Central Hawkes Bay District Council

Waste Assessment

FINAL

04.09.2019

Report for the Central Hawkes Bay District Council

Prepared by

Lisa Eve (Eunomia) and Waste Not Consulting Ltd

Reviewed by

Duncan Wilson (Eunomia)

Approved by

Darren de Klerk (CHBDC) and Central Hawkes Bay District Council

Eunomia Research & Consulting Ltd
PO Box 78 313
Grey Lynn
Auckland 1245

New Zealand

Tel: +64 9 376 1909

Web: www.eunomia.co.nz

Acknowledgements

Waste Not Consulting Ltd

Higgins Contractors - Waipukurau

Smart Environmental

Disclaimer

Eunomia Research & Consulting has taken due care in the preparation of this report to ensure that all facts and analysis presented are as accurate as possible within the scope of the project. However no guarantee is provided in respect of the information presented, and Eunomia Research & Consulting is not responsible for decisions or actions taken on the basis of the content of this report.

Contents

1 ... Introduction 1

1.1 Structure of this Document 1

1.2 Purpose of this Waste Assessment 2

1.3 Legislative Context 2

1.4 Scope 3

1.4.1 General 3

1.4.2 Period of Waste Assessment 3

1.4.3 Consideration of Solid, Liquid and Gaseous Wastes 3

1.4.4 Public Health Issues 4

1.5 Strategic Context 5

1.5.1 New Zealand Waste Strategy 5

1.5.2 International Commitments 6

1.5.3 National Projects 6

1.6 Local and Regional Planning Context 7

1.6.1 Long Term Plan 8

1.6.2 Environmental and Sustainability Strategy 9

1.6.3 Draft Solid Waste Asset Management Plan 2017 10

1.6.4 Hawke's Bay Regional Council 10

2 ... Our District 13

2.1 Hawke's Bay Region 13

2.2 Physical Characteristics of the District 13

2.2.1 Overview 13

2.2.2 Geography 14

2.2.3 European Settlement 14

2.2.4 Demographics 15

1.1.1 Summary 17

2.3 Economy 18

2.3.1 Freezing Works 18

2.3.2 Te Mata Mushroom Company 18

2.3.3 Pasture Petfoods 18

2.3.4 Residential (Boarding) Schools 19

2.4 Implications of Economic and Demographic Trends 19
3 ... Waste Infrastructure 20
3.1 Disposal Facilities 20
3.1.1 Class 1 Landfills 21
3.1.2 Transfer Stations 22
3.1.3 Recycling Drop-off Points 23
3.1.4 Closed Landfills 24
3.1.5 Class 2-4 Landfills 25
3.1.6 Assessment of Residual Waste Management Infrastructure 26
3.2 Hazardous Waste Facilities and Services 26
3.2.1 Agrecovery and Plasback Rural Recycling 27
3.3 Recycling and Reprocessing Facilities 27
3.3.1 Recycling and Reprocessing Facilities Outside the District 27
3.3.2 Assessment of Recycling and Reprocessing Facilities 28
4 ... Waste Services 29
4.1 Council-provided Waste Services 29
4.1.1 Kerbside Services 29
4.1.2 Other Council Services 29
4.1.3 Waste Education and Minimisation Programmes 30
4.1.4 Solid Waste Bylaws 30
4.1.5 Litter Control and Enforcement 30
4.1.6 Public Litter Bins 30
4.1.7 Abandoned Vehicles 30
4.1.8 Rural and Farm Waste 31
4.1.9 Hazardous Waste 31
4.1.10 E-waste 31
4.2 Assessment of Council-provided Solid Waste Services 31
4.3 Funding for Council-provided Services 31
4.4 Non-Council Services 31
4.4.1 Assessment of Non-Council Services 32
5 ... Situation Review 33
5.1 Waste to Class 1-5 Landfills 33
5.1.1 Definitions Used in this Section 33
5.2 Waste Quantities to Class 1-5 Landfills 33

5.2.1 Quantities of Waste to Class 1 Landfills ... 33
5.2.2 Quantities of Waste Disposed of to Land ... 33
5.3 Waste to Class 1 Landfills ... 35
5.3.1 Composition ... 35
5.3.2 Activity Source and Composition ... 35
5.3.3 Diversion Potential ... 37
5.4 Composition of Kerbside Refuse ... 37
5.4.1 Composition of the Kerbside Waste Stream ... 38
5.5 Diverted Materials ... 42
5.5.1 Overview of Diverted Materials ... 42
6 ... Performance Measurement ... 43
6.1 Current Performance Measurement ... 43
6.1.1 Per Capita Waste to Class 1 Landfills ... 44
6.1.2 Diversion Potential of Waste to Class 1 Landfills ... 45
7 ... Future Demand and Gap Analysis ... 47
7.1 Future Demand ... 47
7.1.1 Population ... 47
7.1.2 Changes in Household Numbers ... 48
7.1.3 Economic Activity ... 49
7.1.4 Changes in Lifestyle and Consumption ... 50
7.1.5 Changes in Waste Management Approaches ... 51
7.1.6 Confidence Levels of Data ... 51
7.1.7 Summary of Demand Factors ... 53
7.1.8 Projections of Future Demand ... 54
7.2 Future Demand – Gap Analysis ... 54
7.2.1 Waste Streams ... 54
8 ... Initial Review of the 2015 Waste Management and Minimisation Plan ... 56
8.1 Data ... 56
8.2 Key Issues ... 56
8.3 Other Issues Not Addressed ... 56
8.4 Guidance on WMMPs ... 57
8.5 Actions, Implementation Plan and Progress ... 57
9 ... Statement of Options ... 59
9.1 Key Issues to Be Addressed by WMMP ... 59

10. Statement of Council's Intended Role **67**
10.1 Statutory Obligations and Powers 67
10.2 Overall Strategic Direction and Role 68
11. Statement of Proposals **69**
11.1 Statement of Extent 69
11.1.1 Protection of Public Health 69
11.1.2 Effective and Efficient Waste Management and Minimisation 69
A.1.0 Medical Officer of Health Statement **71**
A.2.0 Glossary of Terms **72**
A.2.1 Classifications for Disposal to Land **74**
A.3.0 National Legislative and Policy Context **78**
A.3.1 The New Zealand Waste Strategy 2010 ..... **78**
A.3.2 Waste Minimisation Act 2008 ..... **78**
A.3.3 Waste Levy **80**
A.3.4 Product Stewardship **80**
A.3.5 Waste Minimisation Fund **81**
A.3.6 Local Government Act 2002 ..... **82**
A.3.6.1 Section 17A Review **83**
A.3.7 Resource Management Act 1991 ..... **84**
A.3.8 New Zealand Emissions Trading Scheme **85**
A.3.9 Litter Act 1979 ..... **87**
A.3.10 Health Act 1956 ..... **87**
A.3.11 Hazardous Substances and New Organisms Act 1996 (HSNO Act) **88**
A.3.12 Health and Safety at Work Act 2015 ..... **88**
A.3.13 Other legislation **89**
A.3.14 International commitments **89**

1 Introduction

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

1.1 Structure of this Document

This document is arranged into a number of sections designed to help construct a picture of waste management in our district. The key sections are outlined below.

Introduction

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

Hawke's Bay Region

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

Our District

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

Waste Infrastructure, Services, Data and Performance Measurement

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

Gap Analysis and Future Demand

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

Statement of Options & Council's Proposed Role

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

Statement of Proposals

The statement of proposals sets out what actions are proposed to be taken forward. The proposals are identical to the actions that will be put forward in the upcoming Waste Management and Minimisation Plan (WMMP) so the Waste Assessment simply references the WMMP for this section.

Appendices

The appendices contain additional waste management data and further detail about waste management and minimisation infrastructure (fixed and moveable). This section includes the statement from the Medical Officer of Health as well as additional detail on legislation.

1.2 Purpose of this Waste Assessment

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

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

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

1.3 Legislative Context

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

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

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

The WMA requires every TA to complete a formal review of its existing waste management and minimisation plan at least every six years. The review must be consistent with WMA sections 50 and 51. Section 50 of the WMA also requires all TAs to prepare a 'waste assessment' prior to reviewing its existing plan. This document has been prepared in fulfilment of that requirement.

Although the Council adopted a revised WMMP in 2018, it was on the understanding that a full waste assessment and revised WMMP would be produced during 2019.

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

1.4 Scope

1.4.1 General

As well as fulfilling the statutory requirements of the WMA, this Waste Assessment will build a foundation that will enable the Council to update its WMMP in an informed and effective manner. In preparing this document, reference has been made to the Ministry for the Environment's 'Waste Management and Minimisation Planning: Guidance for Territorial Authorities'[1].

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

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

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

The New Zealand Waste Strategy 2010 also makes clear that TAs have a statutory obligation (under the WMA) to promote effective and efficient waste management and minimisation in their district. This applies to all waste and materials flows in the district, not just those controlled by councils.

1.4.2 Period of Waste Assessment

The WMA requires WMMPs to be reviewed at least every six years, but it is considered prudent to take a longer-term view. The horizon for the WMMP is not fixed but is assumed to be centred on a 10-year timeframe, in line with council's long term plans (LTPs). For some assets and services, it is necessary to consider a longer timeframe and so this is taken into account where appropriate.

1.4.3 Consideration of Solid, Liquid and Gaseous Wastes

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

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

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

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

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

In addition to the Council-owned and operated landfill near Waipukurau, the nearest landfills are in Hastings to the north, and Wairoa even further north.

There are also four refuse transfer stations (RTSs) and eight closed landfills in the district.

This Waste Assessment is focused on solid waste that is disposed of to land or diverted from land disposal, including solid waste collected and disposed of by commercial enterprise as well as waste collected by the council.

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

1.4.4 Public Health Issues

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

Protection of public health is currently addressed by a number of pieces of legislation. Discussion of the implications of the legislation is contained in Appendix A.3.0.

1.4.4.1 Key Waste Management Public Health Issues

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

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

1.4.4.2 Management of Public Health Issues

From a strategic perspective, the public health issues listed above are likely to apply to a greater or lesser extent to virtually all options under consideration. For example, illegal dumping tends to take place ubiquitously, irrespective of whatever waste collection and transfer station systems are in place. Some systems may exacerbate the problem (infrequent collection, user-charges, inconveniently located facilities etc.) but, by the same token, the issues can be managed through methods such as enforcement, education and by providing convenient facilities.

In most cases, public health issues will be able to be addressed through setting appropriate performance standards for waste service contracts. It is also important to ensure performance is monitored and reported on and that there are appropriate structures within the contracts for addressing issues that arise. There is expected to be added emphasis on workplace health and safety under the Health and Safety at Work Act 2015. This legislation could impact on the choice of collection methodologies and working practices and the design of waste facilities, for example.

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

1.5 Strategic Context

1.5.1 New Zealand Waste Strategy

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

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

The NZWS provides high-level, flexible direction to guide the use of the tools available to manage and minimise waste in New Zealand. These tools include:

- The Waste Minimisation Act 2008
- Local Government Act 2002
- Hazardous Substances and New Organisms Act 1996
- Resource Management Act 1991
- Climate Change Response Act 2002 and Climate Change (Emissions Trading) Amendment Act 2008
- International conventions
- Ministry for the Environment guidelines, codes of practice
- Voluntary initiatives.

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.

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

For the purpose of this Waste Assessment, the council has given regard to the NZWS and the current WMMP (2015).

1.5.2 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[2]
3. Stockholm Convention – to eliminate or restrict the production and use of persistent organic pollutants
4. Waigani Convention – bans export of hazardous or radioactive waste to Pacific Islands Forum countries

1.5.3 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.

1.5.3.1 National Waste Data Framework Project

The first stage of the National Waste Data Framework (NWDF) project, led by WasteMINZ, was funded by a grant from the Waste Minimisation Fund. The development of the NWDF took the following form:

- A staged development approach, focusing initially on the most important elements while also setting out a clear 'upgrade' path to include other elements.
- The first stage of the NWDF (which has been completed) 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 NWDF will include more detailed data on diverted materials and waste disposed of at non-levied disposal sites.

The first stage of the NWDF is complete. WasteMINZ is now working on the implementation phase. The NWDF 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 NWDF forwards.

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

[2] It should be noted that New Zealand, as well as most other signatories to the Basel Convention, has agreed in principle to the inclusion of plastic waste.

1.5.3.2 National Standardisation of Colours for Bins

Until recently, councils and businesses in New Zealand had used a variety of colours to indicate what waste streams can be placed in what bins. This was viewed as possibly creating confusion when colours were used inconsistently and increasing the likelihood of contamination.

In October 2015 WasteMINZ, the Glass Packaging Forum, and councils around New Zealand agreed on a standardised set of colours for mobile recycling and rubbish bins, crates and internal office bins. Companies wishing to implement nationwide recycling schemes are strongly encouraged to use these colours both for their bins and also on their signage. This will ensure that the colours used are consistent with both public place recycling and household recycling. The recommended colours are:

For 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.

For bin lids, crates and internal office bins:

- Red should be used for rubbish
- Yellow should be used for commingled recycling (glass, plastic, metal and paper combined)
- Lime green should be used for food waste and food waste/garden waste combined; noting that it is strongly encouraged to use a smaller bin size for food waste-only collections than for a combined food and garden collections.
- Dark green should be used for garden waste.
- Light blue should be used for commingled glass collections (white, brown, green glass combined).
- Grey should be used for paper and cardboard recycling.

Council's kerbside recycling crates are currently black, and the official residual waste collection bags are yellow for the smaller 35L bags and lime green for the larger 60L bags. The original kerbside recycling crates and the bags were already in use in 2015 when these guidelines were released. A new kerbside recycling crate has since been added for glass, which is red.

1.6 Local and Regional Planning Context

This Waste Assessment and the resulting WMMP have been prepared within a local and regional planning context whereby the actions and objectives identified in the Waste Assessment and WMMP reflect, intersect with, and are expressed through other planning documents. Key planning documents and waste-related goals and objectives are noted in this section.

1.6.1 Long Term Plan

Council's current Long Term Plan (LTP)[3] is for the period 2018-2028. A key part of the LTP is the vision that has been set for the Council. The vision is:

"..a proud and prosperous district made up of strong communities and connected people who respect and protect our environment and celebrate our beautiful part of New Zealand"

The vision for the LTP was developed following an intensive community engagement and consultation exercise, known as 'THRIVE'. The theme of 'thriving' appears consistently through all Council's strategic documents and will be reflected in the WMMP.

This vision is supported by the purpose which is "*to create an environment that supports a thriving Central Hawke's Bay district, by providing efficient and appropriate infrastructure, services and regulatory functions."*

The TYP also includes a number of objectives, most relevant of which is to be *"environmentally responsible – Central Hawke's Bay is home to a unique and beautiful landscape. We celebrate our environment and work together to enhance our local natural wonders and resources."*

The TYP also recognises the special position that tangata whenua hold in the district, and the role they have to play in Council's decision-making process.

Council's involvement in the solid waste activity is aimed at minimising health risks through the collection and correct disposal of waste, and management of landfills; and to avoid adverse environmental effects through the recycling and management of waste. The activity is considered to contribute to towards the following community outcomes from the TYP:

- Proud District
- Connected Citizens
- Durable Infrastructure
- Prosperous District
- Smart Growth
- Strong Communities
- Environmentally Responsible

The TYP also identifies key issues that are expected to impact this activity over the term of the plan:

- Legislative changes which impact on the cost and provision of solid waste services;
- Further services and facilities are needed to meet the community's sustainability and environmental requirements;
- The ability to attract municipal waste from outside the district into the landfill, to offset costs;
- From time to time, the markets for recyclables materials may be uneconomic; and

[3] Available at https://www.chbdc.govt.nz/assets/Document-Library/Plans/Annual-Plans-and-Long-Term-Plans/20180619-CHBDC-LTP-2018-28-Final.pdf

- The affordability of maintaining existing facilities.

The solid waste activity is seen as having a risk of causing negative impacts through the creation of odour, dust, noise and vermin at the various facilities, impacting on neighbours (social); the cost of providing the services to community (economic); and various environmental issues including the potential for surface and ground water contamination, odour, dust, vermin, fire, emergency situations (such as those involving hazardous waste), and restrictions on long term land utilisation. These risks and effects are seen as minor, and are managed and/or mitigated through adhering to resource consent conditions and associated monitoring.

The TYP refers to two major solid waste projects – firstly the management of leachate irrigation from the landfill over 2018/19, and then the anticipated extension of the landfill over 2024/25.

1.6.2 Environmental and Sustainability Strategy

During 2019, Council is working with the community to develop a specific strategy addressing environmental sustainability. This was a key theme that came through project THRIVE, with the community placing great value on the natural environment.

The vision of the strategy is that together, the community and council are "successful environmental guardians, ensuring future generations THRIVE here". The aim is to reduce the environmental footprint of the district, and to protect and enhance the environment to ensure it can sustain future generations. The strategy has been developed in partnership with the 'Community Environmental and Sustainability Reference Group' and incorporates ideas gathered during project THRIVE.

One of the key ways in which the strategy seeks to protect the environment and act sustainably is to increase recycling, and reduce waste to landfill. Solid waste management will also contribute to the goal of 'managing for climate change' through the potential to reduce greenhouse gas emissions from waste management practices. The strategy identifies the WMMP as the key strategic avenue to deliver improvements in the solid waste sector, and expresses the desire to exceed the expectations outlined in the plan.

The strategy includes four key themes, shown below (with a brief summary of how these relate to solid waste management):

1) Leading the way in environmental sustainability (in-house wastes management practices and purchasing)
2) Ensuring environmental vitality through our way of working (develop and implement the WMMP and, where possible, exceed expectations)
3) Connecting our people and place (educating and raising awareness of better waste management and minimisation practices)
4) Building a sustainable economy (sustainable business practices through better waste management and minimisation)

The strategy includes a specific action to 'implement the WMMP'.

1.6.3 Draft Solid Waste Asset Management Plan 2017

The Solid Waste Asset Management Plan (SWAMP) "provides a framework for the effective and efficient long term management of the Central Hawke's Bay District Council solid waste assets".

Key issues raised in the draft SWAMP included:

- Viability of different collection methods;
- Recycling options for beach communities;
- Market volatility for recyclable materials;
- Collecting quality data;
- Destination for various diverted materials;
- Adaptability of various sites;
- Safe working environment;
- Noise impact reduction;
- Site layouts – improvements and ease of movement, and traffic movements;
- Meeting customer requirements and expectations;
- Ensuring resources can be easily handled;
- Assessing the numbers and locations of litter bins;
- Controlling windblown litter and leachate at the transfer stations and landfills (open and closed);
- Meeting the cost of closed landfill monitoring; and
- Finding solutions for difficult waste streams such as tyres and e-waste.

The SWAMP also identified a number of emerging issues that may affect solid waste assets:

- Household hazardous and medical waste disposal;
- Demand for and allocation of public litter bins;
- Access at cleanfill disposal sites;
- Waste minimisation promotion; and
- Revising performance measures and targets.

1.6.4 Hawke's Bay Regional Council

The Central Hawke's Bay District falls within the Hawke's Bay region, which includes Napier City and the Wairoa and Hastings Districts as well as CHBDC, and is covered by the Hawke's Bay Regional Council (HBRC). The HBRC adopted the Hawke's Bay Regional Resource Management Plan (RRMP) in 2006[4] which includes the regional policy statement.

The RRMP sets out a number of general environmental controls and principles that relate to the delivery of waste management, such as:

- Avoiding or mitigating nuisance effects from land use (such as odour, dust, noise, or increased traffic);

[4] https://www.hbrc.govt.nz/documents-and-forms/rrmp/

- Managing and using organic material that is derived from industries processing primary products (such as animal, fish and timber processing) in a way that does not result in adverse effects;
- Protecting the quality of groundwater, rivers, lakes and wetlands; and
- Managing physical infrastructure in a sustainable way, including landfills and waste management facilities.

The RRMP specifically notes that HBRC promotes the diversion of suitable organic material through composting rather than disposal as waste, and advocates education regarding the appropriate uses and management practices relating to composting and other diversion methods.

The RRMP also notes that one possible way in which groundwater could become contaminated is through the disposal to land of waste; and seeks to protect this groundwater asset by regulating activities that involve the use of compost, biosolids, and other soil conditioners and the management of solid waste generally.

Solid waste is defined as "*primarily solid contaminants for which disposal by discharge into the environment is intended".* This definition differs significantly from the definition of waste in the WMA, as does the definition of waste: *"any contaminant, discharged into the environment, which is unwanted or economically unusable at the time of discharge. This definition excludes cleanfill"*. Solid waste management is defined as *"all means for addressing issues relating to the creation, minimisation, reuse, recycling, treatment, disposal or containment of solid waste"*.

Cleanfills are defined as landfills only accepting:

> *"natural materials such as clay, soil, rock and such other materials as concrete, brick, old asphalt or demolition products that are free of:*
>
> *a) Combustible or putrescible components apart from up to 10% by volume of untreated timber in each load.*
> *b) Hazardous substances or materials (such as municipal waste) likely to create leachate by means of biological or chemical breakdown.*
> *c) Any products or materials derived from hazardous waste treatment, stabilisation or disposal processes.*

This definition departs from the waste acceptance criteria set out in the 2016 Technical Guidelines for Disposal of Waste to Land[5] in one key respect –the criteria permits manufactured materials such as concrete and brick to make up no more than 5% by volume per load.

The RRMP also defines biosolids as *"processed sludges from industrial activities (excluding human wastes and agricultural effluents) that are suitable for reuse as soil conditioners or fertiliser substitutes"*. This is quite different to other definitions of biosolids, which specifically include human wastes.

[5] Available on www.wasteminz.org.nz

2 Our District

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

2.1 Hawke's Bay Region

Central Hawke's Bay is the southernmost part of the region. The two main urban centres in the region are both to the north; Napier and Hastings.

Local authorities in the region comprise four territorial authorities and the Hawke's Bay Regional Council. The region completely covers four territorial authorities and small parts of the Great Lakes Taupo district (mainly located within the Waikato region) and the Rangitikei district (mainly located within the Manawatu-Wanganui region).

The land area of the region covers 14,111 hectares and has a diverse geography, which is dominated by five major rivers – the Wairoa, Mohaka, Tutaekuri, Ngaruroro, and Tukituki rivers. The low lying coastal areas are backed by the Ureweras in the northern part of the region, and the Ruahines in the south.

Figure 1: Map of Region and Territorial Authority Areas

Source: www.localcouncils.govt.nz

2.2 Physical Characteristics of the District

2.2.1 Overview

The Central Hawkes Bay district is 3,327 km², with a usual resident population of 13,720. It is bounded by the coast to the east, and the Ruahine Range to the west. The district is bisected by state highway 2, which runs north to south linking Hastings and Napier to the

north with the Wairarapa to the south. Centres include Waipawa, where HBDC is based, and Waipukurau. There are a number of smaller towns around the district including Pukehou in the north and Takapau in the south, along with several small coastal settlements.

Figure 2: Map of District

Source: Central Hawkes Bay Council's Ten Year Plan

2.2.2 Geography

The district's landscape is varied, ranging from pastoral hill country, coastal plains, and the Ruahine Ranges to the west. The district borders with the Tararua district to the south and the Hastings district to the north. It also shares a boundary in the Ruahine Ranges with the Rangitikei and Manawatu districts.

The two main towns are Waipukurau, with just over 4,000 people, and Waipawa with around 2,000 people.

Much of the district is agricultural land, with little heavy industry.

2.2.3 European Settlement

Although the Hawke's Bay was named so by Captain Cook in 1769, European settlement to the area didn't take place until the mid 1800s. A significant barrier to settlement in the area was the presence of a heavily forested area to the south and into what is now the Wairarapa. Settlements in the area, including Waipukurau and Waipawa, were largely formed by the subdivision of pastoral land during the 1860s.

2.2.4 Demographics

The estimated 'usually resident' population of Central Hawke's Bay in 2018 was 13,720[6]. The population of the district has grown by 3.5% (or 470) since 2013. Under all but the highest population scenarios from Statistics New Zealand (medium-high, medium, and low) Central Hawke's Bay's population is projected to decline. Under the highest growth scenario, population is projected to be around 14,900 people in 2048. Under the low scenario, population is projected to decline to 10,500 people in 2048.

Alongside this, there is a significant predicted age-group shift with all age groups decreasing in number apart from 65 years and over, which is forecast to increase by 76%.

While population is forecast to potentially decrease slightly, household numbers are forecast to increase, with a growing number of smaller households.

Historic and forecast population distribution and growth are shown in the following table:

Table 1: Population Numbers and Distribution 2013 (actual) – 2028 (forecast)

Ward	2013	2017	2018 (estimate)	2028 (forecast)	Change 2018 – 2028
Waipukurau – main urban area	4,825	5,035	5,080	5,250	170
Waipawa – main urban area	2,430	2,505	2,510	2,535	25
Otane	590	615	640	710	70
Coastal/rural townships	1,840	1,900	1,905	1,920	15
Porangahau	220	235	245	255	10
Other eastern district rural areas	160	195	210	250	40
Takapau	530	530	530	535	5
Western District rural townships	1,990	2,025	2,030	2,035	5
Other western district rural areas	665	680	690	7210	20
TOTAL	**13,250**	**13,720**	**13,840**	**14,200**	**360**

Source: Central Hawke's Bay District Long Term Planning – Demographic and Economic Growth Directions 2018 – 2048

The table below shows growth in households from 2013 to 2048.

[6] Sean Bevin (Economic Solutions Ltd) "Central Hawke's Bay District Long Term Planning – Demographic and Economic Growth Directions 2018 – 2048", provided by Central Hawkes Bay District Council.

Table 2: Household Numbers

Town/Area	Number of households						
	Actual		Estimated	Projected			
	2013	2017	2018	2028	2048	Change 2018-2048	Percentage change 2018 – 2048
Waipukurau	1,970	2,040	2,065	2,295	2,500	435	21%
Waipawa	990	1,105	1,020	1,080	1,175	155	14%
Otane	240	250	260	310	340	80	32%
Coastal and rural townships	750	770	775	825	865	90	12%
Porangahau	90	95	100	120	150	50	53%
Rural eastern district	65	80	85	150	160	75	94%
Takapau	215	215	215	220	245	30	14%
Western district townships	810	820	825	850	925	100	12%
Rural western district	270	275	280	310	340	60	22%
TOTAL	**5,400**	**5,560**	**5,625**	**6,160**	**6,700**	**1,075**	**19%**

The combined urban area of Waipukurau/Waipapa/Otane accounts for 63% of the total households growth between 2018 – 2048.

The following table shows key demographic metrics for the district

Table 3: Key Demographic Indicators (2013 census)

Demographic Indicator	Central Hawkes Bay District	New Zealand
Households (% that are occupied dwellings)	6,168 (84%)	89%

Average household size	2.47 people	2.7 people
One person households	25.1%	23.5%
Median age	43.5 years	38.0 years
Aged 64+	17.3%	14.3%
Median income	$26,700	$28,500
Income over $50,000	20.5%	26.7%
Home ownership	70.3%	64.8%
Formal qualifications	71.5%	79.1%
University qualifications	10.9%	20.0%
Building consents	26	NA
Ethnically European	84.1%	74.0%
Ethnically Maori	22.2%	14.9%
Other	8%	23.7%

Source: Compiled from http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-a-place.aspx?

Tangata Whenua is Ngati Kahungunu, the largest iwi in Hawke's Bay and the third largest in New Zealand. The district has a significant maori population, with nearly quarter of the residents identifying as maori compared to 14.9% nationally. Council has a strong relationship with Te Taiwhenua O Tamatea, which represents the nine marae in the district. Te Taiwhenua O Tamatea has a representative at virtually every Council meeting, albeit non-voting. Council is working with Te Taiwhenua O Tamatea to develop a partnership accord.

The district has a higher home permanent occupancy rate than New Zealand as a whole, which suggests that the number of holiday homes is quite low and that visitors are likely to stay in commercial accommodation while in the district, such as motels.

The proportion residents holding university qualifications is low compared to the country as a whole – 10.9% compared to 20.0%.

1.1.1 Summary

The key demographic trends are:

- Slowly increasing 'usually resident' population (470 people, or 3.5% since the 2013 census) but with only the highest forecast for population to 2048 showing ongoing growth, with all other forecasts showing a decreasing population
- Growth in household numbers

- Significant growth in the over 65 age group, which will be contributing to the increasing trend towards smaller household sizes
- Significant lift in urban house prices since 2013
- An increase of 14.4% in the numbers of visitors staying in commercial accommodation, with an increase of 30% in total visitor spending

2.3 Economy

Historically, the Central Hawkes Bay district had shown steady growth in GDP, interrupted only by the global financial crisis in 2007-2008, until 2013 when GDP started to fall gradually. GDP has not yet recovered to the levels seen in 2003 – 2007.

New Zealand's GDP has been increasing, with a measured increase of 2.8% in the year to December 2018. The average growth in GDP over the last ten years has averaged 1.9% across the national economy.

Alongside this ongoing decline in GDP is a longstanding decline in employment, which has been consistently decreasing since 2012. This trend is partially attributed to a drive to reduce labour costs in the farming sector.

The Central Hawkes Bay economy is largely driven by the primary production sector, significantly agriculture and associated processing facilities and peripheral businesses. Central Hawkes Bay contributes 20% to exports for the Hawkes Bay region, while only having 5% of the region's population.

Council and other agencies have put significant effort into tourism, and the benefit of this is being shown through increasing visitor spend and visitor accommodation nights.

Central Hawkes Bay is also due to benefit from significant amounts of provincial growth fund contributions, for roading and water projects.

The following sections describe some of the key industries in the district.

2.3.1 Freezing Works

There are two significant meat processing/freezing facilities in the district, near Waipukurau – run by Silver Fern Farms (mainly beef) and Ovation (mainly mutton and lamb).

Both processing facilities do produce waste, some of which is transported to the Central Hawke's Bay Council's landfill. However, a significant proportion of putrescible and other organic waste streams are managed onsite through disposal to land.

2.3.2 Te Mata Mushroom Company

Although primarily based in Hastings District, just outside of Havelock North, Te Mata Mushroom Company own land near Waipukurau and have indicated that in the longer term, it plans to expand composting and mushroom growing activities to this site.

2.3.3 Pasture Petfoods

Pasture Petfoods in Waipukurau produce a wide range of petfood products, sourcing supplies largely from producers but also to a small extent from the two freezing works near Waipukurau.

2.3.4 Residential (Boarding) Schools

Central Hawkes Bay is home to an unusually high number of boarding schools. These are likely to produce waste that is household-like in nature, but are likely to make use of commercial collections due to the quantities produced.

This has implications for any potential food waste diversion scheme; as the economies of scale of any collection/processing system could be significantly improved by capturing large quantities of food wastes from point sources.

2.4 Implications of Economic and Demographic Trends

The Central Hawke's Bay economy appears to be in a relatively healthy state, with indications that GDP will continue to rise. The potential impact of various water storage schemes is unknown at this stage, but could be significant were a project to be located within the district.

While the population of the district is currently showing a downwards trend, other demographic indicators such as households numbers, value, and consent numbers are increasing.

In general, there is nothing to indicate that waste types and quantities in the district will change significantly, apart from an increase that is likely to track population and GDP.

3 Waste Infrastructure

The facilities available in the Central Hawkes Bay district are largely those owned, operated and/or managed by Council.

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

The inventory of facilities and services has been generally categorised with reference to the waste hierarchy (as defined by the WMA).

3.1 Disposal Facilities

In April 2016, the Waste Management Institute of New Zealand (WasteMINZ) released the final version of the Technical Guidelines for Disposal to Land.[7] These guidelines set out new standards for disposal of waste to land and, if the Hawke's Bay Regional Council implements the new guidelines, then there will be significant changes to the operation of cleanfill sites in the region, including tighter controls.

The definitions of the four classes of landfills provided in the guidelines are summarised in below.

Class 1 - Municipal Landfill

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

Class 2 - C&D/Industrial Landfill

A Class 2 landfill is a site that accepts non-putrescible wastes including construction and demolition wastes, inert industrial wastes, managed fill, and clean fill. C&D waste and industrial wastes from some activities may generate leachates with chemical characteristics that are not necessarily organic. Hence, there is usually a need for an increased level of environmental protection at Class 2 sites.

Class 3 – Managed Fill

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

Class 4 - Cleanfill

A cleanfill is a landfill that accepts only cleanfill materials. The principal control on contaminant discharges to the environment from clean fills is the waste acceptance criteria.

[7] Technical Guidelines for the Disposal to Land. WasteMINZ , April 2016

The actual wording used in the guidelines is provided in Appendix A.2.1

3.1.1 Class 1 Landfills

There in one Class 1 landfill disposal facility (as defined above) in Central Hawkes Bay district. In addition, there is a Class 1 disposal facility in Hastings district which may also receive very small quantities of commercial waste from the northern parts of the Central Hawkes Bay district as mixed loads with Hastings district waste.

Table 4: Class 1 landfills accepting waste from Central Hawkes Bay District

Name & Owner/Operator	Description	Location	Capacity and Consent
Farm Road Landfill, Central Hawkes Bay (operated on behalf by Higgins)	Accepts all waste from Central Hawkes Bay District, including residential, commercial and industrial waste and a very small proportion of potentially hazardous waste. Also accepts Tararua district waste.	Farm Road, Waipukurau Leased till April 2045	Lined Class 1 Landfill (no gas capture). Current consent expires in 2030. Landfill site will have capacity to 2045 at least based on current tonnages. $158.25 per tonne (including $10 waste levy and $12.20 carbon credit)
Omarunui Landfill, Hastings district (jointly owned by Hastings District and Napier City Councils)	Accepts all waste from commercial operators only from the Napier and Hastings areas. Theoretically no waste is accepted from outside this area.	Omarunui, near Taradale	Class 1 landfill. Accepts around 70,000 tonnes per annum. Capacity to 2037, with a potential extended area to 2055.

There are two other landfills that are within reach of the Central Hawkes Bay and could offer competition for waste, particularly Bonny Glen for waste from Tararua District.

Table 5: Class 1 landfills accessible from the Central Hawkes Bay

Name & Owner/Operator	Description	Location	Capacity and Consent
Taupo District Council, Taupo District	No gas capture system in place. Taupo Council and non-Council wastes	Broadlands Road landfill, Taupo	Consented to 2027.
Bonny Glen Landfill, Midwest Disposal Ltd	Municipal landfill with gas capture and waste water treatment.	Marton, Rangitikei	Recently extended consent; now for 12.7M cubic metres

Central Hawkes Bay District Council's charges for the landfill theoretically reflect full cost recovery; although the extent to which this is truly the case may need reviewing.

3.1.2 Transfer Stations

Refuse transfer stations (RTS) provide for those that can't or choose not to make the journey to a landfill. In Central Hawkes Bay, the Council landfill is only accessible by commercial operators and so all householders must visit an RTS for disposal. Council's contractor operates four RTS sites on their behalf around the district to ensure that remote communities have access to a full range of facilities, and so that those without a kerbside collection have the opportunity to recycle and dispose of waste.

Fees are generally charged for refuse; although if this is contained in an official yellow or green council bag there is no charge. Householders can drop off recycling for free and at the Waipukurau RTS, a small reuse store is operated. Household hazardous waste is accepted at Waipukurau, along with oil, used paint, and an agrecovery chemical containers.

The Waipukurau RTS is also used as the main consolidation site for diverted material in the district; such as glass, timber, and scrap metal.

The function of the individual sites varies. The table below summarises the facilities and services available at each site.

Table 6: Services Available at RTS

Location and hours of RTS	e-waste	Refuse	Recycling	Hazardous Waste	Greenwaste	Whiteware etc for recycling	Reuse Shop	Tyres
Waipukurau **M – Sa; 9am – 5pm**	Y	Y	Y	Y	Y	Y	Y	Y

Waipawa **Su 9am – 5pm** **Tu 11.30am – 5pm** **Th 11.30am – 5pm**	Y	Y	Y		Y			
Takapau **Su 11am – 3pm** **Th 1pm – 5pm (winter)** **Th 2pm – 6pm (summer)**		Y	Y		Y			
Porangahau **Su 1pm – 5pm** **W 1pm – 5pm (winter)** **(summer hours are one hour later)**		Y	Y		Y			

Each site will also accept cleanfill/hardfill, and are staffed during open hours.

The recycling facilities at each site entail two or three shipping container with slots feeding into fadges inside. These fadges are then used to transport the material for recycling. Usual materials accepted are steel, tin and aluminium cans; plastics #1 and #2; paper and cardboard, and glass sorted into clear, brown and green.

Rubbish can be dropped off for a fee or, if contained in an official pre-paid Council bag, no additional charge at the RTS.

The RTS sites are secure but often the recycling facilities are located outside the gates, meaning that these can be accessed at any time.

RTS are closed on Anzac Day, Christmas Day and Good Friday, and are operated on behalf of the Council by Smart Environmental Ltd.

Bulk loads of refuse at the RTS are charged at the landfill rate of $158.25 per tonne. Other charges include:

- Car, van or ute $13
- Small trailer loads $25
- Large trailer loads $37
- Cubic metre $80 (compacted) or $36 (non-compacted)
- Tyres $5 (car) to $27.50 (tractor)

3.1.3 Recycling Drop-off Points

Council provides seven recycling drop of points (RDOPs) for those that do not have access to a kerbside recycling collection, or have more recyclables than can fit in their recycling crates.

These RDOPs are located:

- Waipukurau – Mt Herbert Road (next to the RTS)

- Waipawa – Tikokino Road (next to the RTS)
- Takapau – Charlotte St
- Tikokino – Murchison St
- Porangahau – Beach Rd
- Onga Onga – Bridge St
- Otane – Campbell St

Each RDOP is made up on two or three shipping containers, and accepts glass (separated into brown, clear, and green), plastics, paper/cardboard, and tins and cans.

3.1.4 Closed Landfills

There are seven closed landfills in the district. These are listed in the table below.

Table 7: Closed landfills in Central Hawkes Bay District

Location	Detail
Consented Closed Landfills	
Ongaonga	Department of Conservation land; currently used for stock grazing.
Porangahau	Crown land/Porangahau river reserve
Tikokino	
Tamumu	River reserve. Adjacent land now managed by Pourerere Landcare Group.
Waipukurau	Site is adjacent to Waipukurau RTS and waste water ponds, located on Crown land/Tukituki River reserve
Kairakau	Private land/road reserve
Takapau	Land leased from Te Owaikomihana, Takapau. Still hosts an RTS.
Waipawa	Site still in use as Waipawa RTS. Crown land/Waipawa River reserve

3.1.5 Class 2-4 Landfills

Research estimates that waste disposed of to land other than in Class 1 landfills accounts for approximately 70% of all waste disposed of, and these operators are not required currently to pay the waste levy to central government.[8] Other disposal sites include Class 2-4 landfills and farm dumps.

Hawkes Bay Regional Council doesn't provide any specific allowance for cleanfills, but consents for these can be non-notified if the effects are considered to be 'less than minor'[9] and small cleanfills could qualify as a permitted activity. For this reason, and because few of these cleanfills are open to the public and many are temporary or short term associated with roading projects, it is very difficult to list these fully.

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

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

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

There are no consented Class 2 landfills in Central Hawkes Bay; although there are three consented facilities in the neighbouring Hastings district.

Given the high levels of agriculture in the district, it is likely that there are also a number of unofficial class 2-5 landfills on private land. The quantity of waste that might be being disposed of in this way is discussed in more detail in section 0.

---

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

[9] Cleanfills are considered to be a type of 'land disturbing activity' and are covered by Rules 7 and 8 of the Regional Resource Management Plan.

3.1.6 Assessment of Residual Waste Management Infrastructure

Central Hawkes Bay's landfill near Waipukurau has generous capacity to accept waste in the existing cell or in a planned new cell to be constructed. The site itself is also large, and initial plans have been made for additional cell locations for the future.

It appears that the landfill has capacity for waste from Central Hawkes Bay in its existing form for at least the next six years, and plans are in place for staged extensions of the landfill to maintain ongoing capacity for up to 30 years.

Central Hawkes Bay District Council has also allowed for the ongoing disposal of Tararua District Council's waste at the landfill, which enables the baseline operating costs of the landfill to be spread over twice the quantity of waste.

Although the gate charge at the landfill is intended to represent full cost recovery, this has not been explored in detail recently. MfE's full cost landfill model could be used to ensure that all costs, including management of the site as a closed landfill, have been considered.

The acceptance of wastes at class 2 landfills that could potentially be put to beneficial use, such as composting, is a slight issue. The relatively low cost of disposal to sites other than a Class 1 landfill will drive commercial operators' behaviour in determining where to dispose of material. Council does not have the option of using disposal prices as a mechanism to drive more preferable waste management practices, as the class 2 landfills are under private control.

Cleanfills are generally a permitted or non-notified consented activity under the Hawkes Bay Regional Council Regional Resource Management Plan. Largely as a result of this, there is very little information available about what quantities are being disposed of in this way, nor what type of material is being disposed of. Lack of information and monitoring means that waste could be disposed of in this way that requires better management, resulting in negative environmental consequences in the future.

3.2 Hazardous Waste Facilities and Services

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

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

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

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

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

Household hazardous waste is accepted at Council's Waipukurau RTS. Council will not accept non-household hazardous waste at any of its facilities.

3.2.1 Agrecovery and Plasback Rural Recycling

Stewardship programmes that operate in the district include the Agrecovery and Plasback rural recycling schemes, and the Resene Paintwise reuse/recycling scheme.

The Agrecovery and Plasback programmes provides New Zealand's primary sector with responsible and sustainable systems for the recovery of 'on farm' plastics and the disposal of unwanted chemicals. It currently provides three nationwide programmes:

- Containers for the recovery of agrichemical, animal health and dairy hygiene plastic containers
- Wrap for the recovery of used silage wrap and pit covers
- Chemicals for the disposal of unwanted and expired chemicals in agriculture

Council provides local promotional support to Agrecovery. Containers can be left for collection at the Waipukurau RTS.

There are no paintwise collection points in Central Hawkes Bay. The closest are in Hastings and Masterton.

3.3 Recycling and Reprocessing Facilities

There are no recycling processing facilities within the district.

3.3.1 Recycling and Reprocessing Facilities Outside the District

Recycling from the Central Hawkes Bay district is processed at a number of facilities outside the district. The available options include:

Table 8: Other Recycling and Reprocessing Facilities

Facility	Description
O-I NZ Ltd	Process colour-sorted glass
SIMS Pacific	Ferrous metals recycling
Hawke Packaging	Paper and cardboard recycling

Palmerston North City Council	Materials recovery facility
MetalCo	Scrap metals recycling
MyNoke Ltd	Vermicomposting of industrial, council and some post-consumer organic wastes in Kinleith, Taupo and Pinedale (Putaruru).
Resene PaintWise Collection (Taupo, Te Awamutu, Fielding, Whanganui)	Accept unwanted paint and paint containers, with a small charge for non-Resene product. No automotive or marine paint. Material is reused, recycled, or processed as appropriate.
Agrecovery	Accept unwanted agrichemicals and empty containers. Collection from properties (some charges apply).
E-waste – South Waikato Achievement Trust, Tokoroa	Accept and/or collect a wide range of e-waste at various charges.
Reclaim	Plastics grade 1 and 2, baled cardboard

3.3.2 Assessment of Recycling and Reprocessing Facilities

Central Hawkes Bay district has reasonable access to recycling and reprocessing facilities, although most of them (with the exception of fibre recycling) are at a significant distance.

Within the context of current legislative and policy arrangements there is reasonable provision for e-waste collection and recovery within the region – although there is still scope for greater levels of recovery. The cost of separate disposal of e-waste compared to landfilling is a disincentive for greater recovery.

4 Waste Services

4.1 Council-provided Waste Services

Central Hawkes Bay District Council has a contract with Smart Environmental Ltd (SEL) to provide kerbside collection services (to most towns) and collect waste and recycling from drop off points and transfer stations throughout most of the district, and manage the district's landfill near Waipukurau.

A litter collection is carried out in public places.

The figure below shows a summary of the waste and diverted materials that are handled by Council services.

4.1.1 Kerbside Services

The table below outlines the key Council-provided refuse and recycling collection services.

Table 9: Council Kerbside Collections

Kerbside collection service	Charges/ funding	Contractor	Contract review dates
Weekly kerbside rubbish collection for Waipukurau, Waipawa, Otane, Takapau, Porangahau, Te Paerahi, Tikokino, and Ongaonga.	User pays ($3.80 for large bag, $2.20 small)	SEL	December 2023
Weekly kerbside recycling collection for Waipukurau and Waipawa	Glass bottles and jars, plastics 1 and 2, paper and cardboard, metal cans and tins. Collected in two crates.	SEL	December 2023

4.1.2 Other Council Services

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

4.1.3 Waste Education and Minimisation Programmes

Council funds or otherwise supports a number of programmes that operate in the district:

- Paper 4 Trees
- Enviroschools
- Love Food, Hate Waste
- Para kore
- Zero Waste Education (in schools)

4.1.4 Solid Waste Bylaws

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

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

Part 6 of the Council's consolidated bylaw relates to solid waste, and covers issues such as:

- Safe management of waste;
- Appropriate receptacles;
- Management of commercial and industrial waste;
- Rules around hazardous waste storage and management;
- Protections for public litter bins and recycling drop-off points; and
- The appropriate use of waste management facilities.

Part 6 also clarifies what is considered to be an offence under this bylaw, and what appropriate penalties would be.

4.1.5 Litter Control and Enforcement

Illegal dumping is monitored and investigated, with fines given where possible. Council also have an agreed cost recovery rate for clearing illegal dumping where those responsible can be identified, at $125 per hour plus travel.

4.1.6 Public Litter Bins

Council provide and empty public litter bins in town centres and parks and reserves, along with two trial public place recycling banks.

4.1.7 Abandoned Vehicles

Council rarely has an issue with abandoned vehicles in the District. The assumption is that residents make their own private arrangements with one of the various scrap metal operators. There are no environmentally adverse issues identified with this process.

4.1.8 Rural and Farm Waste

Council provides a consolidation point for Agrecovery (agricultural chemical containers) at the Waipukurau RTS. Rural customers, including farm operators, are able to make use of any of the recycling drop-off centres and RTS in the district.

4.1.9 Hazardous Waste

Household quantities of hazardous waste is accepted at Waipukurau RTS only.

4.1.10 E-waste

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

4.2 Assessment of Council-provided Solid Waste Services

For a small, rural council serving a widely distributed community, Central Hawkes Bay Council provide a reasonable level of service. Around 60% of residents have access to a kerbside rubbish collection and around 45% also have access to a kerbside recycling service and the network of recycling drop-off points and transfer stations make disposal and recycling facilities relatively accessible to other households.

There is scope to further improve the levels of service by aligning the kerbside recycling collection area with the rubbish collection routes, which may also encourage increased participation in the kerbside recycling service. Council may also want to consider supporting a wider range of product stewardship schemes such as e-waste recovery, material re-use, and farm-waste related schemes such as AgPac, Plasback, and ROSE (for waste oil), and looking further at the range of materials that could be separated for recovery at the Waipukurau RTS.

4.3 Funding for Council-provided Services

In the 2018/19 financial year, households that were eligible for the kerbside collections paid a targeted rate of $84.17 covering the provision of the kerbside rubbish and (if eligible) recycling collections ($69.01 of the $84.17).

In addition the kerbside rubbish collection, additional recycling crates, RTS, and landfill activities were funded through direct user charges.

Closed landfill management is funded through general rates (including a universal annual charge component).

4.4 Non-Council Services

There are a few non-Council rubbish removal services available in the district.

Kiwi Kanz is the main service provider; servicing businesses, rural householders that do not receive a kerbside collection from Council, and urban households that prefer to use a wheeled bin for their rubbish collection than the rubbish bags used in the Council's kerbside

rubbish collection. Their charges range from around $580 per year for a weekly collection of a 240L wheeled bin, to $200 for a fortnightly collection of a smaller 140L wheeled bin. They also provide a green waste collection.

Waste Management New Zealand Ltd provide rubbish collections at various scales, along with basic recycling services (glass and paper/cardboard). Various property management services also offer property clearance and rubbish disposal.

4.4.1 Assessment of Non-Council Services

Non-Council services offered are very much focused on rubbish removal services, with limited recycling or other diversion options available. Although Kiwi Kanz offer a green waste collection service, uptake of this option is still very limited (less than 100 households estimated).

Although businesses and industrial operations can access the transfer stations and recycling drop-off centres around the district, these are mainly set up for household-type wastes and don't really have the capacity to divert large quantities of (for example) cleanfill, construction waste, or large chemical containers. This latter waste stream will make up a portion of the 11.8% of the landfill waste stream that is categorised as 'non-recyclable plastic'.

5 Situation Review

5.1 Waste to Class 1-5 Landfills

5.1.1 Definitions Used in this Section

The terminology that is used in this section to distinguish sites where waste is disposed of to land are taken from the National Waste Data Framework which, in turn, are based on those in the WasteMINZ Technical Guidelines for Disposal to Land (summarised in section 3.1).

5.2 Waste Quantities to Class 1-5 Landfills

It is believed that most of the residual waste produced in the district is disposed of to Council's landfill near Waipukurau. A small quantity may be collected by private service providers and transported directly over the district boundary to the Hastings District Council landfill.

There are probably small quantities that travel out of the district near the boundaries; and also small quantities that are disposed of to formal or informal class 2-4 landfills.

5.2.1 Quantities of Waste to Class 1 Landfills

The table below shows the quantity of waste going to Council's landfill from the Central Hawke's Bay District.

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
Tonnes	5,344	4,732	4,534	4,247	4,537	4,668	5,465	6,714

The drop in tonnages between 2010/11, and 2011/12 is likely due to the financial issues that were experienced globally. There is frequently a close relationship between GDP and waste quantities, with a reduction in consumer spending and consumption.

5.2.2 Quantities of Waste Disposed of to Land

5.2.2.1 Class 2 - 5 Landfills

A 2011 MfE report on non-levied disposal facilities stated:[10]

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

Several other studies have attempted to quantify the disposal of waste to Class 2-4 landfills, often on a per capita basis, with widely-varying results

In practical terms, the lack of precise data about disposal of waste to Class 2-4 landfills makes it impossible to reliably monitor any changes over time in the disposal of major waste

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

streams, such as construction and demolition waste. National estimates suggest that usually waste going to these facilities is roughly twice what is going to Class 1 landfill disposal.

5.2.2.2 Farm Waste Disposed of On-site

Limited research has been conducted on the quantity of waste generated on farms and disposed of on-site. There are two substantive pieces of research, including one conducted in the Waikato and Bay of Plenty in 2014-11 and a 2013 study of farm waste in Canterbury[12]. The Canterbury study found that 92% of the farms surveyed practised one of the 'three B' methods (burn, bury, or bulk store indefinitely) for on-site disposal of waste[13]. The studies calculated average annual tonnages of waste for four different types of farm in the regions.

The methods currently used to manage farm wastes are far from ideal and, in some cases, have the potential to have a negative impact on the environment. Farmers generally agreed that these methods are not ideal and would like to have access to better options. However the 'three Bs' are perceived to have 'no cost' compared to alternatives that do have a financial cost associated.

The study concluded that better information, education and awareness of existing alternatives are required. A better understanding of the risks and associated indirect costs involved in the current 'three B' practices would support this.

The presence of hazardous wastes including agrichemicals and containers, treated timber, paints solvents, and used oil was noted in the study, and the management techniques applied to these was variable and often of concern.

The data from the Canterbury report was applied nationally, on a regional basis, in a 2014 study that produced a database of non-municipal landfills for the Ministry for the Environment.[14] The report considered "non-municipal landfills" to include "cleanfills, industrial fills, construction and demolition fills, and farm dumps".

As farm waste from a specific type of farms is likely to be similar around the country, the data is considered to be suitable for applying to other regions, if the correct number of farm types is used for the calculations.

There are a number of non-farm rural properties that currently aren't able to access services from the private sector; however the number is not currently known.

Based on the data contained in the 2013 Canterbury and 2014 Waikato/BOP and national studies, the729[15] farms in the district are estimated to have generated an average of 26.7 tonnes of waste per farm per annum. Of this total, 24.6 tonnes per farm are estimated to be disposed of on the farm itself through burial, burning, or indefinite bulk storage. In total,

---

[11] GHD (2014) *Rural Waste Surveys Data Analysis Waikato & Bay of Plenty*, Waikato Regional Council Technical Report 2014/55, July 2014

[12] GHD (2013), *Non-natural rural wastes - Site survey data analysis*, Environment Canterbury Report No.R13/52

[13] GHD (2013), *Non-natural rural wastes - Site survey data analysis*, Environment Canterbury Report No.R13/52

[14] Tonkin & Taylor (2014), *New Zealand Non-Municipal Landfill Database*, prepared for Ministry for the Environment

[15] Stats NZ 2013 agricultural census data

over 13,117 tonnes of waste per annum are estimated to be disposed of in this manner across the district.

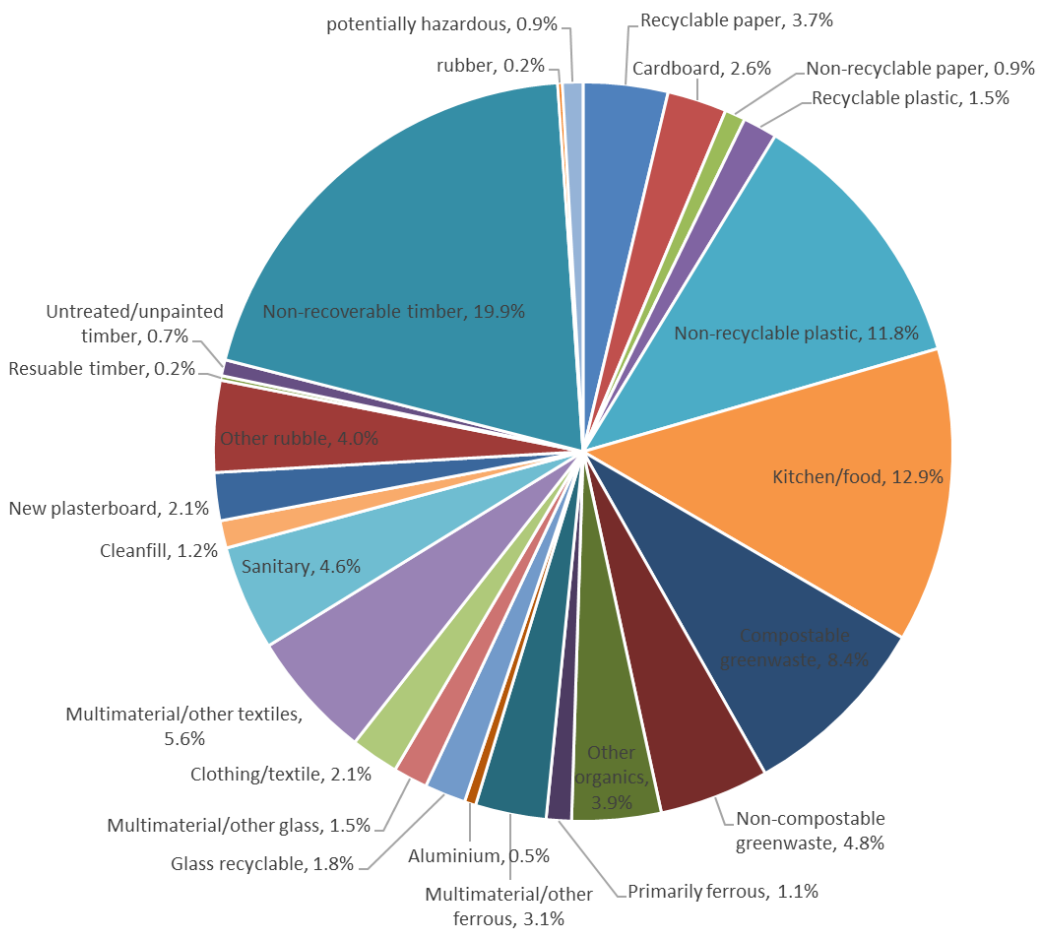
5.3 Waste to Class 1 Landfills

5.3.1 Composition

An audit of the waste entering the Central Hawkes Bay landfill was carried out in May 2019.

The composition of the waste surveyed at the landfill is shown below in Figure 3.

Figure 3: Composition of waste surveyed at Central Hawkes Bay Landfill



Once again, the categories of 'recyclable' and 'non-recyclable' are based on what can be recycled in the kerbside recycling collection. It would be possible to recycle more materials at the transfer station, such as plate glass, than could be collected at the kerbside.

5.3.2 Activity Source and Composition

The table below shows the activity source of the waste streams received at Council's landfill during the audit period in May/June 2019.

Table 10: Overall Waste Activity Sources

Activity sources of waste to Central Hawkes Bay Landfill May/June 2019	Percentage of total weight	Estimated tonnes per annum
Construction and demolition	11.0%	740
Industrial/commercial/institutional	21.3%	1,427
Landscaping and earthworks	6.5%	437
Residential	24.8%	1,662
Council kerbside waste collections	7.0%	468
Private kerbside waste collections	29.1%	1,955
Special	0.4%	25
TOTAL	**100%**	**6,714**

A composition has been calculated for each 'activity source', which highlights what areas effort needs to be focused in order to reduce the amount of material like recyclables and organic waste currently going in to landfill.

The table below shows this composition for each activity source, highlighting the potentially recyclable and organic waste streams (not the entire composition).

Table 11: Potentially Recyclable and Organic Material Going to Landfill From Each Activity Source (percentage of material stream, and tonnes per annum)

Activity Source	**Construction and Demolition**	**Industrial, commercial, institutional**	**Landscaping and earthworks**	**Residential**	**Council kerbside rubbish**	**Private kerbside rubbish**
	Percentage from each activity source and tonnes per annum					
Recyclable Paper	1.1% 2.7 tonnes	11.3% 28.0 tonnes	Zero	22.1% 54.7 tonnes	9.3% 22.9 tonnes	56.2% 139.0 tonnes
Recyclable cardboard	9.7%, 17.1 tonnes	34.0% 60.1 tonnes	Zero	46.1% 81.5 tonnes	1.4% 2.5 tonnes	8.7% 15.4 tonnes
Recyclable plastic	Zero	5.6%, 5.5 tonnes	Zero	5.6% 5.4 tonnes	14.6% 14.3 tonnes	74.2% 72.5 tonnes
Kitchen/ food waste	Zero	5.2%, 45.1 tonnes	Zero	10.8%, 93.2 tonnes	23.4% 201.8 tonnes	60.6% 523.05
Green waste	Zero	1.8%, 5.9 tonnes	79.6%, 256.3 tonnes	6.6%, 21.1 tonnes	0.7%, 2.2 tonnes	11.4%, 36.6 tonnes

Tin/Steel	9.9%, 7.5 tonnes	13.7%, 10.4 tonnes	Zero	50.2%, 38.3 tonnes	5.2%, 4.0 tonnes	21.0%, 16.0 tonnes
Aluminium	5.1%, 1.9 tonnes	10.1%, 3.7 tonnes	Zero	20.9%, 7.6 tonnes	10.9%, 4.0 tonnes	53.1%, 19.4 tonnes
Recyclable glass	0.6%, 0.7 tonnes	6.3%, 7.6 tonnes	Zero	4.8%, 5.8 tonnes	9.8%, 11.8 tonnes	78.5%, 94.7 tonnes

It should be noted that as this survey was carried out in winter, it would be expected that in the spring and summer months, the quantity of green waste from residential sources would increase.

5.3.3 Diversion Potential

Various materials are already diverted in Central Hawkes Bay through the Council's kerbside recycling collection, the various RTS and drop-off points, and private recycling collections.

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

However the composition analysis of waste going to landfill shows that there is still large quantities of potentially recyclable material and organic waste being delivered to the disposal site. This represents lost revenue from recyclables; unnecessary cost in landfill fees, ETS charges and landfill levy charges; reduced landfill capacity for residual waste; and (in the case of organic waste) increased production of methane, a powerful greenhouse gas, as the organic waste breaks down anaerobically (in the absence of oxygen).

Table 11 above shows clearly that, for example, if Council wished to target greenwaste arriving at landfill, they should focus on working with the landscaping and earthworks companies to ensure they understand why greenwaste should not be taken to the landfill, and what the alternative diversion options are.

Similarly, if Council wished to increase the diversion of recyclable materials like glass, paper/cardboard, aluminium and steel – they should focus their efforts on working with the private wheeled bin collection companies and their customers, to ensure that they understand why these materials should not be going to landfill and to encourage them to instead use the Council's kerbside recycling service and/or one of the many drop-off centres.

5.4 Composition of Kerbside Refuse

Kerbside refuse in Central Hawkes Bay was sampled in May 2019.

The SWAP survey calculated the composition of kerbside refuse for the total waste stream, but also for individual components e.g. Council refuse bags, 120/140L wheeled bins, and 240L wheeled bins. This section presents the primary composition of the entire kerbside refuse stream first, and then explores the differences between the three components.

5.4.1 Composition of the Kerbside Waste Stream

The primary composition of the combined kerbside waste stream is shown below. The estimated composition of the combined waste stream has been converted into an average weekly tonnage using the tonnage figure for kerbside waste shown in Table 10.

Table 12: Primary composition of Central Hawkes Bay kerbside waste (May 2019)

Composition of kerbside waste (May 2019)	Proportion of total	Estimated tonnes per annum
Paper	9.0%	218
Plastics	12.1%	293
Organics	53.1%	1,286
Ferrous metal	2.6%	63
Non-ferrous metal	1.0%	24
Glass	5.4%	131
Textiles	4.8%	116
Sanitary paper	6.0%	145
Rubble	2.9%	70
Timber	1.0%	24
Rubber	0.2%	5
Potentially hazardous	1.2%	29

Organic material, half of which was foodwaste, was the largest primary component of the combined kerbside waste stream, comprising 53.1% of the total. Plastics was the second largest component, 12.1%, and paper/cardboard, 88% of which was recyclable, was the third largest component at 9%.

This composition can be broken down between the three different container types used for kerbside waste – bags (used in the Council's kerbside collection), small 120/140L wheeled bins, and large 240L wheeled bins (the latter two used in private kerbside rubbish collections).

The results are shown below in Table 13.

Table 13: Composition of Kerbside Refuse by Container Type[16]

Central Hawkes' Bay District Kerbside waste audit 2019		Council bags	Private 140-litre wheelie bins	Private 240-litre wheelie bins
Number of units sorted		**153**	**18**	**25**

[16] Initial results from Waste Not Consulting Ltd, May 2019 SWAP Audit

Average wt. per unit		5.08 kg/bag	15.84 kg/bin	22.38 kg/bin
Paper	Recyclable	5.4%	4.6%	9.6%
	Non-recyclable	2.1%	1.0%	1.1%
	Subtotal	**7.5%**	**5.6%**	**10.6%**
Plastics	# 1-2 containers	1.9%	1.5%	3.0%
	# 3-6 containers	1.1%	1.3%	1.2%
	Plastic bags & film	8.2%	4.2%	5.1%
	Other non-recyclable plastic	2.1%	4.3%	3.3%
	Subtotal	**13.3%**	**11.2%**	**12.5%**
Organics	Kitchen waste	43.1%	19.7%	30.4%
	Greenwaste	4.7%	21.1%	17.5%
	Other organic	6.4%	16.7%[17]	2.9%
	Subtotal	**54.2%**	**57.4%**	**50.8%**
Ferrous	Steel cans	0.8%	0.5%	1.0%
metals	Multimaterial/other	0.6%	0.2%	2.5%
	Subtotal	**1.4%**	**0.7%**	**3.5%**
Non ferrous	Aluminium cans	0.3%	0.2%	0.7%
metals	Multimaterial/other	0.5%	0.2%	0.6%
	Subtotal	**0.9%**	**0.4%**	**1.3%**
Glass	Bottles/jars	2.5%	2.7%	6.0%
	Non-recyclable glass	0.8%	1.0%	0.4%
	Subtotal	**3.3%**	**3.7%**	**6.3%**
Textiles	Clothing/textiles	1.6%	4.2%	2.5%
	Multimaterial/other	1.0%	2.8%	1.1%
	Subtotal	**2.6%**	**6.9%**	**3.7%**
Sanitary paper		**13.6%**	**7.1%**	**5.4%**

[17] This result is likely to be an anomaly, partly resulting from the small sample size – two of the 18 140L wheelie bins surveyed contained large bags of animal faeces, which fall into the 'other' organic waste category.

Rubble		**0.8%**	**3.3%**	**4.0%**
Timber		**0.1%**	**2.6%**	**0.2%**
Rubber		**0.5%**	**0.1%**	**0.3%**
Potentially	Household	1.5%	0.8%	1.2%
hazardous	Other	0.2%	0.1%	0.1%
	Subtotal	**1.6%**	**0.9%**	**1.3%**
TOTAL		**100.0%**	**100.0%**	**100.0%**

The table below shows what this composition means in terms of the actual weight of waste put out by each household. Note that households using the Council's bag collection service put out an average of 1.3 bags per household.

Table 14: Weight per Household (May 2019)

Central Hawkes' Bay District Kerbside waste audit 2019 Weight per household set out		Council bags	Private 140-litre wheelie bins	Private 240-litre wheelie bins
Average wt. per unit		**5.08 kg/bag**	**15.84 kg/bin**	22.38 kg/bin
Units per household set out		**1.30 bags**	**1 wheelie bin**	1 wheelie bin
Paper	Recyclable	0.36 kg	0.73 kg	**2.14 kg**
	Non-recyclable	0.14 kg	0.16 kg	**0.24 kg**
	Subtotal	**0.50 kg**	**0.89 kg**	2.38 kg
Plastics	# 1-2 containers	0.13 kg	0.23 kg	**0.68 kg**
	# 3-6 containers	0.08 kg	0.20 kg	**0.26 kg**
	Plastic bags & film	0.54 kg	0.66 kg	**1.13 kg**
	Other non-recyclable plastic	0.14 kg	0.68 kg	**0.73 kg**
	Subtotal	**0.88 kg**	**1.77 kg**	2.80 kg
Organics	Kitchen waste	2.85 kg	3.11 kg	**6.80 kg**
	Greenwaste	0.31 kg	3.34 kg	**3.93 kg**
	Other organic	0.42 kg	2.64 kg (1)	**0.65 kg**
	Subtotal	**3.58 kg**	**9.09 kg**	11.38 kg
Ferrous	Steel cans	0.06 kg	0.08 kg	**0.22 kg**
metals	Multimaterial/other	0.04 kg	0.04 kg	**0.57 kg**
	Subtotal	**0.09 kg**	**0.12 kg**	0.78 kg

Non ferrous	Aluminium cans	0.02 kg	0.04 kg	**0.16 kg**
metals	Multimaterial/other	0.04 kg	0.03 kg	**0.13 kg**
	Subtotal	**0.06 kg**	**0.07 kg**	0.28 kg
Glass	Bottles/jars	0.17 kg	0.42 kg	**1.33 kg**
	Non-recyclable glass	0.05 kg	0.16 kg	**0.08 kg**
	Subtotal	**0.22 kg**	**0.58 kg**	1.42 kg
Textiles	Clothing/textiles	0.11 kg	0.66 kg	**0.57 kg**
	Multimaterial/other	0.07 kg	0.44 kg	**0.26 kg**
	Subtotal	**0.17 kg**	**1.10 kg**	0.83 kg
Sanitary paper		**0.90 kg**	**1.12 kg**	1.20 kg
Rubble		**0.06 kg**	**0.52 kg**	0.90 kg
Timber		**0.01 kg**	**0.41 kg**	0.03 kg
Rubber		**0.03 kg**	**0.02 kg**	0.07 kg
Potentially	Household	0.10 kg	0.13 kg	**0.27 kg**
hazardous	Other	0.01 kg	0.01 kg	**0.03 kg**
	Subtotal	**0.11 kg**	**0.14 kg**	0.30 kg
TOTAL		6.60 kg	15.84 kg	22.38 kg

For each container type, the composition can be analysed further to show the proportion of the waste that could have been recycled through existing services (either Council's kerbside recycling service, or one of the many RTS/drop-off points), and also the proportion of organic waste (food or compostable garden waste).

Table 15: Potentially Recyclable and Organic Waste (in each container type)

Diversion potential of kerbside waste - Weight per household set out	**Council bags**	**Private 140-litre wheelie bins**	**Private 240-litre wheelie bins**
Total weight per household set out	**6.60 kg**	**15.84 kg**	**22.38 kg**
KERBSIDE RECYCLABLE MATERIALS			
Paper Recyclable	**0.36 kg**	**0.73 kg**	**2.14 kg**
Plastic #1-2 containers	**0.13 kg**	**0.23 kg**	**0.68 kg**
Plastic #3-6 containers	**0.08 kg**	**0.20 kg**	**0.26 kg**
Steel cans	**0.06 kg**	**0.08 kg**	**0.22 kg**
Aluminium cans	**0.02 kg**	**0.04 kg**	**0.16 kg**
Glass Bottles/jars	**0.17 kg**	**0.42 kg**	**1.33 kg**
Subtotal	**0.80 kg**	**1.71 kg**	**4.79 kg**
Proportion of household set out that was recyclable	**12.2%**	**10.8%**	**21.4%**

COMPOSTABLE MATERIALS			
Kitchen waste	**2.85 kg**	**3.11 kg**	**6.80 kg**
Greenwaste	**0.31 kg**	**3.34 kg**	**3.93 kg**
Subtotal	**3.16 kg**	**6.45 kg**	**10.72 kg**
Proportion of household set out that was compostable	**47.8%**	**40.7%**	**47.9%**
TOTAL DIVERTABLE	**3.96 kg**	**8.16 kg**	**15.51 kg**
Proportion of household set out that was divertable	**60.0%**	**51.5%**	**69.3%**

These results show that households using large wheeled bins for their rubbish collection put out more rubbish than households using other containers, and also more potentially divertible material.

Some of these differences will be related to the likelihood that the households using large wheeled bins are often larger households. The relative sizes of the households can be estimated to a reasonable level of accuracy by comparing the amount of food waste in the container – in this case, households using large wheeled bins put out 2.4 times more food waste than households using the Council's rubbish bags. This suggests that the households are 2.4 times larger, and therefore would be expected to put out roughly 15.8 kg per week compared to the observed 22.4kg.

There are also notable differences in the quantities of potentially recyclable materials in the large wheeled bins, with these households putting out six times more recyclable material than households using the Council's rubbish bags – particularly recyclable paper.

Households using wheeled bins (both small and large) tend to put far more greenwaste in their containers than households using bags. In this case, households using wheeled bins put out between 3.3 – 4kg of greenwaste in their rubbish, compared to households using the Council bag collection at only 0.3kg. Bearing in mind that this survey was carried out in winter, this difference in behaviour is likely to be more pronounced in spring and summer (particularly with households that use large wheeled bins for their rubbish collection).[18]

This suggests that households using the Council's rubbish bag collection make use of other methods to manage their greenwaste, such as home composting or delivering it to one of the RTS.

5.5 Diverted Materials

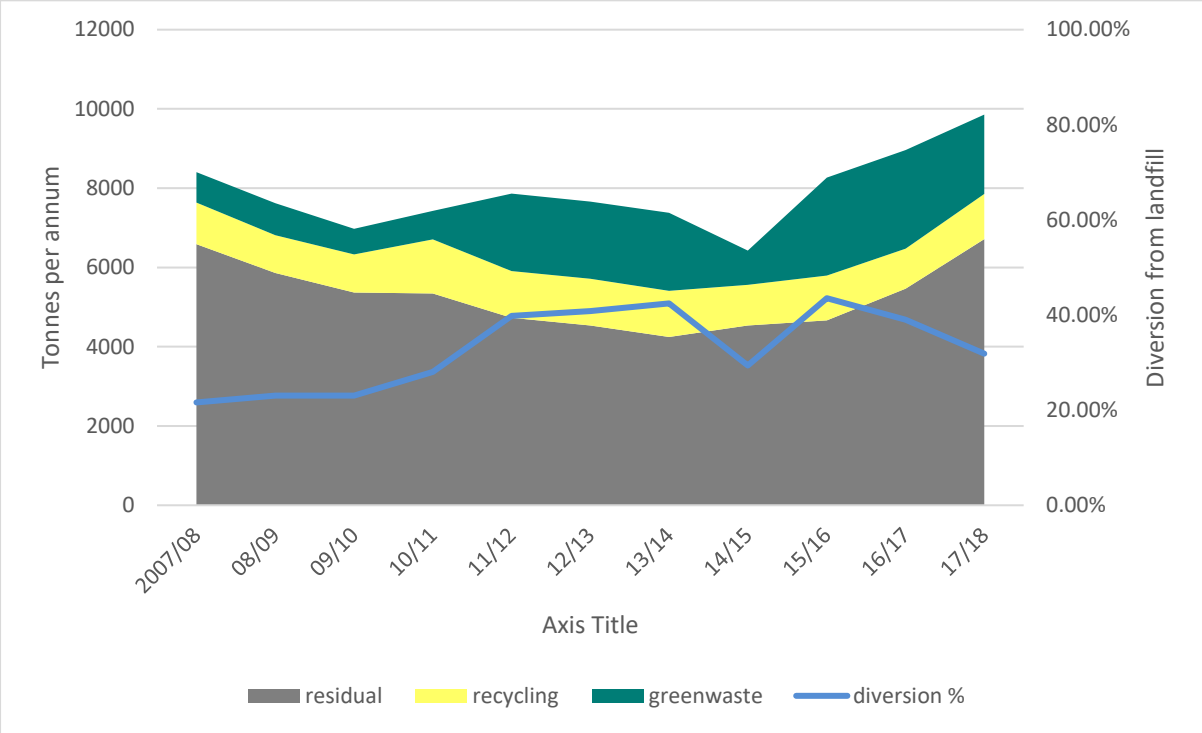
5.5.1 Overview of Diverted Materials

The main materials diverted from the district are glass bottles and jars, paper/card, metals, and greenwaste. Most recyclable materials are bulked at the Waipukurau landfill/transfer station, and transported for recycling at facilities in Hawkes Bay, Manawatu, and Auckland.

Greenwaste is shredded and transported to a composting site .

[18] Based on data from similar surveys in many other Council areas throughout the year, showing seasonal differences.

Tonnages are available as a collated figure for the district. The figure below shows the quantities of diverted materials, alongside the landfill waste stream with a calculated diversion figure for each year[19].



This shows that recyclables from the district have remained fairly stable for the last few years, although the quantities of greenwaste increased from 2011 through to 2015. As a result, although the diversion rate had been increasing between 2007 – 2015 (with a gap in green waste data accounting for the dip in 2014/15), since then the diversion rate has been decreasing and now sits at 38%.

There is little data available for commercially-collected diverted materials; however it is likely that the majority are delivered to one of the Council's facilities with only a small proportion leaving the district directly (mainly paper/card delivered directly to Hawke Packaging).

6 Performance Measurement

6.1 Current Performance Measurement

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

[19] Due to the uncertainties involved in calculating waste to Class 2-5 fills, and to farm fills, this waste has not been included in the calculation.

6.1.1 Per Capita Waste to Class 1 Landfills

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

- the size and levels of affluence of the population
- the extent and nature of waste collection and disposal activities and services
- the extent and nature of resource recovery activities and services
- the level and types of economic activity
- the relationship between the costs of landfill disposal and the value of recovered materials
- the availability and cost of disposal alternatives, such as Class 2-4 landfills
- seasonal fluctuations in population (including tourism).

By combining Council's population estimates and the Class 1 landfill waste data in section 5.2.1 , the per capita per annum waste to landfill in 2018 from Central Hawkes Bay can be calculated as in Table 16 below. The estimate includes special wastes but excludes non-levied cleanfill materials.

Table 16: Waste Disposal per Capita – Central Hawkes Bay District

Calculation of per capita waste to Class 1 landfills	
Population (Council's 2018 estimate)	13,720
Total waste to Class 1 landfill (tonnes, 2018)	6,714
Tonnes/capita/annum of waste to Class 1 landfills	0.489

Table 17: Per Capita Waste to Class 1 Landfills Compared to Other Districts

Overall waste to landfill (excluding cleanfill and cover materials)	Tonnes per capita per annum
Gisborne District 2010	0.305
Waimakariri District 2012	0.311
Westland District 2011	0.331
Carterton/Masterton/South Wairarapa Districts 2015	0.352
Ashburton District 2014-15	0.366
Ruapehu District excluding Waiouru 2016/17	0.368

Tauranga and WBoP District 2010	0.452
Napier/Hastings 2012	0.483
Central Hawkes Bay 2018	*0.489*
Southland region 2011	0.500
Wellington City & Porirua City 2015	0.507
Christchurch City 2012	0.524
Taupo District 2013	0.528
Kāpiti Coast District 2015	0.584
Wellington region 2015	0.608
New Plymouth District 2010	0.664
Hamilton City	0.668
Queenstown Lakes District 2012	0.735
Rotorua District 2009	0.736
Auckland region 2012	0.800
Upper Hutt City & Hutt City 2015	0.874

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

6.1.2 Diversion Potential of Waste to Class 1 Landfills

Potentially, around 18% of the waste surveyed entering the Central Hawkes Bay landfill could be recycled through existing systems. Approximately another 10% could be recycled if additional recovery systems are put in place and used prior to waste reaching the landfill, such as diversion options for cleanfill, plate glass, reusable timber, and untreated timber.

Another quarter of the waste going to landfill is organic waste, such as food waste, green waste and clean plasterboard.

Materials that have been considered divertable are those which are already being recovered or otherwise diverted from landfill disposal elsewhere in New Zealand. It is recognised that no system established for the recovery of waste materials is capable of diverting 100% of that material from the waste stream, as there is always some level of contamination. The estimate that is presented, therefore, represents a theoretical maximum, rather than the

proportion of the waste stream that is likely to be recovered should a full suite of diversion initiatives be established.

7 Future Demand and Gap Analysis

7.1 Future Demand

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

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

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

7.1.1 Population

The usually resident population of the district is predicted to increase slowly over the next ten years.

Table 18: Forecast Growth in 'Usually Resident' Population

Ward	2013	2017	2018 (estimate)	2028 (forecast)	Change 2018 – 2028
Waipukurau – main urban area	4,825	5,035	5,080	5,250	170
Waipawa – main urban area	2,430	2,505	2,510	2,535	25
Otane	590	615	640	710	70
Coastal/rural townships	1,840	1,900	1,905	1,920	15
Porangahau	220	235	245	255	10
Other eastern district rural areas	160	195	210	250	40
Takapau	530	530	530	535	5
Western District rural townships	1,990	2,025	2,030	2,035	5
Other western district rural areas	665	680	690	7210	20
TOTAL	**13,250**	**13,720**	**13,840**	**14,200**	**360**

Source: Central Hawke's Bay District Long Term Planning – Demographic and Economic Growth Directions 2018 – 2048

7.1.2 Changes in Household Numbers

Central Hawkes Bay District Council have had forecasts prepared for household numbers for the period to 2048; for the district and individual areas. These are shown below in Table 18.

Table 19: Forecasted Household Numbers 2020 – 2030

Town/Area	Number of households						
	Actual		Estimated	Projected			
	2013	2017	2018	2028	2048	Change 2018-2048	Percentage change 2018 – 2048
Waipukurau	1,970	2,040	2,065	2,295	2,500	435	21%
Waipawa	990	1,105	1,020	1,080	1,175	155	14%
Otane	240	250	260	310	340	80	32%
Coastal and rural townships	750	770	775	825	865	90	12%
Porangahau	90	95	100	120	150	50	53%
Rural eastern district	65	80	85	150	160	75	94%
Takapau	215	215	215	220	245	30	14%
Western district townships	810	820	825	850	925	100	12%
Rural western district	270	275	280	310	340	60	22%
TOTAL	**5,400**	**5,560**	**5,625**	**6,160**	**6,700**	**1,075**	**19%**

The combined urban area of Waipukurau/Waipapa/Otane accounts for 63% of the total households growth between 2018 – 2048.

7.1.3 Economic Activity

Primary production activities accounts for nearly half of the GDP in the district, and over one third of total employment[20]. Commercial activities (retailing, accommodation, business, administration and community services) contributes another third of total employment and 35% of GDP, with industrial activities making up the remainder (although only 20% of district GDP).

However, it should be noted that many commercial and industrial activities are related in some way to the primary production sector; such as financial, technical, and retail/wholesale services, or processing and machinery production from the industrial sector.

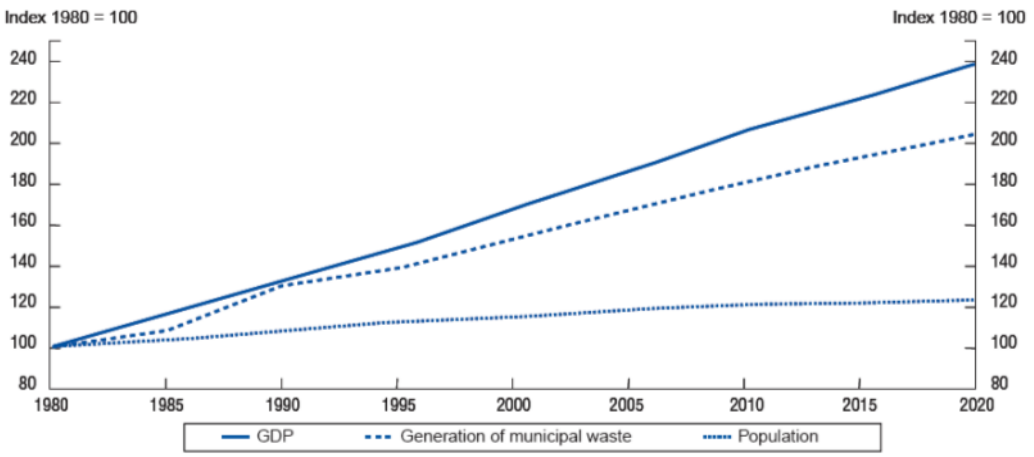
The district's GDP is currently rising again, after a global financial crisis-related drop in 2007/2008 – although it still has not reached the levels of the 2001 – 2007 period.

There are a number of other indicators reflecting the economic growth over the last few years – population increases, new houses built, consent numbers increasing not just for residential builds but also for commercial, industrial, and farm buildings. Key contributors to the economy show upwards trends; such as produce sales, visitor activity and spending, business numbers, and labour earnings.

GDP is an important factor for waste production, as there is generally a close relationship between GDP trends and waste production.

For reference, Figure 4 below shows the growth in municipal waste in the OECD plotted against GDP and population.

Figure 4: Municipal Waste Generation, GDP and Population in OECD 1980 - 2020



Source: OECD 2001.

[20] Central Hawke's Bay District Long Term Planning – Demographic and Economic Growth Directions 2018 – 2048

Research from the UK[21] and USA[22] suggests that underlying the longer-term pattern of household waste growth is an increase in the quantity of materials consumed by the average household and that this in turn is driven by rising levels of household expenditure.

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

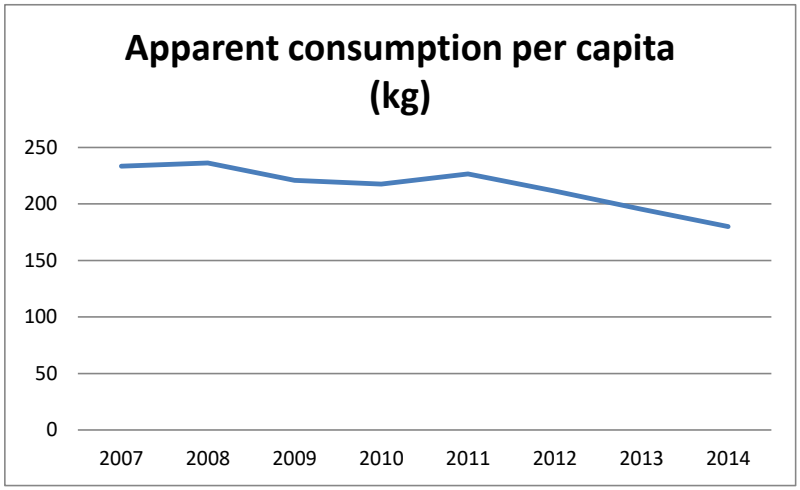
Total GDP is also a useful measure as it takes account of the effects of population growth as well as changes in economic activity. The chart suggests that municipal solid waste growth tracks above population growth but below GDP. The exact relationship between GDP, population, and waste growth will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

7.1.4 Changes in Lifestyle and Consumption

Community expectations relating to recycling and waste minimisation are anticipated to lead to increased demand for recycling services.

Consumption habits will affect the waste and recyclables generation rates. For example, there has been a national trend related to the decline in newsprint. In New Zealand, the production of newsprint has been in decline since 2005, when it hit a peak of 377,000 tonnes, falling to 276,000 tonnes in 2011.[23] Further indication of the decline in paper consumption comes from the Ministry for Primary Industry statistics shown in Figure 5.

Figure 5: Apparent Paper Consumption per Capita



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

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

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

7.1.5 Changes in Waste Management Approaches

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

- 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.
- Requirement in the New Zealand Waste Strategy 2010 to reduce harm from waste and increase the efficiency of resource use.
- Increased cost of landfill. Landfill costs have risen in the past due to higher environmental standards under the RMA, introduction of the Waste Disposal Levy (currently $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
- Collection systems. In brief, more convenient systems encourage more material. An increase in the numbers of large wheeled bins used for refuse collection, for example, drives an increase in the quantities of material disposed of through them. Conversely, more convenient recycling systems with more capacity help drive an increase in the amount of recycling recovered.
- Waste industry capabilities. As the nature of the waste sector continues to evolve, the waste industry is changing to reflect a greater emphasis on recovery and is developing models and ways of working that will help enable effective waste minimisation in cost-effective ways.
- Local policy drivers, including actions and targets in the WMMP, other relevant strategies and plans, bylaws, and licensing.
- Recycling and recovered materials markets. Recovery of materials from the waste stream for recycling and reuse is heavily dependent on the recovered materials having an economic value. This particularly holds true for recovery of materials by the private sector. Markets for recycled commodities are influenced by prevailing economic conditions and most significantly by commodity prices for the equivalent virgin materials. The risk is linked to the wider global economy through international markets.

7.1.6 Confidence Levels of Data

The confidence in data used as a basis for the financial forecasts has been assessed using the grading system from the NZWWA NZ Guidelines for Infrastructure Asset Grading Standards, as summarised below:

A	Highly Reliable	Data based on sound records, procedures, investigations and analysis which is properly documented and recognised as the best method of assessment.

B	Reliable	Data based on sound records, procedures, investigations and analysis which is properly documented but has minor shortcomings, eg, the data is old, some documentation is missing and reliance is placed on unconfirmed reports or some extrapolation.
C	Uncertain	Data based on sound records, procedures, investigations or analysis which is incomplete or unsupported, or extrapolation from a limited sample for which Grade A or B data is available.
D	Very Uncertain	Data based on unconfirmed verbal reports and/or cursory inspection and analysis.

Confidence grades have been assessed as:

Area of work	Grading
Demand forecasts	C - Uncertain
Service gap interpretation	B - Reliable
Quantities	
Major asset groups	A - Highly reliable
Minor asset groups	B - Reliable
Condition grades	
Major asset groups	A - Highly reliable
Minor asset groups	B - Reliable
Unit rates	B – Reliable
Base lives	B - Reliable
Remaining lives	
Major asset groups	B - Reliable
Minor asset groups	B - Reliable
Valuation and depreciation	B - Reliable
Financial forecasts	
Short-term 1-3 years	B - Reliable
Mid-term 4-10 years	B - Reliable

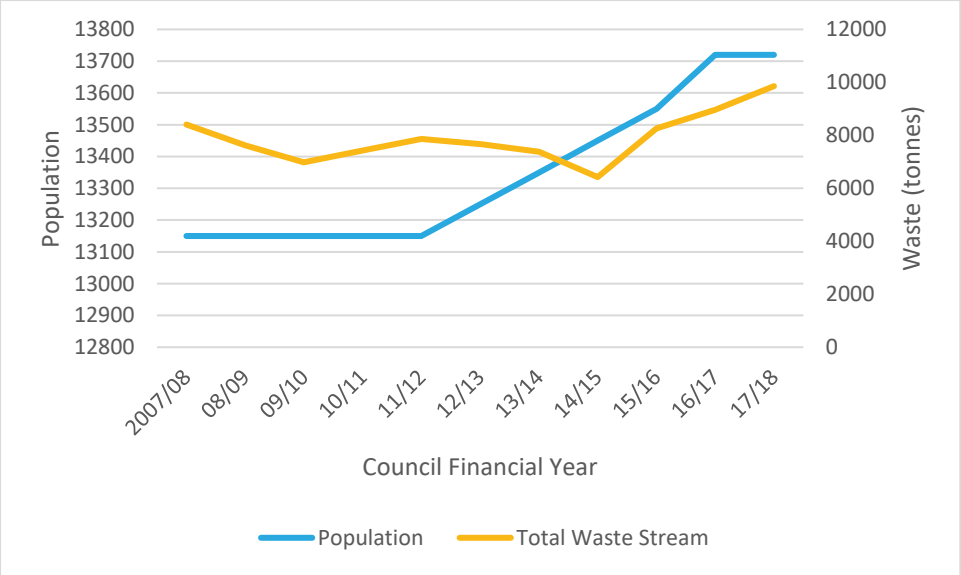
Forecasts could be improved with more sophisticated analysis and improved knowledge of the assets as discussed elsewhere in this document.

7.1.7 Summary of Demand Factors

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 routes.

The chart below shows population plotted against available data on waste and recycling over time:

Figure 6: Total Waste Quantities and Population Over Time



Regression analysis on the correlation between total waste/recycling and population provides an r value of 0.355 at a 95% confidence interval. [24] This suggests a weak correlation between waste quantities and population based on available data. However, just the last four years gives an r value of 0.88 at a 95% confidence interval, which is a very strong correlation. It may be that population and/or waste quantity data for the years prior to 2013 is not accurate, or that there was some other factor influencing either population or waste quantities.

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

[24] An R squared value of 1 is a perfect correlation, while a value of 0 is no correlation.

7.1.8 Projections of Future Demand

It is unlikely that quantities of waste and recovered materials are going to change dramatically over the next 6-10 years. The usually resident population is slowly increasing, as is GDP and the proportion of one-person households is also increasing. All three factors are usually linked to an increase in waste quantities.

Therefore, the waste stream is likely to grow slowly, correlated with population growth.

7.2 Future Demand – Gap Analysis

The aim of waste planning at a territorial authority level is to achieve effective and efficient waste management and minimisation. The following 'gaps' have been identified:

7.2.1 Waste Streams

The data available on existing waste streams is at a fairly high level, although the SWAP surveys carried out during 2019 provide more detail on specific waste sources and types.

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

- More kerbside recyclables both from domestic and commercial properties
- Organic waste, particularly food waste both from domestic and commercial properties
- Cleanfill - there are very limited formal cleanfill facilities available in the district
- Farm waste is a relatively unknown quantity and increased awareness of the problems associated with improper disposal may drive demand for better services
- Construction and demolition waste, in particular timber, is likely to be a more significant part of the waste stream than the audit data suggests, and this may be able to be recovered
- E-waste collection and processing capacity in the district, while better than many areas, has some room for improvement

Infrastructure to manage the increased quantities and new waste streams will be required.

7.2.1.1 Asbestos Removal

Some commonly used products that contain asbestos include roof tiles, wall claddings, fencing, vinyl floor coverings, sprayed fire protection, decorative ceilings, roofing membranes, adhesives and paints. The most likely point of exposure is during building or demolition work.

If there is to be separation of construction and demolition waste at Waipukurau, training will be required to enable staff/communities to identify materials that are likely to contain asbestos.

7.2.1.2 Medical Waste

The Pharmacy Practice Handbook states:[25]

> *4.1.16 Disposal of Unused, Returned or Expired Medicines*
>
> *Members of the public should be encouraged to return unused and expired medicines to their local pharmacy for disposal. Medicines, and devices such as diabetic needles and syringes, should not be disposed of as part of normal household refuse because of the potential for misuse and because municipal waste disposal in landfills is not the disposal method of choice for many pharmaceutical types. Handling and disposal should comply with the guidelines in NZ Standard 4304:2002 – Management of Healthcare Waste.*

Chemists in Waipukurau and Waipawa accept medical waste for appropriate disposal.

7.2.1.3 Facilities

Council's landfill in the district has current capacity and consented life, with space to expand, and there is a high likelihood that a consent extension would be achievable in future. There is not considered to be any issue with disposal facility provision into the future.

There are a number of RTS and recycling drop-off points around the district. Generally, there are no restrictions on the operation of these sites from a capacity and function perspective, in their current form. However, the RTS at Waipukura is restricted in space for some key functions; particularly bulking and storage of colour-sorted glass.

The Waipukurau site may benefit from a redesign and some structural changes to make better use of the space available.

7.2.1.4 Waste Data

There is good quality high level waste data available for much of the district as the majority of the district's waste passes through one of Council's RTS, recycling drop-off centres, or ends up at the landfill.

Following the SWAP surveys carried out in mid-2019, there is now reasonable data available on the types and sources of waste at the kerbside, RTS, and the landfill.

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

8 Initial Review of the 2015 Waste Management and Minimisation Plan

The last WMMP for the Central Hawkes Bay District was prepared in 2018. It was highlighted at the time that better analysis and community engagement would have been preferable, and that the process would be repeated in 2019 to a far greater extent.

8.1 Data

The data used to prepare the 2018 WMMP for waste quantities is similar to the data used to prepare this Waste Assessment. However, the SWAP surveys on kerbside waste, RTS, and the landfill had not been carried out at this point and so several key issues have been able to be identified in this Waste Assessment to an extent not possible before.

8.2 Key Issues

Issues identified in the 2018 WMMP included:

- The need to continually assess the viability of different collection methods;
- Recycling options for beach communities/rural communities;
- Market demand, and the volatility of markets for recyclable materials and difficulty securing these markets;
- Ensuring data is collected for material types and quantities collected;
- The factors involved in exporting material for recycling, and the potential for this to cause negative environmental impacts in the destination country;
- Maximising the ability of infrastructure sites to adapt to future demands;
- Ensuring a safe environment for staff and customers;
- Reducing noise impact;
- Improving site layouts, including the ability to move around the site and to make sites user-friendly;
- Traffic management within and around sites;
- Maximising the ability to handle diverted material;
- Ensuring the number and distribution of litter bins is appropriate; and
- Controlling windblown litter and leachate.

The 2018 WMMP also identified a number of emerging issues:

- Options for household hazardous and medical waste disposal;
- Demand and allocation of public litter bins;
- Maintaining supervision of access at cleanfill disposal sites;
- Waste minimisation promotion; and
- Revision of waste management and minimisation performance measures and targets.

8.3 Other Issues Not Addressed

Issues not addressed in the previous WMMAMP include:

- The high proportion of organic waste going to the district's landfill, particularly considering the greenhouse gas implications;
- The difference in service use between householders using the Council's rubbish bag collection, and those using privately-collected wheelie bins;
- Low participation and/or use of the Council's kerbside collection services;
- Provision for businesses and industry, particularly the extent to which they are able to divert materials from landfill (including construction and demolition waste); and
- Potential for local processing of material such as green waste, where possible.

8.4 Guidance on WMMPs

Updated guidance from MfE on waste management and minimisation planning was released during 2015. The 2018 WMMP largely aligns with the 2015 MfE Guidance. The more recent guidance places more emphasis on funding of plans, inclusion of targets and how actions are monitored and reported. The 2018 WMMP was not able to provide data in accordance with the National Waste Data Framework, as suggested by the new guidance; as the data was not available.

8.5 Actions, Implementation Plan and Progress

The action plan from the 2018 WMMP was reasonably detailed and relatively ambitious for a smaller rural council, especially with the intention to review the plan within no more than 18 months.

A full report on the individual actions is included in Appendix **Error! Reference source not found.**.

The 2018 plan identified six actions for completion during the 2018/19 year:

Action	Update
Competitive fund for projects that support the WMMP	Fund has been established to a maximum $20,000 per annum, and is managed by the Environment and Regulatory Committee. Application process and evaluation criteria in development.
Enviro-schools program funded	$10,000 funding confirmed for Enviro-schools
Evaluate the costs-benefits of using paper or other biodegradable bags for Council's kerbside refuse collection	Evaluation completed. Using any biodegradable material for rubbish bags goes against a core objective of Council of reducing greenhouse gas emissions from landfill. In addition, paper bags require more resources and energy to produce, deliver, and collect. Plastic bags will be retained.
Dog-bag dispensers and litter bins placed on key walkways	Completed

Central Hawke's Bay College provided with $2,000 funding for youth environmental projects	Completed
Council will promote 'plastic-free July' through communication channels	Preparations under way for July 2019

While the WMMP included a number of performance-related measures and targets, there were no targets included specifically relating to waste management and minimisation.

9 Statement of Options

This section sets out the range of options available to the Council to address the key issues that have been identified in this Waste Assessment. An initial assessment is made of the strategic importance of each option, the impact of the option on current and future demand for waste services, and the Council's role in implementing the option. Options presented in this section would need to be fully researched, and the cost implications understood before being implemented.

9.1 Key Issues to Be Addressed by WMMP

The key issues identified in this waste assessment are:

- A significant proportion of waste going to landfill is **organic waste**, with **food waste** present across all kerbside refuse collection systems.
- There is a **significantly higher proportion of material that shouldn't be going to landfill** in rubbish from **households with private wheeled bin collections** (particularly those with large bins), including **green waste** which is insignificant in the Council rubbish bag collection
- Council has **very low market share** in the household kerbside rubbish collection market
- Many use the **drop off points or transfer stations** for recyclables, with low participation in the Council's kerbside recycling collection
- **Lack of facilities to recycle or otherwise divert construction and demolition waste**
- **Little data available on private operator activities** and non-Council waste streams in general, until waste reaches the landfill
- **Nearly half of waste to landfill** comes from out of the district
- **Community engagement**, understanding and awareness of waste issues could be improved further
- **More recyclables could be diverted** from both domestic and commercial properties rather than going to landfill
- **Industrial and commercial waste** generally presents scope for increased diversion, with paper/card the main material type currently diverted

The following table elaborates on what is likely to be contributing to these key issues, and potential actions that could address these factors along with a high level assessment of the likely impact.

Organic waste going to landfill, particularly from household kerbside rubbish collections		
Contributing factor	Potential action	Likely impact
Lack of alternative services for food waste diversion	A Council-provided rates-funded kerbside food waste collection, diverting the food waste instead to produce a beneficial soil amendment product	Significant diversion of food waste from household waste streams. Extent to which the service is used will depend somewhat on the number that still use large wheeled bins for household rubbish collections.

	Ban food waste from household refuse collections using a bylaw provision	Limited impact individually, and difficult to monitor and enforce
	Ban food waste from the landfill using a bylaw provision	As above
	Encourage home composting, vermicomposting, and bokashi processing of food waste, by subsidising equipment and running workshops	Successful at an individual household level, but only with a very small proportion (around 5%) of the community.
Limited use of alternative services for greenwaste diversion	A Council-provided rates-funded kerbside green waste collection, diverting the food waste instead to produce a beneficial soil amendment product	Impact can be far greater than intended – green waste is pulled into the kerbside collection system that was previously managed on-property or at greenwaste drop-off points. This results in an extremely expensive service for the quantity diverted from landfill.
	Private or Council-provided user-pays greenwaste collection	This can be effective in diverting greenwaste from landfill, while still maintain the existing use of home composting and greenwaste drop-off points.
	Ban green waste from household refuse collections using a bylaw provision	Limited impact individually, and difficult to monitor and enforce
	Ban green waste from the landfill using a bylaw provision	As above
Quantities of greenwaste put in household rubbish collection containers – mainly those using large wheeled bins	Ban the use of large wheeled bins for household rubbish collection	Effective, but needs to be phased in over time to ensure providers of these bins have time to transition their service and container provision
	Ban greenwaste (over 5% by weight) from kerbside rubbish collections	Unknown effectiveness; difficult to monitor and enforce, and would rely on the involvement and support of private operators.
	Work with the private operators to discourage the use of large wheeled bins	Unknown effectiveness
	Educate users of the service to ensure they understand why green waste should not go in the rubbish collection	Unknown effectiveness and relies on the involvement and support of the private operators

Lack of understanding of the impact organic waste has in landfill	Educate the community to ensure they understand the environment and financial impacts of organic waste going to the district landfill	Unknown effectiveness in this context. Previous intensive campaigns have achieved up to a 10% reduction in specific waste streams.
Households that use large wheeled bins for rubbish collections have far higher quantities of recycling and organic waste in their rubbish		
Contributing factor	Potential action	Likely impact
Research shows the generous capacity of the large wheeled bins discourage the use of diversion options, such as kerbside recycling	Ban the use of large wheeled bins for household rubbish collection	Effective, but needs to be phased in over time to ensure providers of these bins have time to transition their service and container provision
	Ban recyclables (over 5% by weight) from kerbside rubbish collections	Unknown effectiveness; difficult to monitor and enforce, and would rely on the involvement and support of private operators.
	Work with the private operators to discourage the use of large wheeled bins	Unknown effectiveness
Users of large wheeled bins don't understand why kerbside recycling and diverting organics is important, or what material can go in the recycling collection	Educate users of the service to ensure they understand why recyclable and organic waste should not go in the rubbish collection	Unknown effectiveness and relies on the involvement and support of the private operators
	Educate the general public and raise awareness of why recycling and diverting organics is important, and how to do it	Unknown effectiveness but as an individual action, would be undertaken to address a number of key issues
Low use of the Council's kerbside rubbish collection service, suggesting the service does not meet residents' needs, and resulting in poor value for money		
Contributing factor	Potential action	Likely impact
The kerbside rubbish collection service uses bags, while many residents choose to use a wheeled bin, suggesting that this is their preferred collection container	Introduce a small wheeled bin for the Council's kerbside rubbish collection rather than bags	Would be effective in encouraging more households to use Council's service, but would remove the waste minimisation benefit of using bags for rubbish collection (households using bags are better at recycling and diverting their greenwaste) and make it more difficult operate as a userpays service. This change would also have a significant negative impact on private operators offering wheeled bin services.

	Review the funding and charging approach for Council's kerbside rubbish collection	The low uptake of the Council's collection may reflect that the balance of user charges vs rates funding needs adjusting. Providing a council kerbside rubbish collection is generally seen as an essential service, and the value for money of the service needs to be maintained.
Wheeled bins are preferred due to additional capacity	Educate residents about why reducing rubbish to landfill, particularly organic wastes and recyclables, is important	Unknown effectiveness but as an individual action, would be undertaken to address a number of key issues
Wheeled bins are preferred as they prevent animal strike	Assess the extent to which animal strike is an issue	Initial feedback suggests that this is not a significant factor in the choice to use a wheeled bin
Low participation in the kerbside recycling service		
Contributing factor	Potential action	Likely impact
The kerbside recycling collection is not provided in all areas that receive a kerbside rubbish collection, and these households have slightly more recyclables in their rubbish collection	Extend the kerbside recycling collection to align with the kerbside rubbish collection	Households that now have the kerbside recycling service would be expected to achieve a similar diversion as others with kerbside services
Research shows the generous capacity of the large wheeled bins discourage the use of diversion options, such as kerbside recycling	Ban the use of large wheeled bins for household rubbish collection	Effective, but needs to be phased in over time to ensure providers of these bins have time to transition their service and container provision
	Ban recyclables (over 5% by weight) from kerbside rubbish collections	Unknown effectiveness; difficult to monitor and enforce, and would rely on the involvement and support of private operators.
	Work with the private operators to discourage the use of large wheeled bins	Unknown effectiveness
Users of large wheeled bins aren't fully aware of how important kerbside recycling and diverting organics is, or what material can go in the recycling collection	Educate users of the service to ensure they understand why recyclable and organic waste should not go in the rubbish collection	Unknown effectiveness and relies on the involvement and support of the private operators
	Educate the general public and raise awareness of why recycling and diverting organics is important, and how to do it	Unknown effectiveness but as an individual action, would be undertaken to address a number of key issues

The RTS and recycling drop-off points are well used overall, but the number and location may not be ideal		
Contributing factor	Potential action	Likely impact
Rural residents without a kerbside recycling service need to use a RTS or drop-off point	Review customer locations, collection point locations, and value for money at each	Ensure that the facilities provided are in the best locations
Low participation in the kerbside recycling service		
Contributing factor	Potential action	Likely impact
The kerbside recycling collection is not provided in all areas that receive a kerbside rubbish collection, and these households have slightly more recyclables in their rubbish collection	Extend the kerbside recycling collection to align with the kerbside rubbish collection	Households that now have the kerbside recycling service would be expected to achieve a similar diversion as others with kerbside services
Research shows the generous capacity of the large wheeled bins discourage the use of diversion options, such as kerbside recycling	Ban the use of large wheeled bins for household rubbish collection	Effective, but needs to be phased in over time to ensure providers of these bins have time to transition their service and container provision
	Ban recyclables (over 5% by weight) from kerbside rubbish collections	Unknown effectiveness; difficult to monitor and enforce, and would rely on the involvement and support of private operators.
	Work with the private operators to discourage the use of large wheeled bins	Unknown effectiveness
	Educate users of the service to ensure they understand why recyclable and organic waste should not go in the rubbish collection	Unknown effectiveness and relies on the involvement and support of the private operators
Lack of facilities to divert construction and demolition waste		
Contributing factor	Potential action	Likely impact
Limited facilities available in the district to divert construction and demolition waste	Council works with the private waste sector to investigate, prioritise and facilitate the introduction of construction and demolition waste facilities	Variable depending on the facility introduced – potentially significant, as has been seen in other areas of New Zealand

Limited services available in the district to have construction and demolition waste collected	Council works with the private waste sector to investigate, prioritise and facilitate the introduction of construction and demolition waste collection services	Variable depending on the facility introduced – potentially significant, as has been seen in other areas of New Zealand
Lack of understanding of construction and demolition waste streams	Council uses a bylaw provision to require simple construction site waste management plans for larger construction projects	Predicting waste streams, monitoring, and reporting at the conclusion of a construction project will raise awareness, but not have a significant impact in isolation
Ability to dispose of construction and demolition waste at the landfill	Ban construction and demolition waste at the landfill through a bylaw provision	Limited effectiveness in isolation, but could be extremely effective when alternatives are in place.
Little data available on non-Council waste streams and activities		
Contributing factor	Potential action	Likely impact
Much collected waste is under the control of private operators and goes directly to landfill	Council introduces a waste operator licensing and data collection system through a bylaw provision	Operators will be required to collect and provide data to Council. Will enable access to data on the majority of collected waste.
Infrequent analysis of waste at RTS and landfill	Carry out regular updates on the SWAP surveys at the RTS and landfill	Provides detailed information on all waste sources, types, and quantities which can be correlated with licensing data
Nearly half of all landfill waste comes from out of the district		
Contributing factor	Potential action	Likely impact
Few disposal facilities available in the region	Council continues to provide a disposal service but ensures this is on a full cost recovery basis	Disposal facility continues to be available, but no negative financial impact is suffered by Council or the community from providing this
Little ability to divert materials such as recyclables and organic wastes before they reach the landfill	Council works in partnership with the sources of the waste, such as neighbouring authorities, to encourage the provision of alternative services to reduce the amount of recyclables and organic waste entering the landfill	Minimises the likely future exposure of Council and the community to emissions trading scheme implications
Community engagement, understanding and awareness of waste issues could be improved further		
Contributing factor	Potential action	Likely impact

While Council's website contains a lot of information, this is distributed amongst a number of pages and may be difficult to find for the uninformed	Council collates all relevant information and provides this on a specific standalone website	Community have one place to go for waste information and education, and there may be some additional benefit of this not being hosted on the Council's website
Community doesn't receive regular, basic education and awareness raising information	Council increases spend on direct communications about core waste issues	Very intensive campaigns can achieve a measurable change in behaviour; however this depends on the budget, frequency, and longevity of campaigns
Certain sectors of the community are unaware of all services available, such as the agricultural sector	Council focuses communication material to these customers on the various product stewardship programmes in place and other available services	Very intensive campaigns can achieve a measurable change in behaviour; however this depends on the budget, frequency, and longevity of campaigns
More recyclables could be diverted from landfill		
Contributing factor	Potential action	Likely impact
Recycling collection services available to non-householders are very limited	Council provides a user-pays recycling collection service to these customers	Could be significant; however this would be quite a departure from normal business for Council
	Council works with the private waste sector to support and facilitate service provision to these customers	Could be significant, depending on the coverage of services and range of materials accepted
Customers that use large wheeled bins tend to throw far more recyclables in the rubbish than other households	Ban the use of large wheeled bins for household rubbish collection	Effective, but needs to be phased in over time to ensure providers of these bins have time to transition their service and container provision
	Ban recyclables (over 5% by weight) from kerbside rubbish collections	Unknown effectiveness; difficult to monitor and enforce, and would rely on the involvement and support of private operators.
	Work with the private operators to discourage the use of large wheeled bins	Unknown effectiveness
	Educate users of the service to ensure they understand why recyclable and organic waste should not go in the rubbish collection	Unknown effectiveness and relies on the involvement and support of the private operators

Following workshops with elected members and a community waste focus group, the preferred actions have been taken forward into the proposed action plan for the WMMP.

0

10 Statement of Council's Intended Role

10.1 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).[26]
- The WMA also requires TAs to have regard to the New Zealand Waste Strategy 2010. The Strategy has two high levels goals: 'Reducing the harmful effects of waste' and 'Improving the efficiency of resource use'. These goals must be taken into consideration in the development of the Council's waste strategy.
- Under Section 17A of the Local Government Act 2002 (LGA) local authorities must review the provision of services and must consider options for the governance, funding and delivery of infrastructure, local public services and local regulation. There is substantial cross over between the section 17A requirements and those of the WMMP process in particular in relation to local authority service provision.
- Under the Local Government Act 2002 (LGA) Councils must consult the public about their plans for managing waste.
- Under the Resource Management Act 1991 (RMA), TA responsibility includes controlling the effects of land-use activities that have the potential to create adverse effects on the natural and physical resources of their district. Facilities involved in the disposal, treatment or use of waste or recoverable materials may carry this potential. Permitted, controlled, discretionary, non-complying and prohibited activities and their controls are specified within district planning documents, thereby defining further land-use-related resource consent requirements for waste-related facilities.
- Under the Litter Act 1979 TAs have powers to make bylaws, issue infringement notices, and require the clean-up of litter from land.
- The Health Act 1956. Health Act provisions for the removal of refuse by local authorities have been repealed by local government legislation. The Public Health Bill is currently progressing through Parliament. It is a major legislative reform

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

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

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

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

10.2 Overall Strategic Direction and Role

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

11 Statement of Proposals

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

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

11.1 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.

11.1.1 Protection of Public Health

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

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

Privately-provided services will be regulated through local bylaws.

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

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

11.1.2 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.

Appendices

A.1.0 Medical Officer of Health Statement

The Medical Officer of Health for the Hawke's Bay District Health Board provided the following feedback on the draft Waste Assessment:

> *"I have reviewed the 13 June draft waste assessment I received in July and I am generally satisfied with the summary of key public health issues presented. I note that in discussions with other councils on waste management we have raised the issue of household medical waste including pharmaceuticals and sharps. The potential environmental risks associated with the incorrect disposal of this waste is increasingly being recognized (sic). We are aware that this waste is generally being generated by the health system and we are keen to work with all councils on solutions to reduce these risks*
>
> *My other general comment is to endorse the adoption of solutions that both reduce the risks of unsafe dumping and remain affordable to those households with the least ability to pay for waste collection"*

A.2.0 Glossary of Terms

Class 1-4 Landfills	Classification system for facilities where disposal to land takes place. The classification system is provided in A.2.1 below for reference.
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
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.
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, greenwaste	Plant based material and other bio-degradable material that can be recovered through composting, digestion or other similar processes.
RRP	Resource Recovery Park
RTS	Refuse Transfer Station
Service Delivery Review	As defined by s17A of the LGA 2002. Councils are required to review the cost-effectiveness of current arrangements for meeting the needs of communities within its district or region for good-quality local infrastructure, local public services, and performance of regulatory functions. A review under subsection (1) must consider options for the governance, funding, and delivery of infrastructure, services, and regulatory functions.
TA	Territorial Authority (a city or district council)
Waste	Means, according to the WMA: a) Anything disposed of or discarded, and b) Includes a type of waste that is defined by its composition or source (for example, organic waste, electronic waste, or construction and demolition waste); and c) To avoid doubt, includes any component or element of diverted material, if the component or element is disposed or or discarded.
WA	Waste Assessment as defined by s51 of the Waste Minimisation Act 2008. A Waste Assessment must be completed whenever a WMMP is reviewed

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

A.2.1Classifications for Disposal to Land

In the 'Technical Guidelines for Disposal to Land' (2016) the following definitions are given:

Class 1 - Landfill

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

Class 1 landfills require:

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

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

Waste acceptance criteria (WAC) comprises:

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

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

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

Class 2 Landfill

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

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

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

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

Waste acceptance criteria comprises:

Waste acceptance criteria comprise:

- 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 these 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.

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

Class 4 Landfill - Cleanfill

Class 4 landfill accepts only clean fill material as defined in these 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 incidental or attached biodegradable materials (e.g. vegetation) to be no more than 2% by volume per load; and
- maximum chemical contaminant limits are local natural background soil concentrations.

Materials disposed to a Class 4 landfill should pose no significant immediate or future risk to human health or the environment.

The WAC for a Class 4 landfill should render the site suitable for unencumbered potential future land use, i.e. future residential development or agricultural land use.

The WAC for a Class 4 landfill are based on the local background concentrations for inorganic elements, and provide for trace concentrations of a limited range of organic compounds.

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

A.3.0 National Legislative and Policy Context

A.3.1 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-improving-efficiency.

A.3.2 Waste Minimisation Act 2008

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

The WMA introduced tools, including:

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

Part 4 of the WMA is dedicated to the responsibilities of a council. Councils "must promote effective and efficient waste management and minimisation within its district" (section 42).

Part 4 requires councils to develop and adopt a WMMP. The development of a WMMP in the WMA is a requirement modified from Part 31 of the Local Government Act 1974, but with even greater emphasis on waste minimisation.

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

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

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

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

In summary, the WMA:

- Clarifies the roles and responsibilities of territorial authorities with respect to waste minimisation e.g. updating Waste Management and Minimisation Plans (WMMPs) and collecting/administering levy funding for waste minimisation projects.
- Requires that a Territorial Authority promote effective and efficient waste management and minimisation within its district (Section 42).
- Requires that when preparing a WMMP a Territorial Authority must consider the following methods of waste management and minimisation in the following order of importance:
    - Reduction
    - Reuse
    - Recycling
    - Recovery
    - Treatment
    - Disposal
    - Put a levy on all waste disposed of in a landfill.
    - Allows for mandatory and accredited voluntary product stewardship schemes.

- Allows for regulations to be made making it mandatory for certain groups (for example, landfill operators) to report on waste to improve information on waste minimisation.
- Establishes the Waste Advisory Board to give independent advice to the Minister for the Environment on waste minimisation issues.

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

A.3.3 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 2014.[27] The review indicates that the levy may be extended in the future:

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

A.3.4 Product Stewardship

Under the Waste Minimisation Act 2008, if the Minister for the Environment declares a product to be a priority product, a product stewardship scheme must be developed and accredited to ensure effective reduction, reuse, recycling or recovery of the product and

[27] Ministry for the Environment. 2014. Review of the effectiveness of the waste disposal levy, 2014 in accordance with section 39 of the Waste Minimisation Act 2008. Wellington: Ministry for the Environment

to manage any environmental harm arising from the product when it becomes waste.[28] No priority products have been declared as of January 2018.

The following voluntary product stewardship schemes have been accredited by the Minister for the Environment:[29]

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

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

A.3.5 Waste Minimisation Fund

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

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

Criteria for the Waste Minimisation Fund have been published:

1. Only waste minimisation projects are eligible for funding. Projects must promote or achieve waste minimisation. Waste minimisation covers the reduction of waste and the

[28] Waste Management Act 2008 2(8)
[29] http://www.mfe.govt.nz/waste/product-stewardship/accredited-voluntary-schemes

reuse, recycling and recovery of waste and diverted material. The scope of the fund includes educational projects that promote waste minimisation activity.

2. Projects must result in new waste minimisation activity, either by implementing new initiatives or a significant expansion in the scope or coverage of existing activities.

3. Funding is not for the ongoing financial support of existing activities, nor is it for the running costs of the existing activities of organisations, individuals, councils or firms.

4. Projects should be for a discrete timeframe of up to three years, after which the project objectives will have been achieved and, where appropriate, the initiative will become self-funding.

5. Funding can be for operational or capital expenditure required to undertake a project.

6. For projects where alternative, more suitable, Government funding streams are available (such as the Sustainable Management Fund, the Contaminated Sites Remediation Fund, or research funding from the Foundation for Research, Science and Technology), applicants should apply to these funding sources before applying to the Waste Minimisation Fund.

7. The applicant must be a legal entity.

8. The fund will not cover the entire cost of the project. Applicants will need part funding from other sources.

9. The minimum grant for feasibility studies will be $10,000.00. The minimum grant for other projects will be $50,000.00.

Application assessment criteria have also been published by the Ministry.

A.3.6 Local Government Act 2002

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

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

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

A.3.6.1 Section 17A Review

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

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

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

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

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

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

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

Because of the level of crossover however it makes sense to undertake the S17A review and the WMMP process in an iterative manner. The WMMP process should set the strategic direction and gather detailed information that can inform both processes. Conversely the consideration of options under the s17A process can inform the content of the WMMP – in particular what is contained in the action plans.

A.3.7 Resource Management Act 1991

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

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

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

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

In addition, the RMA provides for the development of national policy statements and for the setting of national environmental standards (NES). There is currently one enacted NES that directly influences the management of waste in New Zealand – the Resource Management (National Environmental Standards for Air Quality) Regulations 2004. This NES requires certain landfills (e.g., those with a capacity of more than 1 million tonnes of waste) to collect landfill gases and either flare them or use them as fuel for generating electricity.

Unless exemption criteria are met, the NES for Air Quality also prohibits the lighting of fires and burning of wastes at landfills, the burning of tyres, bitumen burning for road maintenance, burning coated wire or oil, and operating high-temperature hazardous waste incinerators.

These prohibitions aim to protect air quality.

A.3.8 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. Until recently however the impact of the NZETS on disposal prices has been limited. There are a number of reasons for this:

- The global price of carbon crashed during the GFC in 2007-8 and has been slow to recover. Prior to the crash it was trading at around $20 per tonne. The price has been as low as $2, although since, in June 2015, the Government moved to no longer accept international units in NZETS the NZU price has increased markedly (currently sitting at around $20 per tonne[30]) .
- The transitional provisions of the Climate Change Response Act, which were extended 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. These transitional provisions were removed in January 2017 which has effectively doubled the price per tonne impact of the ETS.
- Landfills are allowed to apply for 'a methane capture and destruction Unique Emissions Factor (UEF). This means that if landfills have a gas collection system in place and flare or otherwise use the gas (and turn it from Methane into CO_2) they can reduce their liabilities in proportion to how much gas they capture. Up to 90% capture and destruction is allowed to be claimed under the regulations, with large facilities applying for UEF's at the upper end of the range.

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

[30] https://carbonmatch.co.nz/ accessed 5 December 2017

scheme administration, compliance, and hedging against risk rather than the actual cost of carbon.

The way the scheme has been structured has also resulted in some inconsistencies in the way it is applied – for example class 2-4 landfills and closed landfills do not have any liabilities under the scheme. Further, the default waste composition (rather than a SWAP) can be used to calculate the theoretical gas production, which means landfill owners have an incentive to import biodegradable waste, which then increases gas production and which can then be captured and offset against ETS liabilities.

Recently, however the scheme has had a greater impact on the cost of landfilling, and this is expected to continue in the medium term. Reasons for this include:

- In June 2015, the Government moved to no longer accept international units in NZETS. This has had a significant impact, as cheap international units which drove the price down cannot be used. Many of these were also of dubious merit as GHG offsets[31]. This has resulted in a significant rise in the NZU price.
- The transitional provisions relating to two-for-one surrender of NZUs were progressively removed from 1 January 2017, meaning that landfills now need to surrender twice the number of NZUs they had previously – effectively doubling the cost of compliance.

These changes to the scheme mean that many small landfills which do not capture and destroy methane are now beginning to pay a more substantial cost of compliance. The ability of landfills with high rates of gas capture and destruction to buffer the impact of the ETS will mean a widening cost advantage for them relative to those without such ability. This could put further pressure on small (predominantly Council-owned) facilities and drive further tonnage towards the large regional facilities (predominantly privately owned).

If, for example, the price of carbon were to rise to $50 per tonne, the liability for a landfill without gas capture will be $65.50 (based on a default emissions factor of 1.31 tonnes of CO_2e per tonne of waste), whereas for a landfill claiming 90% gas capture (the maximum allowed under the scheme), the liability will be only $6.55. This type of price differential will mean it will become increasingly cost competitive to transport waste larger distances to the large regional landfills.

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

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

A.3.9 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, rubbish, animal remains, glass, metal, garbage, debris, dirt, filth, rubble, ballast, stones, earth, waste matter or other thing of a like nature.

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

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

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

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

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

A.3.10 Health Act 1956

The Health Act 1956 places obligations on TAs (if required by the Minister of Health) to provide sanitary works for the collection and disposal of refuse, for the purpose of public health protection (Part 2 – Powers and duties of local authorities, section 25). It specifically identifies certain waste management practices as nuisances (S 29) and offensive trades (Third Schedule). Section 54 places restrictions on carrying out an offensive trade and requires that the local authority and medical officer of health must give written consent and can impose conditions on the operation. Section 54 only applies where resource consent has not been granted under the RMA. The Health Act

enables TAs to raise loans for certain sanitary works and/or to receive government grants and subsidies, where available.[32]

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

A.3.11 Hazardous Substances and New Organisms Act 1996 (HSNO Act)

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

Depending on the amount of a hazardous substance on site, the HSNO Act sets out requirements for material storage, staff training and certification. These requirements would need to be addressed within operational and health and safety plans for waste facilities. Hazardous substances commonly managed by TAs include used oil, household chemicals, asbestos, agrichemicals, LPG and batteries.

The HSNO Act provides minimum national standards that may apply to the disposal of a hazardous substance. However, under the RMA a regional council or TA may set more stringent controls relating to the use of land for storing, using, disposing of or transporting hazardous substances.[33]

A.3.12 Health and Safety at Work Act 2015[34]

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

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

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

1. the health and safety of workers employed or engaged or caused to be employed or engaged, by the PCBU or those workers who are influenced or directed by the PCBU (for example workers and contractors)

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

2. That the health and safety of other people is not put at risk from work carried out as part of the conduct of the business or undertaking (for example visitors and customers).

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

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

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

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

A.3.13 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.3.14 International commitments

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

- Montreal Protocol
- Basel Convention
- Stockholm Convention
- Waigani Convention

- Minamata Convention.

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