licensing system for waste collectors and operators, potentially in a sub-regional or regional partnership
2. Implementation of a central government waste data collection and management system which includes:
    a. TA level data collection; and
    b. Collecting data suitable for TA's to achieve their obligations under the WMA 2008; and
    c. TA access to data collected by central government
3. Amendments to the Waste Minimisation Act 2008 to obligate waste collectors and operators to provide relevant waste data to TA's

Of these options, only Option 1 is within the control of WDC.

The Ministry for the Environment has stated a key focus area for the next 1-3 years is to "invest in developing a national waste data collection and evaluation framework that targets key information to prioritise waste issues and measures effectiveness of the waste disposal levy[28]". However, the report goes on to state:

"A key recommendation by the OECD in its recent environmental performance review for New Zealand was that the Ministry for the Environment needed to improve its access and reporting of data and evidence regarding waste.

Accessing data on quantities and types of waste disposed at waste disposal facilities would provide the Ministry with a deeper understanding of the waste sector in this country. This would enable the Ministry to prepare timely, comprehensive and internationally comparable reports based on sound information to support planning and strategy for the country"; and

"Further attention should be directed towards improving the availability of data from territorial authorities and Waste Minimisation Fund projects, including provision of waste minimisation data and contributions to wider outcomes".

These comments suggest that any national waste data scheme may be focused on the Ministry for the Environment's needs for data rather than TA requirements; and also, that data collection may be placed as a further obligation of TA's regardless of the current difficulty to obtain such data from the private sector.

8.2.2 Solid Waste Bylaw

WDC is one of only a few councils in the Waikato region that does not have a district wide Solid Waste bylaw.

Two issues within the region now provide a compelling case for the introduction of a Solid Waste Bylaw, including waste operator licensing provisions.
Firstly, the Waikato and Bay of Plenty areas have experienced a number of incidents involving tyre piles which have resulted in some councils facing expensive 'clean-ups', and have seen tyre piles moved from one council area to another. Concerns have been raised that tyre piles are likely to gravitate to the council area with the least effective regulation for this problematic waste stream.

Secondly, despite councils having a legislative obligation to promote effective and efficient waste management and minimisation within its district, the Waste Minimisation Act 2008 does not provide councils with the ability to obtain data about the volume or composition of waste being collected, transported, processed or disposed of via private waste operators or facilities.

In order to address these two issues, the councils of the Waikato and Bay of Plenty have worked together to develop a regionally aligned template Solid Waste Bylaw to:

- Assist councils to offer similar levels of control of waste in their regions. The Bylaw takes into account the Auckland Council's Waste Bylaw, in order to avoid Waikato / Bay of Plenty becoming an attractive dumping ground for Auckland's problematic waste.
- Ensure councils can obtain waste volume and composition information from private operators and facilities in a manner which minimises administrative difficulties for the operator or facility. For example, by having similar reporting requirements, categories of waste, frequency of reporting etc.

The template bylaw also provides the opportunity for regional and sub-regional licensing administration. Options for working together include funding a single administrator who manages

[28] Review of the effectiveness of the Waste Disposal Levy 2017, Ministry for the Environment

the licencing systems for all participating councils or offering a single licence which covers multiple council areas. Such co-operation is likely to reduce the administrative burden on waste operators and facilities and avoid resistance.

A regionally consistent Bylaw could help reduce unnecessary administrative burden for private operators, and the unintended consequences of less well-regulated areas becoming a target for undesirable practices, such as cleanfilling, tyre dumping and poorly managed waste facilities. Auckland, Christchurch, Taupo, New Plymouth, Kapiti Coast, Waimakariri and Far North have licensing systems, the requirements vary as do the fees charged. For example, the fees are $30 in New Plymouth and $435 plus $88 per vehicle in Auckland[29].

Another option under the template bylaw clauses is to introduce minimum standards. This could be applicable to the E-Waste issue, where e-waste providers frequently fail to meet the Joint Standard for e-waste recycling. The Bylaw could place meeting the Standard as a requirement of holding a Waste Collectors or Waste Operators licence.

8.2.3 Internal systems

Waikato District Council internal systems for data capture and management; contract management, procurement and waste minimisation activities have potential to be streamlined. A review of internal systems may identify areas of efficiency and assist council to meet the goals and objectives of its 2018 WMMP.

8.2.4 Event waste management

Waikato District Council could develop guidelines for events held in the District. Once completed, these would provide better guidance for events and include details of the consent process for events held in the WDC District (such as H&S Plan, Traffic Management Plan and Event Waste Minimisation Plan). It may be advantageous to develop the Event Waste Guidelines as a sub-regional activity with Hamilton City and Waipa District Councils.

[29] WDC Waste Services report 2015

8.2.5 Options relating to data and regulation

Data and regulation options				
Option	**Issues Addressed**	**Strategic Assessment**	**Impact on Current/Future Demand**	**Councils' Role**
Continue without a Solid Waste Bylaw	None	*Social/Cultural:* uneven understanding of waste flows in the district *Environmental*: minimal ability to guard against environmental degradation through illegal disposal. Minimal ability to require environmental performance standards are met (e.g. recyclable material is separated) *Economic:* No change to current systems. *Health*: Limited ability to monitor and enforce actions of providers and protect public health	A lack reliable information to monitor and plan for waste management in the region A lack of data and controls on private operators limits Councils' ability to effectively manage waste in the region. Constrained ability to plan for and respond to future demand	Council would implement and enforce existing bylaws May not be sufficient for reporting requirement changes signalled by MfE
Implement regionally consistent Solid Waste Bylaw and waste licensing system	Data quality and management Management of key waste streams Increasing quantity of waste to landfill Potential for greater joint working in Council service delivery and regional and sub-regional collaboration	*Social/Cultural:* better understanding of the waste flows in the district *Environmental:* would increase diversion from landfill and information about disposal practices and could potentially guard against environmental harm through illegal disposal *Economic:* small increased cost for operators; additional resources will be required to monitor and enforce the regulatory system *Health:* greater monitoring of providers to ensure no adverse health risks occur	Improved bylaws would, as a minimum, require reporting of waste material quantities. Collecting waste data is imperative to planning how to increase waste minimisation across Council provided services and commercial waste streams. The bylaw could also be used to require minimum performance standards. This could be a key mechanism for addressing waste streams currently controlled by the private sector and how they provide their collection services	Council would develop and enforce the bylaw; monitor and report on waste quantities and outcomes. There are opportunities to implement waste licencing as part of sub-regional co-operation to reduce costs and impact on providers.
Audit waste stream every 3-6 years and before and after significant service changes	Data quality and management	*Social/Cultural*: Identifying material streams for recovery could lead to job creation. Better understanding of waste behaviour. *Environmental*: Ability to identify materials and waste streams for potential recovery and reduction in waste to landfill. *Economic*: Operational costs of implementation. Ability to identify materials and waste streams for potential recovery and reduction, giving rise to new	Better information will inform council planning to meet future demand	Plan for and action a SWAP analysis every 3-6 year, with the first audit in 2018. Funding

		business opportunities and reduction of disposal costs *Health*: A better understanding of the waste problem will highlight key areas for action to improve health outcomes		
Implement National Waste Data Framework and regional collation of data	Data quality and management of data Potential for greater joint working in Council service delivery and regional and sub-regional collaboration	*Social/Cultural:* improved knowledge of waste flows and better information available to the public on waste and recovery performance *Environmental*: Improved ability to monitor and manage waste collection and disposal information and make appropriate planning and management decisions *Economic:* improved understanding of waste flows resulting in better targeted waste and recovery services and facilities *Health*. Potential for improved data on hazardous and harmful wastes	The Waste Data Framework would enhance the ability to share and collate information improving overall knowledge of waste flows. It currently only covers material to disposal however	Council would implement the Waste Data Framework by putting standard protocols in place for the gathering and collation of data. This would enable sharing and consolidation of data at a regional level
Review internal roles, responsibilities and systems for meeting waste minimisation goals and objectives	Data quality and management of data Internal roles, responsibilities and systems	*Social/Cultural:* improved knowledge of waste flows. More integrated services. *Environmental:* Improved ability to monitor and manage waste collection and disposal information and make appropriate planning and management decisions *Economic:* improved understanding of waste flows resulting in better targeted waste and recovery services and facilities; greater internal efficiency *Health:* Potential for improved data on hazardous and harmful wastes	Improved ability to meet future demand	Staff time to establish internal systems
Complete Event Waste Guidelines and clarify consenting requirements for Event Waste; potentially as part of a sub-	Greater community partnership, engagement and understanding of waste issues Data quality and management Increasing quantity of waste	*Social/Cultural:* community will be more aware of waste minimisation issues outside of the home, taking a higher level of ownership of the issue *Environmental*: services would seek to establish, support and extend positive behaviours that reduce environmental impact *Economic:* costs borne by event managers *Health*. Minimise health risks associated with waste	Meet future demand	Regulatory Education and partnerships Opportunities for regional or sub-regional collaboration to maximise

regional collaboration.	to landfill Potential for greater joint working in Council service delivery and regional and sub-regional collaboration	management		impact Staff time

Table 23 Options: Data and Regulation

8.3 Options: Collection services

Three issues identified in this Waste Assessment relate to council provided services. In particular:

- Increasing quantity of waste to landfill
- Increasing diversion of recyclable and compostable material from the refuse stream
- The need to ensure effective and affordable provision of waste services

In order to address these issues, the Waikato District Council may wish to consider the provision of all waste services (refuse, recycling and organic) over the district including affordability, effectiveness, types or service, receptible type and future demand. Any review of waste services should include consideration of:

- User pays refuse services vs rates funded refuse services
- Council provided vs private services
- Utilising social procurement practises

8.3.1 User pays refuse services vs rates funded refuse services

Waikato District Council is one of many councils in New Zealand who have moved towards a user-pays refuse service under the understanding that this would encourage recycling and diversion. However, the potential benefits of user pays have not been realised as competing in a user pays market for the residential refuse waste stream reduces council's ability to obtain data on refuse flows, and reduces council's ability to influence household's waste behaviour via pricing and other mechanisms. Three potential options are for Waikato District Council to:

- resource full commercial marketing and management systems to promote council services and grow market share in a competitive model
- bring refuse services back under a rates system (either permanently or until a mechanism is established to ensure data on waste flows can be obtained, and behaviour change initiatives can be implemented effectively); or
- to fully privatise the refuse service (i.e. council cease providing a private service and leave it to private operators to provide and price the service as they will).

Council may consider bringing refuse services back as a rate-payer funded service in some or all areas in the District, until mechanisms are in place to ensure council can meet its waste minimisation objectives around obtaining data and initiating behaviour change. This may include the development of resource recovery facilities and support for community groups to provide services under a social procurement model. Once some control of waste flow has been obtained, council may re-consider the introduction of user-pays services to stimulate further waste minimisation behaviour.

8.3.2 Council provided vs private refuse services

Council currently ensures the provision of waste services by contracting services to private waste companies. However, other models can be considered including:

(a) Council provided services

A council provided service can be provided either in-house (i.e. council staff, vehicles, plant and equipment) or via a contracted service (where council manages a contractor who delivers a service). Since the 1980's, most councils have contracted waste services to private collectors in order to access expertise, leverage off the contractor's available plant and staff, and bring competitive pricing to the tender process. There has been an expectation that the private sector will provide a more cost effective and efficient service than Council could deliver.

(b) Privately provided services

Private services can operate in a council area either in competition to council services; or as the only providers (I.e. no council funded refuse or refuse/recycling services).

In the Waikato District, the private sector acts in competition to council provided services in only some areas. Private competition reduces the ability for council provided services to be accurately costed out (as market-share can change unpredictably), reduces the ability of council to obtain quality data on waste flows for planning purposes and can adversely impact the effectiveness of waste minimisation measures.

Under this model, the only way council can meet its waste minimisation objectives is to introduce licences to waste operators under a Waste Bylaw.

Where private services are in operation (either in competition with council service or as the only providers) licences regulate operators with specific criteria e.g. provision of data to Council, limits on the percentage of waste allowed to landfill, or regulation of services provided (e.g. if a company provides a refuse service they must provide a recycling service as well or must provide services to all areas in the District).

Licensing would allow Council to establish some degree of regulatory control over private sector waste collections, obtain waste data and enable Council to meet its obligations under the Waste Minimisation Act 2008.

(c) Council vs private services: key issues:

1. Private services run counter to council's legislatively obligated waste minimisation aims as private operators place no limitations on volume or what can be placed inside a bag / bin and may also offer bulk rates, discouraging waste minimisation.
2. Private operators are able to offer cheaper services as:
   i) The cost of council services includes the cost to provide public-good waste services (such as illegal dumping and litter collection) whereas private operators are not obligated to contribute to these services.
   ii) Councils are obligated to ensure services are provided to all areas, whereas private operators can 'cherry pick' profitable areas to provide services while council are obligated to provide services in less profitable rural and isolated areas.
3. If a householder does not like council waste minimisation initiatives such as reduction in receptacle size, collection frequency or price, they are able to change to a private collector.
4. Council requires waste data (volume, composition, source and destination) in order to monitor waste minimisation efforts and meet its reporting and planning obligations under the Waste Minimisation Act 2008. Private collectors are under no obligation to provide such information unless under a licencing system.
5. Council will receive customer enquiries and complaints regarding waste services whether it provides a service or not. Managing residents' concerns represents a cost to council.
6. Looking at broader environmental effects, such as greenhouse gas emissions, traffic congestion, and wear and tear on roads, the effects of several vehicles collecting kerbside waste from households are much greater than for a single vehicle doing the same job.

8.3.3 Social procurement

"Sustainable procurement can minimise the environmental impacts of public sector organisations, as well as benefiting society, the natural environment and reducing overall operating costs[30]."

[30] P.6. APCC: Australia and New Zealand Government Framework for Sustainable Procurement

For local government, social procurement (frequently used interchangeably with 'sustainable procurement') utilises procurement procedures and purchasing power to create positive environmental and social outcomes. The council still receives the same delivery of cost effective goods, services and works that a commercial supplier could provide but community organisations and social enterprises are instead contracted.

The procurement processes of large organisations like local government have a significant impact on the local environment and economy. Altering how goods and services are acquired, so that cost as well as environmental and social benefits are given equal value will help Waikato District Council to deliver strategic goals and build a stronger community.

Community groups within the Waikato District are likely to support the implementation of sustainable / social procurement, particularly in relation to waste services and facilities.

Guidelines to assist local government to implement sustainable procurement, can be found on the New Zealand Government Procurement website[31].

8.3.4 Organic waste

National data indicates that a third of refuse from householders is organic material such as food scraps. Waikato District Council is currently supporting a food waste kerbside service in the Raglan area (see section 5.2.5). This service, provided under contract by Xtreme Zero Waste, commenced a kerbside food waste service to approximately 2,000 households after a trial that ran from July 2012 to Feb 2013. The service has around 30% put-out rate for bins, and collected 860kg of food waste in its first week of operation.

While the service has not yet been provided for a full year, council will need to assess its effectiveness and decide if a similar service should be rolled out to other communities in the Waikato District during the term of the next 2018-2024 WMMP.

[31] http://www.procurement.govt.nz/procurement/for-agencies/guides-and-tools/A-to-Z-guides-tools-templates#st

8.3.5 Options: Collection Services & Procurement

Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
Status Quo services and procurement practises.	No effect on any of the key issues.	*Social / Cultural / Environmental / Economic / Health* - no new impacts	Would not impact on the status quo prediction of demand.	Provides a kerbside recycling service
Review current waste services to: • **Ensure service funding model to ensure Council can remain within a predictable budget, meet future needs and provide good value to residents** • **Assess whether Te Uku warrants inclusion in the kerbside service area**	Increasing quantity of waste to landfill The need to ensure effective and affordable provision of waste services Potential for greater community partnership, engagement and understanding of waste issues	*Social/Cultural:* some improved consistency in approach *Environmental:* impacts depend on outcomes of review *Economic:* shared services could reduce costs and enable access to better quality services. *Health:* Enhanced services could facilitate appropriate disposal and reduce health impacts	Improve ability to meet prediction of demand for waste services and facilities	Provision of services (under contract)
Councils enter into shared service or joint procurement arrangements where there is mutual benefit	Increasing quantity of waste to landfill Data quality and management of data Potential for greater joint working in Council service delivery	*Social/Cultural*: some improved consistency in approach. *Environmental:* impacts depend on the collaborative strategies and projects. *Economic:* shared services could reduce costs and enable access to better quality services. *Health:* Enhanced services would facilitate appropriate disposal and reduce health impacts	No significant impact on status quo forecast of future demand	Council to approach neighbouring authorities to form collaborative partnerships on various strategic or operational projects Where services are to be shared there will a need to align service provision and contract dates
Establishment of a social/sustainable procurement model over time	Increasing quantity of waste to landfill Data quality and management of	*Social/Cultural:* Supporting community capacity and fostering strong communities *Environmental:* improvement to waste recovery	Could enable management of future demand while also meeting LTP objectives	Changes to council procurement practices. Council recognise the importance of diversity in the mix of scales of

	data Potential for greater joint working in Council service delivery	*Economic:* Could result in benefits for the local economy *Health*: Enhanced services enabling separation of materials could reduce health impacts		economy and localised solutions Councils will support a mix of economic models to target best fit solutions depending on the situation
Monitor the food waste service provided by Xtreme Zero Waste in Raglan, and assess the potential to expand the service to other communities after the service has been in operation for at least two years	Increasing quantity of waste to landfill Data quality and management of data Potential for greater joint working in Council service delivery	*Social/Cultural:* Improved services to residents *Environmental:* Reduced waste to landfill *Economic:* Additional costs to ratepayers *Health*. Vulnerable sectors of the community may not be able to afford increased costs. Potential for animal strike	Would need to be developed to take into account future demand	Council would be service provider (contracted service)
Investigate the introduction of programmes to avoid and reduce food waste; and increase composting and associated behaviours	Increasing quantity of waste to landfill Data quality and management Potential for greater joint working in Council service delivery and regional and sub-regional collaboration Greater community partnership, engagement and understanding of waste issues	*Social/cultural:* Community awareness and engagement in the waste minimisation process, taking a higher level of ownership of the food waste issues. *Environmental:* Education programmes would seek to establish, support and extend positive behaviours that reduce environmental impact *Economic:* funded through waste levy funding *Health*: Information regarding health risks of relevant waste materials and appropriate management targeted to audiences needs	Improved ability to meet future requirements Education alone will not support behaviour change. Pathways need to be provided for residents and businesses to take action on education messages and be supported to make behaviour change actions.	Councils would fund and coordinate education and engagement programmes. Programmes may be delivered by community or other partners.

Table 24 Options: Collection services and Procurement

8.4 Options: Infrastructure

8.4.1 Resource recovery

Potentially, resource recovery and recycling services could be expanded via the introduction of additional resource recovery centres based on the Xtreme Zero Waste (Raglan) model.

The Xtreme Zero Waste resource recovery facility is a nationally recognised facility which has been used as a model for similar facilities throughout the country, including Auckland, and Waikato District Council is able to 'tap in to' the wealth of knowledge and experience available at Xtreme Zero Waste. The success of the facility at diverting waste from landfill could be replicated at additional locations in the District. Possible locations include Huntly, Ngaruawahia and Pokeno; and potentially supporting a facility in Pukekohe (jointly with Auckland Council) as per a pre-existing scoping study that Waikato District Council has engaged in.

Some budget has already been accounted for in the Long-Term Plan for a facility at Huntly, however if a facility at Pokeno is to be considered – the purchase of land should be addressed sooner rather than later as land prices in that area are increasing rapidly.

Establishing a resource recovery facility in conjunction with community groups is likely to provide additional benefits, beyond just waste minimisation including job creation, local spending, reuse/repair facilities and community engagement with waste minimisation.

8.4.2 Options: Infrastructure

Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
Status Quo infrastructure	No effect on any of the key issues.	*Social / Cultural / Environmental / Economic / Health* - no new impacts	Would not provide any benefit towards meeting prediction of demand.	Provides a kerbside recycling service
Investigate and, where applicable, facilitate the development of additional resource recovery centres similar to the Xtreme Zero Waste facility in Raglan. Possible locations include Huntly, Ngaruawahia and Pokeno and a joint facility with Auckland Council at a Pukekohe location.	Increasing quantity of waste to landfill Poor data quality and management Potential for greater community partnership, engagement and understanding of waste issues Insufficient resource recovery infrastructure in the District to meet future demand Inconsistent infrastructure provision for resource recovery - while the Raglan area is well serviced for resource recovery, other areas are lacking access to resource recovery, reuse and repair facilities.	*Social/Cultural*: improved consistency in approach. *Environmental:* improved environmental outcomes including an increased diversion of waste from landfill *Economic:* local employment, potential for new small businesses to develop to meet reuse/recycling demand. Funded by waste levy and funding applications to the Waste Minimisation Fund (government) *Health:* Enhanced services would facilitate appropriate disposal and reduce health impacts	Increased ability to meet forecast of future demand	Investigation of potential facilities Leadership in collaborative projects with community partners Project management and assistance providing and obtaining funding

Table 25 Options: Infrastructure

8.5 Influence and partnerships

A number of opportunities have been identified for WDC to exert influence and / or partner with others to achieve waste avoidance, reduction or minimisation. These include:

- greater community partnership, engagement to foster understanding of waste issues
- potential for greater joint working in Council service delivery, regional and sub-regional collaboration; and
- advocacy for Product Stewardship.

In addition, there is the potential to establish a Zero Waste Sector Working Group to assist council to encourage the communities towards becoming a 'zero waste communities'. This could be a sub-regional group in collaboration with Hamilton City and Waipa District councils and similar to Waikato/Bay of Plenty Sector Advisory group supporting the regional Councils achieve their waste minimisation goals.

8.5.1 Options relating to influence and partnerships

Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
Maintain existing education programmes and partnerships	No change	*Social/Cultural*: no change in community level of ownership of waste issues	No significant impact on status quo forecast of future demand	No change
Engage in regional cooperation including appointing a regional Coordinator to assist with joint projects. Each Council responsible for own jurisdiction.	A regional coordinator will assist in progressing closer working in a number of areas including solid waste bylaws, education and data	*Social/Cultural:* improve community level of ownership of waste issues *Environmental:* improved resource efficiency and reduce harm from waste *Economic*: Shared funding	Assist in meeting future demand	Continue to develop strategic documents through the joint committee. Funding for agreed projects and initiatives.
Engage in sub-regional co-operation by continuing to work closely with Hamilton City and Waipa District Councils	Data quality and management Greater community partnership, engagement and understanding of waste issues	*Social/Cultural:* improve community level of ownership of waste issues *Environmental:* improved resource efficiency and reduce harm from waste *Economic:* Potential to identify	Assist in meeting future demand	Staff time and potentially some funding identified on a case by case basis.

		areas of job creation *Health:* Health impacts dependent on the nature of the collaboration.		
Establish a Zero Waste Sector Working Group to assist council to encourage the communities towards becoming a 'zero waste communities'.	Data quality and management Greater community partnership, engagement and understanding of waste issues	*Social/Cultural:* improve community level of ownership of waste issues *Environmental:* improved resource efficiency and reduce harm from waste *Economic:* Potential to identify areas of job creation *Health:* Health impacts dependent on the nature of the collaboration.	Assist in meeting future demand	Staff time and potentially some funding identified on a case by case basis.
Strongly advocate for effective product stewardship and regulation under section 2 of the WMA2008 and support independent organisations advocating for similar outcomes	Increasing quantity of waste to landfill Data quality and management Greater community partnership, engagement and understanding of waste issues Insufficient resource recovery infrastructure in Waikato District to meet future demand	*Social/Cultural:* product take back schemes will require behaviour change by product producers and consumers; potentially better management of hazardous materials. *Environmental:* improved resource efficiency. *Economic:* producer responsibility for key waste streams reduces reliance on council funded services *Health*: product take back will ensure better management of hazardous materials	Product stewardship is specifically enabled in the WMA. Fully enacting this principle will help ensure true costs of products are reflected in their price. Call for the introduction of a container deposit scheme Product stewardship schemes will assist Council to meet future demand by providing effective waste recycling services for products such as e-waste, agricultural chemicals and tyres	Strongly advocate to Government for regulation and product stewardship Work with other councils to call for product stewardship and regulation Work with DHB's and others to establish and implement product take back schemes for medical waste and other materials Support NGO's and other organisations acting to achieve producer responsibility for end of life products
Collaborate with Mana Whenua, community groups and private sector to	Increasing quantity of waste to landfill Potential for greater joint	*Social/Cultural:* potential for downstream job creation *Environmental:* potential	There are waste minimisation activities such as reuse shops that are marginally cost effective in	Council to lead and facilitate Council funding & staff support may be required for both

investigate and (if suitable) implement opportunities to enhance economic development through resource recovery	working in Council service delivery and regional and sub-regional collaboration Greater community partnership, engagement and understanding of waste issues	enhancement through waste minimisation *Economic:* could result in benefits for the local economy *Health:* Health impacts dependent on the nature of the collaboration.	strictly commercial sense, but provide opportunities for social enterprise/charitable community group. Having all three sectors working together can provide mutual benefits for all.	establishment and ongoing support of opportunities. Council to employ a waste minimisation officer.
Continue existing education programmes including application of the Regional Waste Education Strategy and identify areas where an extension of services would be beneficial e.g. In-schools program extended to Northern areas of the District	Increasing quantity of waste to landfill Data quality and management Potential for greater joint working in Council service delivery and regional and sub-regional collaboration Greater community partnership, engagement and understanding of waste issues	*Social/Cultural*: no change in community level of ownership of waste issues *Environmental:* education programmes aim to establish and support positive behaviours that reduce environmental impact *Economic:* currently funded *Health*: Public informed of health risks of waste materials and appropriate disposal pathways	Awareness of waste issues and behaviour would not change significantly from current situation	Council would continue to fund and coordinate education programmes

Table 26 Options: Influence and partnerships

8.6 Summary table of potential scenarios

The above options can form an almost infinite number of combinations. To simplify consideration of the options, high level scenarios with logical combinations of the above options are laid out in the table below. The scenarios are for illustration and can be amended.

	Status Quo	Scenario 1: Recomended	Scenario 2:
Service Model	No change from current service model	Review current waste services to: • Ensure service funding model to ensure Council can remain within a predictable budget, meet future needs and provide good value to residents • Assess whether Te Uku warrants inclusion in the kerbside service area	Review current waste services to: • Ensure service funding model to ensure Council can remain within a predictable budget, meet future needs and provide good value to residents • Include Te Uku in the kerbside service area
Data & regulation	No Solid Waste Bylaw or operator and facility licensing Data not in alignment with National Waste Data Framework	Regionally aligned bylaw with operator and facility licensing, data provision, service standards and receptacle restrictions All reporting to be against the standard reporting indicators under the National Waste Data Framework Regional or sub-regional licensing to reduce compliance costs Investigate utilising social procurement mechanisms for waste services Complete Event Waste Management Guidelines	Regionally aligned bylaw with operator and facility licensing, data provision, service standards, and receptacle restrictions All reporting to be against the standard reporting indicators under the National Waste Data Framework WDC provide licensing provisions separate to other councils in the region Promote social procurement mechanisms for waste services Complete Event Waste Management Guidelines
Organic waste	No expansion of Raglan food waste service	Assess Raglan food waste service and consider options to expand service to other communities where applicable Investigate programmes to avoid and reduce food waste; encourage better behaviours around food waste and increase composting and associated behaviours	Provide a kerbside food waste collection service to all urban households and introduce programmes to avoid and reduce food waste; encourage better behaviours around food waste
Infrastructure	No change to waste	Investigate and, where applicable, facilitate the	Investigate and, where applicable, facilitate the development of additional resource recovery centres.

	infrastructure	development of additional resource recovery centres.	Commit to a minimum of two additional facilities by 2024.
Influence and partnerships	No advocacy for product stewardship Maintain current relationships and level of regional collaboration	Advocate for effective product stewardship and regulation and support independent organisations advocating for similar outcomes Engage in regional cooperation including appointing a Regional Coordinator to assist with joint projects. Each Council would be responsible for own jurisdiction. Collaborate with Mana Whenua, community groups and private sector to investigate and (if suitable) implement opportunities to enhance economic development through resource recovery Continue existing education programmes including application of the Regional Waste Education Strategy Council provides guidance for event waste management programmes	Commit budget allocation for ongoing advocacy programme calling for effective product stewardship and regulation and support independent organisations advocating for similar outcomes Engage in regional cooperation including appointing a Regional Coordinator to assist with joint projects. Each Council responsible for own jurisdiction. Collaborate with Mana Whenua, community groups and private sector to investigate and implement opportunities to enhance economic development through resource recovery Expand existing education programmes including application of the Regional Waste Education Strategy Council provides an event waste management programme

Table 27 Summary: Potential scenarios

PART 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 Councils' waste strategy.
- Under the Local Government Act 2002 (LGA) the Councils must consult the public about their plans for managing waste.
- Under the Resource Management Act 1991 (RMA), TA responsibility includes controlling the effects of land-use activities that have the potential to create adverse effects on the natural and physical resources of their district. Facilities involved in the disposal, treatment or use of waste or recoverable materials may carry this potential. Permitted, controlled, discretionary, non-complying and prohibited activities and their controls are specified within district planning documents, thereby defining further land-use-related resource consent requirements for waste-related facilities.
- Under the Litter Act 1979 TAs have powers to make bylaws, issue infringement notices, and require the clean-up of litter from land.
- The Health Act 1956. Health Act provisions for the removal of refuse by local authorities have been repealed by local government legislation. The Public Health Bill is currently progressing through Parliament. It is a major legislative reform reviewing and updating the Health Act 1956, but it contains similar provisions for sanitary services to those currently contained in the Health Act 1956.
- 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.

The Waikato/BoP region Councils, in determining their role, need to ensure that their statutory obligations, including those noted above, are met.

9.2 Overall Strategic Direction and Role

The Councils overall strategic direction and role has been set out in the Waikato District Council 2018-2024 WMMP.

[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.

PART 10 - STATEMENT OF PROPOSALS

Council proposes for the 6-year term of its next WMMP to continue providing the following current waste services in the Waikato District:

- Council provided kerbside refuse and recycling collection, processing and disposal
- Litter bin servicing and illegal dumping collection
- Ongoing monitoring of closed landfills to ensure that resource consent conditions continue to be met; and
- Waste minimisation promotion and education
- Management of waste to ensure protection of health

In addition, 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. Actions and timeframes for delivery of these proposals are identified in the 2018-2024 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 Councils' goals and objectives for waste management and minimisation. These goals and objectives will be confirmed as part of the development and adoption of the 2018-2024 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 and uncontrolled disposal of waste, for example in rural areas and in cleanfills, will be regulated through local and regional bylaws. It is considered that these proposals will 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

A draft of the Waste Assessment was provided to the Medical Officer of Health for comment as per the requirements of the Waste Minimisation Act 2008.

The Act states:

Section 51 Requirements for waste assessment

(5) In making an assessment, the territorial authority must—

(a) use its best endeavors to make a full and balanced assessment; and

(b) consult the Medical Officer of Health.

Commentary from the Medical Officer of Health is provided below.
The Medical Officer of Health supports the proposed options to improve waste management and minimization, access to quality data, and the proposed focus for activities.

POPULATION HEALTH

Waikato District Health Board

8 February 2018

Sandra Murray
Zenzic Consulting
Sandra@zenzic.nz

Dear Sandra,

Re: Waikato District Council: Waste Assessment. February 2018

Thank you for the opportunity to comment on the 2018 Waste Assessment for Waikato District Council, as per the requirements of Section 51 of the Waste Minimisation Act 2008. I have reviewed the assessment and am pleased to be able to respond and provide some comments.

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

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

This waste assessment is a well written, comprehensive document. It has identified some key issues that are likely to be of concern in terms of public health.

The waste assessment notes that there are a number of gaps in waste data for the district, partly due to private operators and facilities not being required to provide detailed information about waste and recycling volumes. Of particular note is the lack of data available on hazardous wastes. Good quality waste data is important, as it is only through a clear understanding of the amount and composition of the various waste streams that appropriate plans can be put into place to minimise waste. I therefore support activities that may help to address this issue, including the proposed option to implement a regionally consistent solid waste bylaw and waste licensing system.

Farms waste has been identified as contributing to an estimated 47% of all waste within the district. The Rural Waste Survey Data Analysis: Waikato & Bay of Plenty, indicates that 100% of farms burn, bury or bulk store waste on site, and that 50% of rural property had a burn pile or farm dump less than 40 metres from a water course or drain. Such practices risk contamination of waterways and land in the longer term. I therefore encourage Council engagement with farms to help quantify and address

DHB2
Hugh Monckton Trust Building, Rostrevor Street, Private Bag 3200, Hamilton 3240, New Zealand
T: 07 838 2569 F: 07 838 2382
www.waikatodhb.health.nz

this issue. I support the suggested facilitation of the uptake of farm waste services through a combination of education and the identification and removal of barriers to appropriate waste disposal.

Public Health can be protected in the longer term by minimising the impact of waste on our environment. I therefore support actions that reduce waste to landfill, such as reducing, recycling and reusing. I note that there has been an increase in recyclable material recovered per capita in 2016 compared to 2012, which appears promising. However, waste volumes to landfill have increased over the same period and waste generated is expected to further increase with population growth. Ongoing work in this area will therefore be required.

I acknowledge the success of the Xtreme Zero Waste facility in Raglan for diverting material from landfill. As noted within the Waste Assessment, other parts of the District have less access to such services. I support the proposed option to facilitate the development of additional resource recovery centres within the District, similar to the facility in Raglan.

An estimated 65% of Waikato District's waste to landfill may be related to industrial, commercial and institutional sources. The Waste Assessment has noted that there are three known large scale waste generators, and has suggested that it may be useful for Council to undertake further investigation and potentially provide educative support for these companies in order to reduce waste to landfill. I would support such an initiative by Council and recommend that this be considered as an option to help address the increasing quantity of waste to landfill. Identification and removal of barriers to reducing and recycling of waste by industrial, commercial and institutional sources would also be important.

I note the discussion within the Waste Assessment relating to user pays refuse services versus rates funded refuse services. I recognise the potential benefit of incentivising recycling and reducing waste volumes from a user pays waste collection service, however, protection of public health includes ensuring that this does not lead to inequities for those who may struggle to afford it. Reducing the size of the MGB bin may provide a fairer and more equitable means of encouraging waste reduction. This issue would also need to be considered should the Council decide to fully privatise the refuse service, to ensure that privatisation did not lead to an inequitable outcome for lower socioeconomic groups.

Once again, thank you for the opportunity to comment on the Waste Assessment. The Waikato Public Health Unit recognises that effective waste management contributes to better health outcomes for the community and would like to continue working with the Council in the development of the Waste Management Plan.

Kind regards

Dr Richard Wall
Medical Officer of Health

A.2.0 Glossary of Terms

Term	Definition
Cleanfill	A cleanfill (properly referred to as a Class 4 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
Hazardous waste	Means any waste that contains hazardous substances at sufficient concentrations to exceed the minimum degrees of hazard specified by Hazardous Substances (Minimum Degrees of Hazard) Regulations 2001 under the Hazardous Substances and New Organism Act 1996; or that meets the definition for infectious substances included in the Land Transport Rule: Dangerous Goods 1999 and NZS 5433: 2012 – Transport of Dangerous Goods on Land; or that meets the definition for radioactive material included in the Radiation Safety Act 2016.
ICI	Industrial, Commercial, Institutional
Landfill	A 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'. Properly referred to as a Class 1 landfill. See Landfill categories and definitions in Appendix A.2.2 below
LGA	Local Government Act 2002
Managed Fill	A 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. Properly referred to as a Class 3 landfill.
MfE	Ministry for the Environment
MRF	Materials Recovery Facility
MSW	Municipal Solid Waste
NZ	New Zealand

NZWS	New Zealand Waste Strategy
Putrescible; garden or green waste	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.
Special waste	Waste that fits into significant, identifiable waste streams, usually from a single generator. Special wastes are those that cause particular management and/or disposal problems and need special care. This includes, but is not restricted to, hazardous and medical wastes (including e-wastes).
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 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

Table 28 Glossary of terms

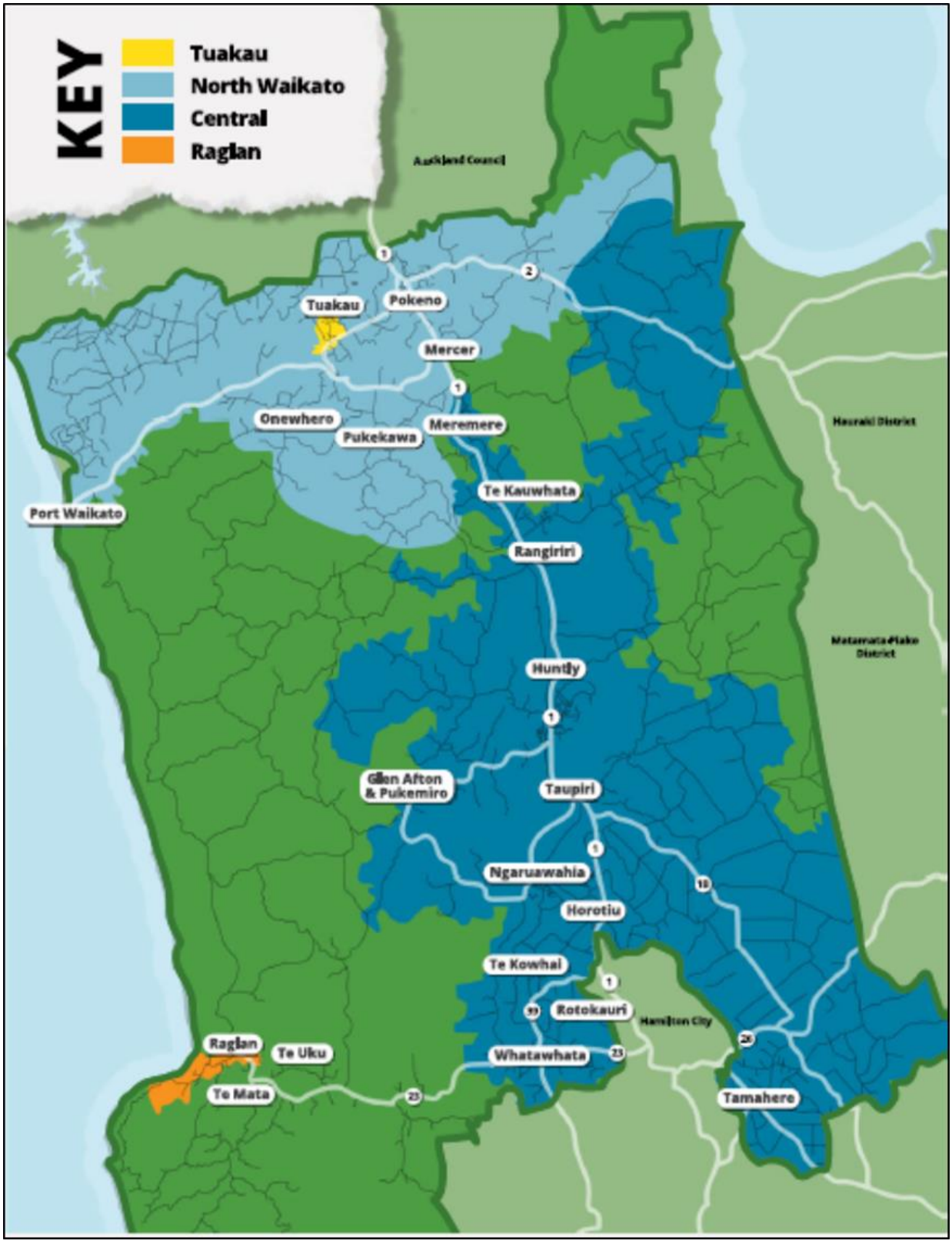
Landfill definitions (From the 'Technical Guidelines for Disposal to Land' (2016))	
WAC	Waste Acceptance Criteria
Class 1 - Landfill	A Class 1 landfill is a site that accepts municipal solid waste as defined in the Guidelines. A Class 1 landfill generally also accepts C&D waste, some industrial wastes 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 comprises: • municipal solid waste; and • for potentially hazardous leachable contaminants, maximum chemical contaminant leachability limits (TCLP) from Module 2 Hazardous Waste Guidelines – Class A4.
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 as defined in these Guidelines. 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. 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 biodegradeable 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. For Class 2 landfills, leachability testing should be completed to provide assurance that waste materials meet the WAC.
Class 3 Landfill – Managed/Controlled Fill	A Class 3 landfill accepts managed fill materials as defined in the Guidelines. 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.
Class 4 Landfill - Cleanfill	Class 4 landfill accepts only clean fill material as defined in the Guidelines. The principal control on contaminant discharges to the environment from Class 4 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 comprises: • 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 4 landfill should pose no significant immediate or future risk to human health or the environment.
Note: The Guidelines should be referred to directly for the full criteria and definitions.	

Table 29 Landfill definitions

A.3.0 Area map of council services



A.4.0 National Legislative and Policy Context

(a) The 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 New Zealand Waste Strategy is available on the Ministry's website at

www.mfe.govt.nz/publications/waste/new-zealand-waste-strategy-reducing-harm-improvingefficiency.

(b) 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 and 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.

The Government has announced a review of the Waste Minimisation Act 2008 to be completed in 2018.

(c) Waste 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 2017[33]. This review notes that for the review period of 1 July 2013 to 30 June 2016, levied waste disposal facilities received a total of 10,681,295 gross tonnes of waste. From this, 1,207,786 tonnes of material were diverted, leaving total net waste to landfill at 9,473,509 tonnes. Total gross tonnage of waste

increased by 16.4% from the 2014 review, while the quantity of waste diverted decreased by 6.3%. As a result, the total net tonnage disposed to levied landfills has increased by 20.1% since the 2014 review.

[33] Ministry for the Environment. 2017. 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

The review goes on to note: "Systems and processes to administer the waste disposal levy are operating efficiently and effectively, and all stakeholders are meeting their obligations relevant to this review as prescribed in the Waste Minimisation Act. However, annual levied waste is increasing, indicating that the levy is not currently achieving its objective. Added to this, the majority of New Zealand's waste disposal facilities are exempt from the levy and no data is available about the waste that is disposed at these facilities".

In conclusion, the Ministry intends to develop and implement a staged approach to applying the waste disposal levy across additional classes of landfills and assess the role of a differential rating system. This staged approach will be developed over a 1-5-year period.

(d) Product Stewardship

Under the Waste Minimisation Act 2008, if the Minister for the Environment declares a product to be a priority product, a product stewardship scheme must be developed and accredited to ensure effective reduction, reuse, recycling or recovery of the product and to manage any environmental harm arising from the product when it becomes waste[34]. No Priority Products have been declared as of May 2015.[35]

Further details on current schemes are available on: http://www.mfe.govt.nz/waste/product-stewardship/accredited-voluntary-schemes

(e) Waste Minimisation Fund

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

- Investment in infrastructure;
- Investment in waste minimisation systems and
- Increasing educational and promotional capacity.

Criteria for the Waste Minimisation Fund have been published:

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

[34] Waste Management Act 2008 2(8)

35 MfE, Priority waste streams for product stewardship intervention: Consultation Feedback Publication date: April 2015

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.

(f) Local Government Act 2002

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

The LGA contains various provisions that may apply to councils when preparing their WMMPs, including consultation and bylaw provisions. For example, Part 6 of the LGA refers to planning and decision-making requirements to promote accountability between local authorities and their communities, and a long-term focus for the decisions and activities of the local authority. This part includes requirements for information to be included in the long-term plan (LTP), including summary information about the WMMP.

More information on the LGA can be found at ww.dia.govt.nz/better-local-government.

(g) Resource Management Act 1991

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

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

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

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

In addition, the RMA provides for the development of national policy statements and for the setting of national environmental standards (NES). There 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.

(h) New 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. To date however the impact of the NZETS on disposal prices has been very small. There are a number of reasons for this:

- The global price of carbon crashed during the GFC in 2007-8 and has never recovered. Prior to the crash it was trading at around $20 per tonne. The price has been as low as $2, but 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 $18 per tonne)[36].
- The transitional provisions of the Climate Change Response Act, which were extended indefinitely in 2013 (but have now been reviewed), mean that landfills have only had to surrender half the number of units they would be required to otherwise[37]
- 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 negligible. Disposal facilities have typically imposed charges (in the order of $5 per tonne) to their customers, but these charges currently reflect mainly the costs of scheme administration, compliance, and hedging against risk rather than the actual cost of carbon.

The way the scheme has been structured to date also results 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.

Despite these constraints on the impact of the ETS, there may be potential for the picture to change in the future (to a degree). The United Nations Climate Change Conference, (COP21)

[36] https://carbonmatch.co.nz/ accessed 19 July 2016
[37] The two for one transitional provisions are now to be phased out by the Government from 1 January 2017

to be 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 result in growing demand for carbon offsets and hence drive up the price of carbon. The other factor which is likely to come into play is the removal of the transitional provisions from 1 January 2017– meaning that landfills will need to surrender twice the number of NZUs they do currently. Even in a 'worst case' scenario however where the transitional provisions are removed and the price of carbon rises dramatically to say $50 per tonne, the liability for a landfill that is capturing 80% of methane generated would only be $13.10.[38] Therefore while the ETS could have an impact on disposal costs in the medium term this level of impact will likely not be sufficient to drive significant change in the waste sector.

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

(i) Litter 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, refuse, 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.

(j) 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

[38] Each tonne of waste is assumed under the NZETS to generate 1.31 tonnes of CO_2 equivalent. Therefore one tonne of waste requires 1.31 carbon offsets, which at $50 a tonne would cost $65.50. 20% of $65.50 (the liability if 80% of methane is captured and destroyed) is $13.10

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.[39]

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

(k) 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 stringent controls relating to the use of land for storing, using, disposing of or transporting hazardous substances.[40]

(l) Health and Safety at Work Act 2015

The new Health and Safety at Work Act, passed in September 2015 replaces the Health and Safety in Employment Act 1992. The bulk of the Act is due to come 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.

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

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.

Health and Safety at Work (Hazardous Substances) Regulations 2016 are due to be released March 2017 and come into effect December 2017. These regulations will place additional controls on the collection, storage, handling and transport of hazardous waste. If a council managed household hazardous waste facility or service is established, they will need to comply with these regulations.

(m) Other legislation

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.5.0 International commitments

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

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

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

A.6.0 Table of Tables

A.7.0 Table of Figures