From: Jörn Scherzer
Sent: Tuesday, 19 November 2019 7:03 AM
To: [redacted]
Cc: Toi Lealofi; Ieshea McDonald
Subject: RE: OIR - [redacted] - Recycling and refuse across NZ
Attachments: final-regional-waste-assessment-09.03.17-web3.pdf

Dear [redacted]

Thank you for your email from 12 November enquiring about our recycling and waste services.

Please find answers to each of your questions in yellow below.

Kind regards

Jörn Scherzer
(pronounce as "Yearn Share-tza)
Manager Sustainability and Resilience
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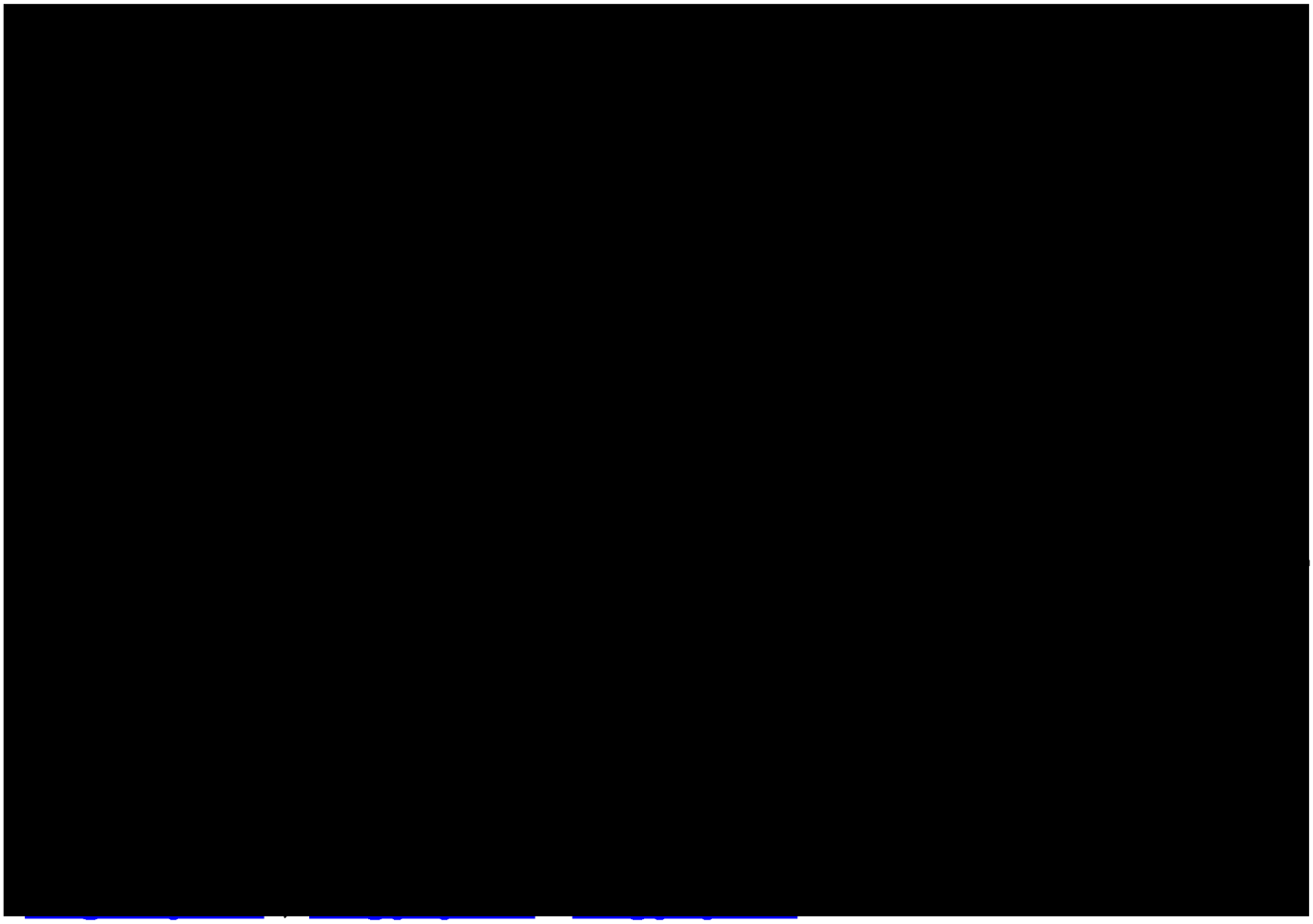
-----Original Message-----
From: [redacted]
Sent: Tuesday, November 12, 2019 12:43 PM
To: [redacted]



Subject: OIA: media recycling info request

Hi there,

I'm looking for some information regarding recycling and refuse across NZ and am hoping you will be able to answer the following questions for me please?

1. What is the diversion rate for your district?

In order to derive a diversion rate, it is important to be clear on what materials are included. The Wellington Region Waste Assessment from 2016 has relevant information, it is attached to this response email, see page 63.

2. What is your volume of waste per capita to landfill?

The Wellington Region Waste Assessment from 2016 has relevant information. I note that a breakdown by city or district is not feasible on a reliable basis as there is insufficient data on the geographic source of waste being disposed in the three landfills in the Wellington Region. However, the amount of waste per capita across the Wellington Region was estimated at 0.608t/year (see page 68 of the Waste Assessment).

3. What is your recycling rate per capita?

Based on the Wellington Region Waste Assessment from 2016, per capita recycling was estimated at 53kg/capita/annum for 2014/15 across the region, see page 73. In addition, while the methodology differs, Hutt City Council also collects data on the amount of recycling collected from the kerbside in Lower Hutt (via its contract with Waste Management NZ). In 2018/19, 7,104 tonnes of recyclable materials (glass, paper, etc)

were collected. Assuming a population of approximately 108,700 as at 30 June 2019, this would result in a per capita rate of 65kg/capita/annum.

4. Where is your closest landfill?

Silverstream landfill, located in Lower Hutt (it services the wider Wellington region alongside two other landfills, one in Porirua and one Wellington)

5. Where is plastic, glass, metal and paper sent once collected?

Waste Management NZ is contracted by Hutt City Council to collect recyclables, and they are then processed/sorted at a materials recovery facility operated by OJI, located in Seaview, Lower Hutt. Once sorted, materials are then on-sold to other companies. For example,

- clear PET (#1) bottles tend to go to Flight Plastics in Lower Hutt and are processed into containers for produce like kiwifruit,
- HDPE (#2) is sent to Palmerston North where it is turned into pallets, ending up as wheelie bins and other products
- glass goes to OI in Auckland for recycling (*https://recycleglass.co.nz/o-i-new-zealand/)*,
- metal goes to metal recyclers,
- some paper is processed in NZ, but some is shipped overseas for processing and recycling.

6. Do you offer a kerbside service for both rubbish and recycling (urban/rural)?

Yes we provide kerbside services for both recycling and rubbish.

7. Do you accept drinking glasses or pyrex in recycling?

Glass bottles and jars only are accepted for kerbside recycling and at our recycling stations located across Lower Hutt. Other types of glass are of different quality, so drinking glass, window or mirror glass sheets, and pyrex are not acceptable.

8. Do you accept plastic plant pots?

No. For detail on what materials and products are acceptable, please go to http://heart.huttcity.govt.nz/services/recycling-changes-on-the-way-for-lower-hutt/

9. Do you accept soft plastics? (If yes, what happens to them?)

Hutt City Council does not accept soft plastics. More information on the options available through supermarkets are here: https://sortwaste.nz/working-towards-soft-plastic-free-recycling-scheme-returning-to-the-hutt-valley/. This system was set up by the Packaging Forum.

10. Do you accept Tetra Pak cartons?

No, TetraPak is a laminated product often including card/plastic/foil/wax coating. The materials recovery facility operated by OJI in Lower Hutt does not accept these products / does not have relevant processing capability.

11. Do you accept plastic milk bottle lids? (If yes, what happens to them?) ??

Plastic bottletops from any source are too small to be collected within the current semi-mechanised system at OJI.

12. Do you have a food scraps and/or garden waste collection? (If yes, what happens to it?)

There is no service currently provided by Council. However, Waste Management NZ offers a greenwaste kerbside service for those customers wishing to take up this option. Once collected, this material is processed into compost at Composting NZ based in Kapiti.

Many thanks in advance for your help,

[redacted]

[redacted]

[redacted]

Wellington Region Waste Assessment

2016

PREPARED FOR THE COUNCILS OF THE WELLINGTON REGION

Waste Free, Together – For people, environment, and economy

ISBN: 978-0-947521-03-5

Prepared by Eunomia Research & Consulting Ltd and Waste Not Consulting Limited, on behalf of the territorial authorities of the Wellington Region.

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Contents

1.0 Introduction

This Waste Assessment has been prepared for the territorial authorities of the Wellington region in accordance with the requirements of the Waste Minimisation Act 2008 (WMA). This document provides background information and data to support the constituent Councils' 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 the region.

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.

Wellington 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.

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. The focus of these sections is on the regional picture.

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 the Councils' ability to promote effective and efficient waste management and minimisation.

Statement of Options & Councils' Proposed Role

These sections develop options available for meeting the future demand and the Councils' proposed role in ensuring that future demand is met and that the Councils are able to meet their 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 solely references the WMMP for this section.

Appendices

The appendices contain additional waste management data and further detail about facilities in each district. This additional data will enable territorial authorities (TAs) to "drill down" and access information about their district. 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 draft WMMP.

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

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

1.3 Legislative Context

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

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

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

Section 45 of the WMA allows for two or more TAs to jointly prepare and adopt a WMMP. This joint waste assessment has been prepared in accordance with this section of the Act.

The WMA requires every TA to complete a formal review of its existing waste and minimisation management plan at least every six years. The review must be consistent with WMA sections 50 and 51. Section 50 of the WMA also requires all TAs to prepare a 'waste assessment' prior to reviewing its existing plan. This document has been prepared in fulfilment of that requirement. The Councils' existing Waste Assessment was written in September 2011 and the WMMP was adopted on 15th December 2011.

Further detail on key waste-related legislation is contained in Appendix 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 Councils of the Wellington region to update their 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 region. 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 TAs' own services. While the Councils have reliable data on the waste flows that they control, data on those services provided by private industry is limited. Reliable, regular data on waste flows is important if the TAs choose 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 councils' 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

In line with the Councils' previous joint WMMP, this Waste Assessment is focused on solid waste that is disposed of to land or diverted from land disposal.

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 (2009), Waste Management and Minimisation Planning: Guidance for

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.

Gas from the three Class 1 landfills in the Wellington region is managed by the facility operators and gas is captured under the national environmental standard for air quality. Biosolids from the WTTP processes are, however, disposed of at Class 1 landfills and so it is reasonable to consider them in the context of this assessment. Therefore, apart from some liquid hazardous wastes that are managed through solid waste facilities, this Waste Assessment and the subsequent WMMP will focus primarily on solid waste.

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 Local Planning Context

This Waste Assessment and the resulting WMMP will have been prepared within a local 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.

1.5.1 Long Term Plans

All Councils that contribute to this joint Waste Assessment and resulting WMMP have renewed long term plans (LTPs) dating from July 2015.

A key part of these LTPs is the visions that have been set for the TAs involved. These are:

- Carterton District: *A welcoming and vibrant community where people enjoy living*
- Hutt City: *Making our city a great place to live, work and play*
- Kāpiti Coast District: *Vibrant, diverse and thriving*
- Masterton District: *Moving forward together*
- Porirua City: *A great place to live, work and raise a family*
- South Wairarapa District: (to) *work with and for the South Wairarapa communities to achieve the best possible social and economic outcomes which are based on valuing and respecting the people, the land and the resources.*
- Upper Hutt City: *Our city is one of a kind. In Upper Hutt we are surrounded by outstanding natural beauty and a wide range of leisure and recreational activities. We're recognised as a great place for families and for people who enjoy*

the best of the outdoors. We have recognised our strengths and want to build on them.

- Wellington City: Wellington Towards 2040: Smart Capital. *…to grow and sustain the city as an inclusive place where talent wants to live*.

LTPs also set out a number of community outcomes, such as "healthy people" and "a sustainable healthy environment". Solid waste is mentioned in a number of the LTPs as contributing to a number of different community outcomes. However, the most common approach is to link solid waste management with community outcomes relating to environment and sustainability. Some LTPs also link solid waste management to economic and health outcomes.

Some of the LTPs refer to solid waste in the preamble sections, making reference to national legislation or the New Zealand Waste Strategy 2010. Others refer to the regional WMMP as a 'key document'. However, not all LTPs include reference to solid waste management in these preliminary sections.

All of the Councils' LTPs include a dedicated section discussing solid waste management activities. Depending on the Council, these are included in services, infrastructure, or environmental management sections. In some LTPs, solid waste management is mentioned in a number of other activity sections, where appropriate.

The solid waste management activity sections generally include reference to the regional WMMP. In many sections, it is clear that the regional WMMP is the key guiding policy document for solid waste management. In other LTPs, other documents are also mentioned and these may include their solid waste asset management plans.

Most LTPs include a summary of the regional WMMP, and then elaborate on the implications of the WMMP for the term of the LTP. Key actions and projects are taken from the regional WMMP and shown as regional or city/district specific tasks.

Some LTPs include additional actions or work areas alongside the regional WMMP, with a number of key projects included in the LTP. Masterton, Carterton and South Wairarapa make frequent mention of working in cooperation with each other at a level greater than those Councils' cooperation with other Councils in the Wellington region.

Key projects include:

- Landfill consents and management for Carterton, Hutt City and South Wairarapa
- Closed landfill management projects for Kāpiti Coast and Masterton
- Other infrastructure projects, such as transfer station upgrades or expansion, for Masterton and South Wairarapa.

Most solid waste management activity sections of LTPs also include a review of the regional WMMP.

1.5.2 Wellington Regional Council Plans

The *Regional Policy Statement for the Wellington Region* (RPSWR) became operative on 24 April 2013. The RPSWR provides an overview of the resource management issues in the Wellington region and the objectives, policies, and methods to achieve integrated

management of natural and physical resources. Regional and district plans cannot be inconsistent with the RPSWR.

The objective of the RPSWR that directly pertains to solid waste is as follows:

Objective 11

The quantity of waste disposed of is reduced.

Policy 65*: Promoting efficient use and conservation of resources – non-regulatory*

To promote conservation and efficient use of resources by:

(a) reducing, reusing and recycling waste;

(b) using water and energy efficiently; and

(c) conserving water and energy.

Explanation

For waste, using resources efficiently means following the waste hierarchy: reducing unnecessary use of resources, including reducing packaging; reusing unwanted goods that are still 'fit for purpose'; recycling new products from waste materials; and recovering resources (such as energy) from waste before disposing of the remaining waste safely. If resources are used efficiently, the amount of unwanted materials disposed of at landfills and at sewage treatment plants will be reduced.

Method 17: *Information about waste management*
Prepare and disseminate information about how to reduce, reuse or recycle waste.

Implementation: Wellington Regional Council and city and district councils

Method 56: *Assist the community to reduce waste and use water and energy efficiently*
Assist the community to adopt sustainable practices to:
(a) reduce, reuse or recycle waste;
(b) use water and energy efficiently; and
(c) conserve water and energy.

Implementation: Wellington Regional Council and city and district councils

2.0 Wellington Region

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

2.1 Overview

Local authorities in the Wellington region comprise eight territorial authorities and the Greater Wellington Regional Council. The land area of the region covers 813,000 hectares with 497 kilometres of coastline.

Figure 1: Map of Wellington Region and Territorial Authority Areas

Source: http://gwlive.blackwebs2.co.nz/page/the-region.aspx

There is significant diversity within the region, with large metropolitan areas concentrated around Wellington City and the Hutt Valley through to the predominantly rural Wairarapa. The geography also generates clear distinctions, with the Rimutaka and Tararua Ranges creating a physical barrier between different parts of the region. This physical division of the region restricts, to some degree, the movement of people, and, particularly in the residential context, recovered materials and waste. There are also large numbers of workers coming into the city centres. For example, Wellington City has an inflow of around 70,000 workers every weekday from other cities/districts. The complexities of geography, people, and wastes create a wide range of challenges for planning more effective waste management and minimisation across the region.

2.1.1 Demographics

The Wellington region is home to approximately half a million people. Forty percent of the population resides in Wellington City, with another 40% in the Hutt Valley and Porirua City, 10% in Kāpiti Coast, and 10% in the Wairarapa. The region has experienced an overall annual population growth rate of approximately 1% since 2010/11. This varies between 1.8% for Carterton District and 0.4% for Hutt City. The population distribution and growth is shown in the following table:

Table 1: Population Wellington Region 2010/11 – 2014/15

Wellington region population	2010/11	2011/12	2012/13	2013/14	2014/15	Mean annual growth rate
Carterton District	8,191	8,340	8,490	8,680	8,800	**1.81%**
Hutt City	100,406	100,803	101,200	101,700	102,000	**0.39%**
Kāpiti Coast District	50,010	50,355	50,700	51,100	51,400	**0.69%**
Masterton District	23,804	23,952	24,100	24,200	24,400	**0.62%**
Porirua City	52,912	53,306	53,700	54,100	54,500	**0.74%**
South Wairarapa District	9,604	9,702	9,800	9,920	10,000	**1.02%**
Upper Hutt City	40,612	40,956	41,300	41,800	42,000	**0.84%**
Wellington City	191,395	194,447	197,500	200,000	203,800	**1.58%**
TOTAL	**476,933**	**481,861**	**486,790**	**491,500**	**496,900**	**1.03%**

Source: Statistics NZ sub-national population estimates

The table on the next page shows key demographic metrics for each of the districts as well as for the region as a whole.

As well as showing substantial variation in size, there are notable differences amongst the districts across most metrics. Average household size for the region is 2.6 people, but varies between 2.3 in South Wairarapa and 3.0 in Porirua. In general, the metropolitan areas have larger households compared to the rural areas.

Median income is similarly diverse. Wellington City has the highest median income in New Zealand, (this has helped the region to also have the highest median income for a region), while a number of districts – Carterton, Kāpiti Coast, and Masterton - have median incomes below the national average.

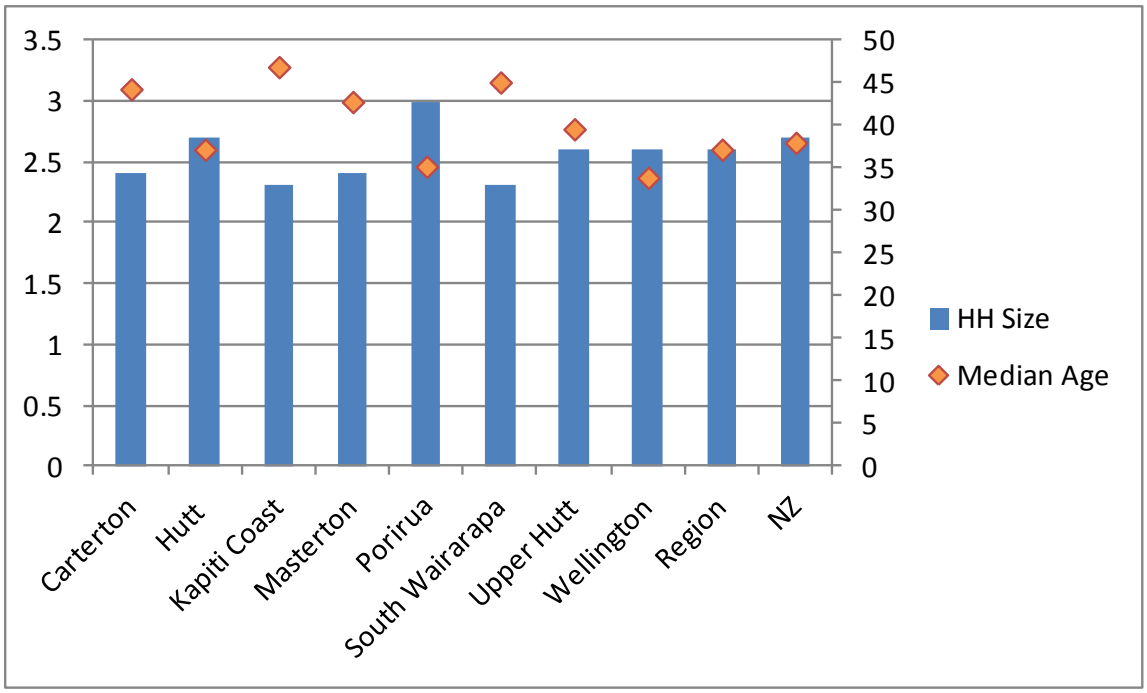
Similarly, Wellington City also has the highest proportion of people with formal qualifications (and the highest with tertiary qualifications) while Masterton and Carterton are below the national average.

Table 2: Key Demographic Indicators for Wellington Region

Demographic indicators	Households (Occupied Dwellings)	HH Size	Median income	Home ownership	Formal qualifi-cations	Building consents
Carterton District	3,333	2.4	$26,700	73.9	74.1%	**73**
Hutt City	36,213	2.7	$31,500	66.2	79.5%	**197**
Kāpiti Coast District	20,703	2.3	$26,900	74.5	80.5%	**145**
Masterton District	9,600	2.4	$25,300	67.3	72.2%	**66**
Porirua City	17,013	3.0	$31,400	63.9	79.1%	**152**
South Wairarapa District	4,035	2.3	$28,800	72.2	77.1%	**37**
Upper Hutt City	15,132	2.6	$32,000	72.1	79.2%	**141**
Wellington City	71,781	2.6	$37,900	59.1	91.1%	**623**
Region	177,816	2.6	$32,700	64.9	84.0%	**1,573**
New Zealand	**1,570,695**	**2.7**	**$28,500**	**64.8**	**79.1%**	**24,432**

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

Figure 2: Household Size and Median Age



The chart above plots the relationship between household size and median age. There appears to be a clear relationship between the smaller household sizes and higher median age. In the rural areas of Wairarapa there are fewer young people, which raises the median age and reduces household size. This is similar to Kāpiti Coast where there are more retired people. This correlates to reduced average household size and an increase in the median age.

Porirua, by contrast, has the largest household size and a low median age, indicating the presence of young families. Wellington City has a relatively low household size and median age as a result of having a high proportion of working age population. In a waste management context, larger households generate more waste per household but less per capita.

As shown in Table 3 on the next page, in 2013 there were 185,400 households in the region, with approximately 40% of these located in Wellington City. The number of households is projected to grow to 220,000 by 2038.

Table 3: Households and Projected Household Growth

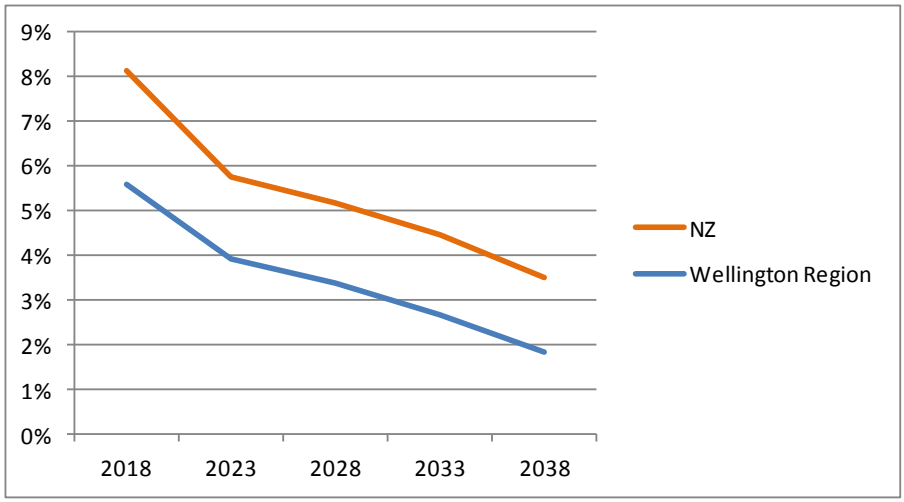
Number of households	2013	2018	2023	2028	2033	2038	% Per Annum
Kāpiti Coast District	21,600	22,700	23,700	24,700	25,500	26,200	0.8 %
Porirua City	17,800	19,000	19,800	20,500	20,900	21,200	0.7 %
Upper Hutt City	15,800	16,800	17,600	18,300	18,800	19,200	0.8 %
Lower Hutt City	37,800	39,000	40,000	40,700	41,200	41,200	0.3 %
Wellington City	74,700	79,400	82,900	86,400	89,600	92,200	0.8 %
Masterton District	10,000	10,500	10,700	10,800	10,900	10,800	0.3 %
Carterton District	3,500	3,900	4,100	4,300	4,400	4,500	1.0 %
South Wairarapa District	4,200	4,400	4,600	4,700	4,700	4,700	0.5 %
Wellington region	185,400	195,800	203,500	210,400	216,000	220,000	0.7%
New Zealand	**1,648,500**	**1,782,700**	**1,885,400**	**1,982,600**	**2,071,000**	**2,144,000**	**1.1%**

Source: http://www.stats.govt.nz/browse_for_stats/people_and_communities/Families/SubnationalFamilyandHouseholdProjections_HOTP13-38.aspx

Projections for household growth rate in Wellington region compared to New Zealand are shown in Figure 3 on the next page.

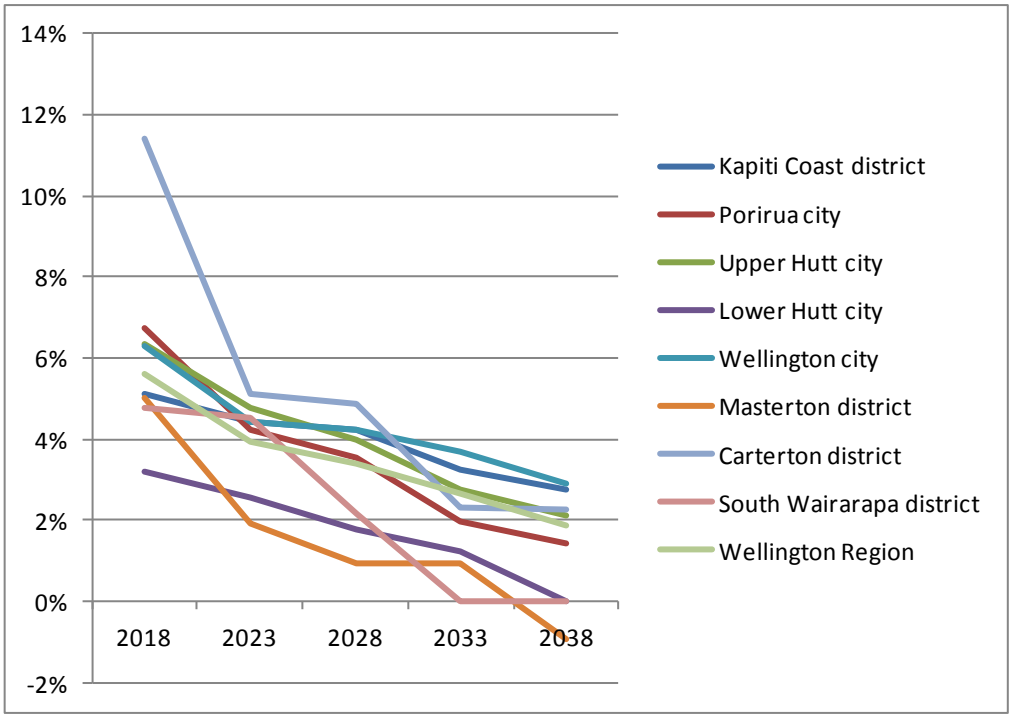
The projected pattern of growth for the region mirrors that for New Zealand as a whole, however Wellington is starting from a lower base level of growth (6% over 5 years compared to 8% nationally).

Figure 3: Regional and National Household Growth Rate Projections



The pattern for five-yearly growth intervals, by district, is shown in the chart below.

Figure 4: Household Growth Rate Projections by District

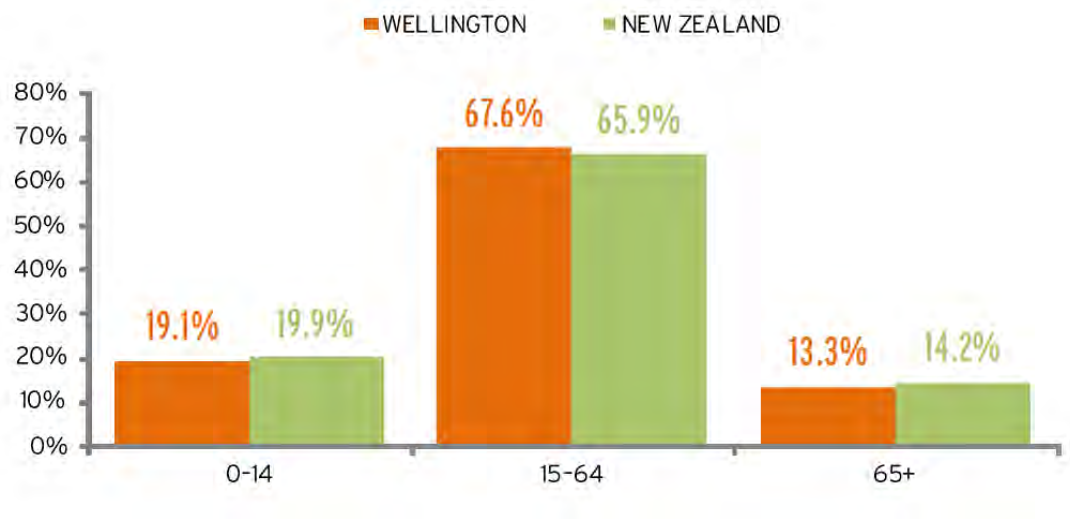


Source:
http://www.stats.govt.nz/browse_for_stats/people_and_communities/Families/SubnationalFamilyandHouseholdProjections_HOTP13-38.aspx

Carterton District is predicted to have the highest average annual growth rate over the next 23 years (1%), although growth is projected to be very high between 2013 and 2018 and fall away steeply after that. Wellington and Upper Hutt have the next highest rates of growth over the period, with both projected to grow by an average of 0.8%.

Masterton and Hutt City are expected to experience the least growth, with an average of 0.3%, and Masterton is projected to experience a net household loss by 2038.

Figure 5: Age Composition of Wellington Region (2013)



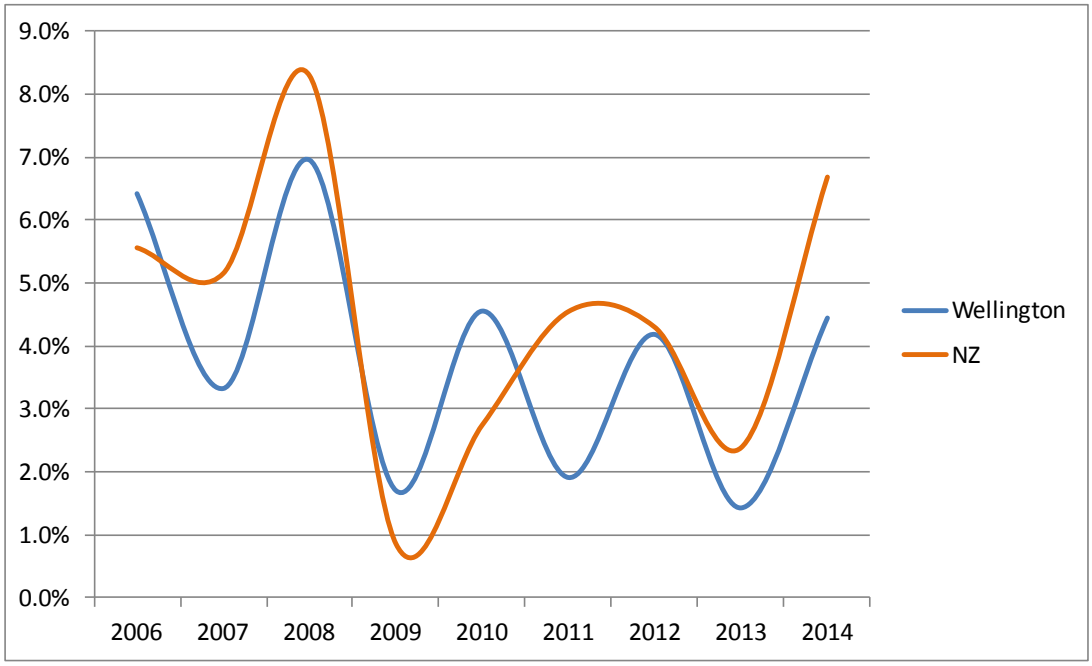
Source: Infometrics (2013) Annual Economic Profile: Wellington Region

Wellington has a median age of 35.3 years, which is significantly lower than the national median age of 37.1. Wellington has a higher proportion of working age people and slightly lower proportions of both young people and people over 65.

2.2 Economy

Gross domestic product (GDP) in the region increased by 4.4% in the year to March 2014 compared to 6.7% for New Zealand. The rate of growth has generally been less than the national rate but the pattern of growth has approximately tracked that of the country as a whole. This is shown in the chart below.

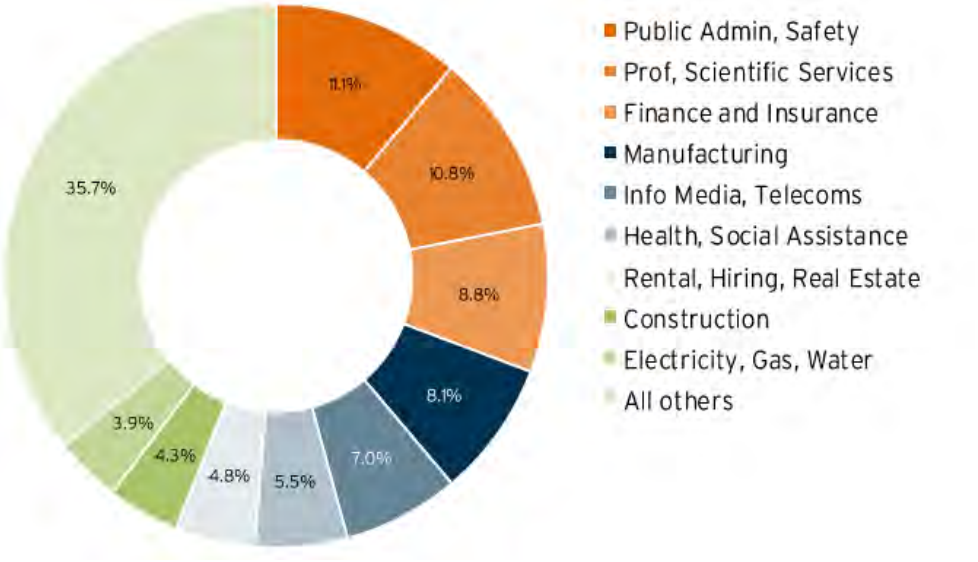
Figure 6: Gross Domestic Product Annual Average % Change



Source: Statistics New Zealand

The relative importance to the regional economy of different sectors is shown in the following chart, which maps share of GDP by industry type.

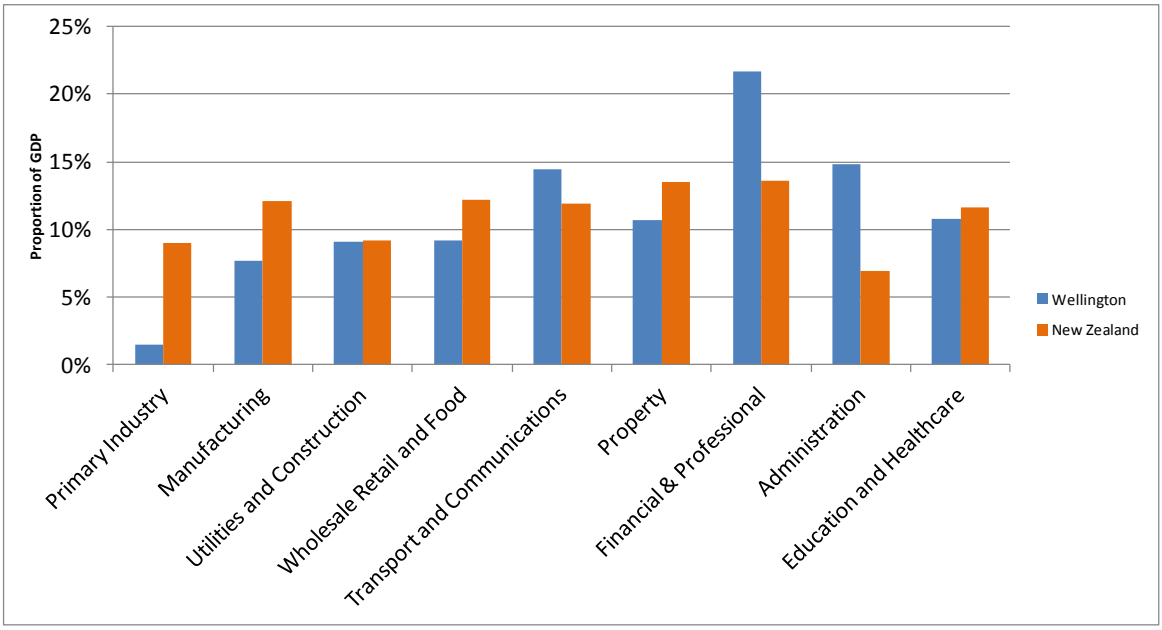
Figure 7: Share of Total Wellington Region GDP by Industry Type



Source: Infometrics. Wellington Annual Economic Profile 2013

The contribution of the different industry types to GDP in Wellington region are compared to New Zealand as a whole in Figure 8.

Figure 8: Wellington Region GDP by Industry Type Compared to NZ

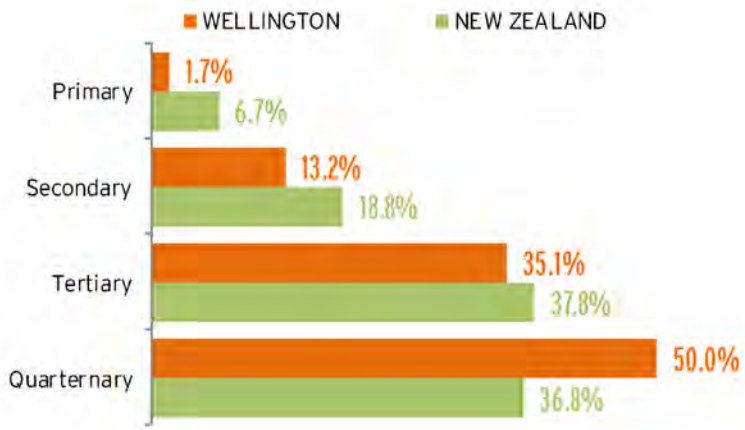


Source: Statistics New Zealand

Administrative and financial and professional services are the largest sectors of the Wellington region economy and play a much larger role compared to national-level figures. The sectors account for approximately one-third of GDP compared to approximately one-fifth across New Zealand as a whole. By contrast, primary industry

(farming, forestry, fishing and mining), and manufacturing play a substantially lesser role in the region's economy. From a waste management perspective, this would suggest that rural and industrial wastes are likely to be less significant contributors to waste generation and that there will be more office worker-generated waste. The importance of these sectors varies across the region, however, with primary industry of significant importance in the Wairarapa and Kāpiti Coast, manufacturing more significant in the Hutt Valley, and the financial, professional, and administration sectors dominant in Wellington City.

Figure 9: Employment by Broad Sector



Source: Infometrics. Wellington Annual Economic Profile 2013

The broad structure of the economy is also reflected in the employment profile of the region, with under-representation most notable in the primary and secondary sectors and over-representation in the quarternary sector.

In terms of employment creation, the largest area of absolute growth has been in professional, technical, and environmental services (1008 jobs in 2013), while the largest area of relative growth was in mining (20.9%) followed by Agriculture forestry and fishing (6.1%) and Electricity Gas Water and Waste Services (4.3%). Administrative and Support services suffered the largest decline in jobs both in absolute (1,435 jobs) and relative terms (10.2% decline in job numbers)[2]

[2] Infometrics. Wellington Annual Economic Profile 2013

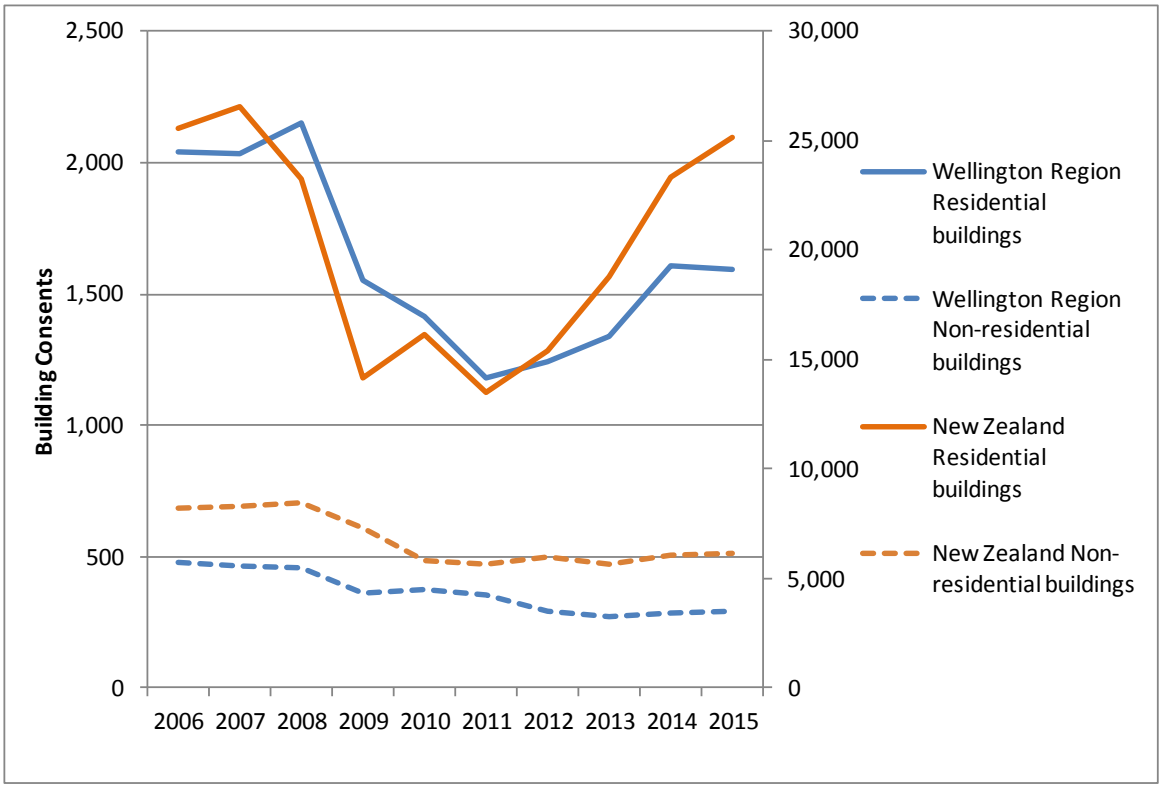
Figure 10: Unemployment Rate in Wellington Region

Source: Infometrics. Wellington Annual Economic Profile 2013

The above chart suggests that Wellington region has generally tracked below the national unemployment rate, with the exception being prior to the global financial crisis (GFC) in 2008-2009. The latest available unemployment figures show that this trend has continued, with unemployment at 6% nationally[3] and 5.6 % for the region[4].

[3] http://nzdotstat.stats.govt.nz/wbos/Index.aspx?DataSetCode=TABLECODE7080
[4] http://wellington.scoop.co.nz/?p=80456

Figure 11: Building Consents over Time



Source: http://www.stats.govt.nz/infoshare/ViewTable.aspx?pxID=7a47932e-7c21-40f4-bb94-5d9bf1003da3

Building consent activity was highest prior to the GFC in 2008-2009, which saw a dramatic fall in building activity – particularly residential activity. Residential building activity has recovered somewhat in the region but appears to have plateaued from 2014-2015 while it continues to grow for New Zealand as a whole (driven largely by Auckland housing growth). Non-residential construction also fell from the pre-GFC high and, while it has remained steady, has not recovered in either the Wellington region or the country as a whole.

2.3 Implications of Economic and Demographic Trends

The Wellington region is a high-performing part of the New Zealand economy, with higher per capita and household incomes compared to the national average. However, this level of prosperity masks significant variation across the districts. Wellington City has the highest median income in NZ, (which has helped the region to also have the highest median income for a region), while a number of districts – Carterton, Kāpiti Coast and Masterton have median incomes below the national average.

Wellington's economy is powered to a large degree by the public and administrative sectors, which make up the largest employers and contributors to GDP. This sector appear to add a degree of stability to the local economy which, while mirroring national patterns, has not experienced the same extremes of growth and contraction as the country as a whole.

While there is an industrial base, predominantly in the Hutt Valley, this is a smaller part of the Wellington region economy compared to NZ as a whole. Similarly, primary production is largely confined to the Wairarapa and Kāpiti Coast. Industrial and primary processing waste are therefore likely to make up a smaller fraction of the waste production in the region than in other regions. It is worth noting that because many industrial waste streams are relatively homogeneous, and are generated in quantities that are economically viable, they are often easier to target for recovery. These types of waste minimisation gains may not, therefore, be readily achievable for the region. While the administrative sector produces relatively low levels of waste, there can still be substantial quantities of materials such as paper, e-waste, furniture, and construction and demolition waste generated.

Population and the numbers of households are expected to increase at 0.7% per annum across the region over the next 20-25 years, which is below the national projected rate of 1.1%. The projections show a steady decline in the rate of growth over time. These figures again hide some disparity across the districts, with Masterton projected to enter a period of negative household growth in 20 years and South Wairarapa to remain static.

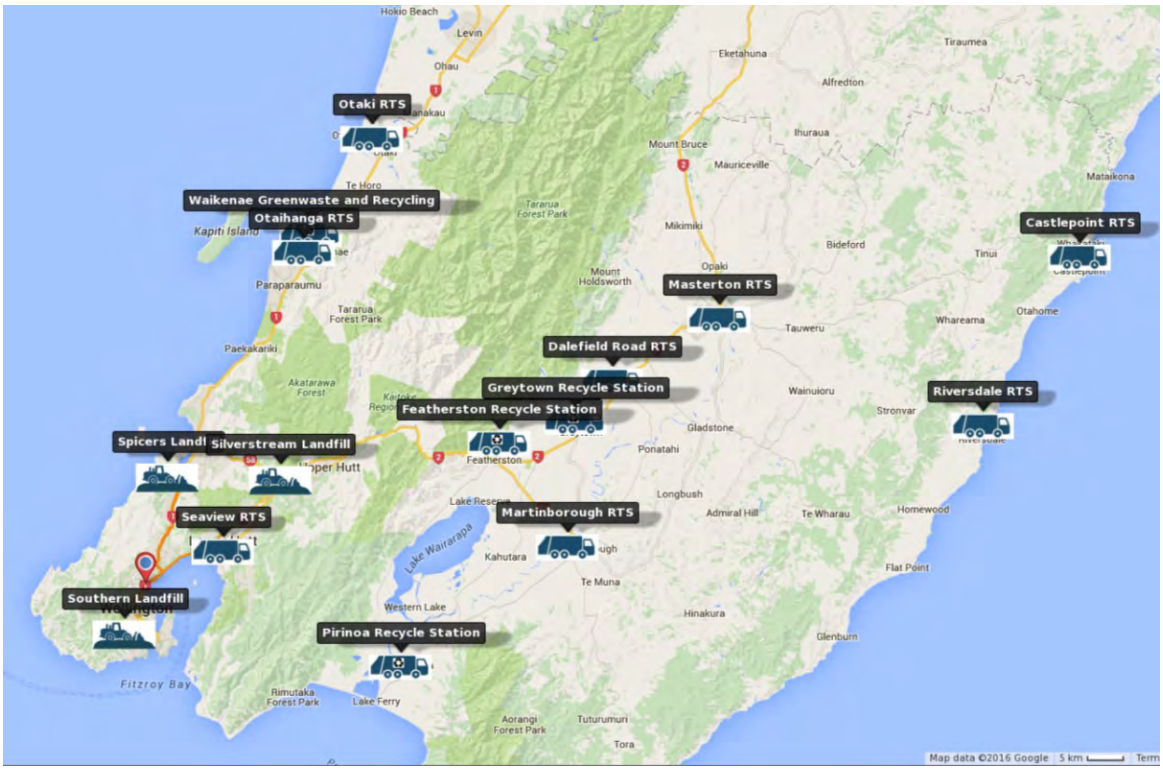
The absolute growth in population and economic activity in the region is likely to lead to increased waste generation. Household waste generation is linked to retail spending and population; both of these metrics are growing, although the impact is not expected to be substantial. Although Wellington has an age structure skewed towards the working population, the population as a whole is ageing and lower numbers of people are living in each household. These are long-term trends that are common in many parts of New Zealand. These trends are likely to result in lower waste being generated per household – although higher waste generation per capita, as smaller households typically generate more waste per capita than larger households. Design of waste services should take into account that, in the future, a larger number of households will generate less waste.

The construction sector is relatively waste-intensive. Construction and demolition activity can generate substantial quantities of relatively dense material, much of which is recoverable, such as brick and concrete, timber, plasterboard, and metal. While this sector does not appear to have matched the levels of growth in New Zealand as a whole, it is still growing and will likely continue to grow in line with household growth. Other sectors of the economy, such as tourism, are not anticipated to grow significantly and will have a limited impact on waste generation rates.

3.0 Waste Infrastructure

This section provides a summary of key strategic waste facilities that currently service households and businesses in the Wellington region.

Figure 12: Map of Key Waste and Recovery Facilities in Wellington Region



3.1.1 Class 1 Landfills

There are three Class 1 landfill disposal facilities[5] within the region. These are referred to as "disposal facilities" in the WMA. In addition, there is Bonny Glen landfill, which is located outside of the region in the Rangitikei District but which serves councils in the Wairarapa, and the Horowhenua District Council-owned Class 1 landfill in Levin, which accepts waste from Kāpiti Coast District. There are a further thirteen transfer stations that accept waste and or recyclable materials that is bulked for transport to further disposal or recovery. Key data on the facilities is shown in the table on the next page.

[5] Based on definitions in the Technical Guidelines for the Disposal to Land, WasteMINZ, April 2016

Table 4: Disposal Facilities Used by Wellington Region Operators

Facility Name & Owner	Location	Approx annual quantity accepted (tonnes)	Consent Expiry/Fill Date	Advertised General Waste Gate Fee
Southern landfill (WCC)	Happy Valley, Wellington	80,000	Current cell capacity to approx 2025. Valley capacity for 100yrs	$121.80
Silverstream landfill (HCC)	Upper Hutt	100,000	Consented to 2055	$118.00
Spicers landfill (PCC)	Porirua	45,000	Consented to 2030, capacity to 2045	$129.00
Bonny Glen landfill (Mid West Disposals)	Rangitikei District (outside of region)	Up to 250,000	Consented to 2050	$166.18[6]
Levin landfill (Horowhenua DC)	Horowhenua District (outside of region)	30,000	Consented to 2037	$163.50

In aggregate, the region is well-served in terms of the number of available Class 1 landfills and the remaining capacity of those facilities. The three landfills located in the region all have substantial remaining capacity at existing fill rates, with Spicers having capacity for another 30 years, Silverstream for 40 years, and Southern potentially 100 years. Having three major landfills within the region makes Wellington region the best-served region of the country for landfill space. However, the ability to practically access these facilities is constrained by geography. The Rimutaka Range means access to these facilities from the Wairarapa is not only difficult but unreliable, due to weather and road closures. Similarly, Kāpiti Coast is able to more easily access the Levin disposal facility.

The table below shows the approximate distances to each landfill from the centre of each TA area.

[6] Bulk charge at Wairarapa transfer stations that take material to Bonny Glen

Table 5: Travel Distances (km) to Lower North Island Landfills

Travel distances (km)	Southern landfill	Silverstream landfill	Spicers landfill	Bonny Glen landfill	Levin landfill
Carterton	91	61	85	155	146
Hutt	24	12	29	161	91
Kāpiti	64	52	42	111	42
Masterton	106	76	100	142	133
Porirua	28	25	5	142	73
South Wairarapa	88	60	82	183	112
Upper Hutt	41	11	35	142	73
Wellington	8	28	24	162	93

3.1.2 Refuse Transfer Stations & Recycling Centres

As well as being able to take waste and recoverable material direct to the landfills, waste and recycling collectors and members of the public have access to thirteen refuse transfer stations and recycling centres that consolidate material before transport to disposal or recovery. These are shown in the table below. In addition, the three Class 1 landfills in the region allow public access and provide facilities for drop-off of waste, recycling, and compostable materials.

Table 6: Refuse Transfer Stations and Recycling Centres

Facility Name & Location	Owner/ Operator	Hours and Public Access	Material Range[7]
Seaview Recycle & Transfer Station (Hutt City)	Waste Management NZ Ltd	Monday - Saturday 7.30am - 5.00pm Sunday and Public Holidays 8.30am - 4.30pm	Refuse Recycling Greenwaste
Otaihanga Resource Recovery Facility (Kāpiti Coast)	Kāpiti Coast DC/ Midwest Disposals Ltd	Monday to Saturday 8.00am to 5.00pm Sunday and Public Holidays 9.00am to 5.00pm	Refuse Recycling Greenwaste
Waikanae Greenwaste and Recycling Centre (Kāpiti Coast)	Kāpiti Coast DC/ EnviroWaste Services Ltd	Monday to Saturday 8.00am to 5.00pm Sunday and Public Holidays 9.00am to 5.00pm	Recycling Greenwaste

[7] A table of fees and charges and the range of materials accepted is provided in Appendix A.6.0

Facility Name & Location	Owner/ Operator	Hours and Public Access	Material Range[7]
Ōtaki Refuse Transfer Station (Kāpiti Coast)	Kāpiti Coast DC/ EnviroWaste Services Ltd	Monday to Saturday 8.00am to 5.00pm Sunday and Public Holidays 9.00am to 5.00pm	Refuse Recycling Greenwaste
Martinborough Transfer Station (South Wairarapa District)	SWDC / Wairarapa Environmental	Wednesday 1.00pm – 3.00pm Saturday 10.00am – 4.00pm Sunday 10.00am – 1.00pm	Refuse Recycling Greenwaste
Greytown Recycling Station (South Wairarapa District)	SWDC / Wairarapa Environmental	Tuesday 1.00pm – 3.30pm Saturday 10.00am – 12.00pm Sunday 10.00am – 1.00pm	Recycling Greenwaste
Featherston Recycling Station (South Wairarapa District)	SWDC / Wairarapa Environmental	Thursday 11.00am – 3.00pm Saturday 11.00am – 3.00pm Sunday 11.00am – 3.00pm	Recycling Greenwaste
Pirinoa Recycling Station (South Wairarapa District)	SWDC / Wairarapa Environmental	Wednesday 1.00pm – 3.00pm Saturday 10.00am – 12.00pm Sunday 4.00pm – 6.00pm	Recycling Greenwaste
Castlepoint (Masterton District)	Masterton DC / Wairarapa Environmental	Wednesday 9:00am - 12:00noon Sunday 11:00am - 3:00pm	Refuse Recycling Greenwaste
Riversdale (Masterton District)	Masterton DC / Wairarapa Environmental	Wednesday 1:30pm - 4:30pm Sunday 1:30pm - 4:30pm Sundays during December, January and February 1:30pm - 7:30pm	Refuse Recycling Greenwaste
Masterton (Masterton District)	Masterton DC / Wairarapa Environmental	Monday to Friday 7:30am - 4:30pm Masterton Saturday 8.30am - 4.30pm Masterton Sunday & Public Holidays 10.00am - 4.00pm	Refuse Recycling Greenwaste
Dalefield Road Transfer Station (Carterton District)	Carterton DC / Wairarapa Environmental	Mon – Saturday 9am - 11am Sunday 2.30 pm - 4.30 pm	Refuse Recycling Greenwaste
Woods Waste (Ngaio, Wellington)	Woods Waste	No public access	Refuse Recycling

3.1.3 Closed Landfills

Most closed landfills in the Wellington region have become open space areas and are used as sports fields or passive recreation reserves. In many cases, the extent of the fill in the closed landfill is not known with any degree of accuracy. There are approximately 80 closed landfill sites in the Wellington region, of which 33 are within Wellington City Council area.

3.1.4 Cleanfills (Class 2-4 Landfills)

The Greater Wellington Regional Council describes cleanfills and their management within the region as follows:

> *As the name suggests, cleanfills can only accept clean "non-polluting" waste. This means that material like concrete, dirt, bitumen and some construction rubble is ok. Materials like household rubbish, old timber, car wrecks, reinforcing steel or corrugated iron is not ok. Non-clean waste must be disposed of at a landfill.*
>
> *Cleanfill operations don't have problems with leachate, landfill gas, odour, rats and so on. This means that, provided they only accept clean waste, the Regional Council doesn't require any resource consent for them to operate. Landfills must have site-specific management plans and the Regional Council requires them to make sure that contaminants in the waste do not leak out and pollute the environment, or affect people's health.*
>
> *Cleanfills are controlled in the Regional Plan for Discharges to Land. Discharges of dust associated with cleanfills are controlled in the Regional Air Quality Management Plan. The deposition of material in rivers and lakes is controlled in the Regional Freshwater Plan. The deposition of material in the coastal marine area is controlled in the Regional Coastal Plan.*[8]

The Greater Wellington website also references the MfE's 2002 "*A Guide to the Management of Cleanfills*". In the document, '"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.*

[8] http://www.gw.govt.nz/Cleanfills/. Management of air quality, freshwater and coastal issues is expected to be brought together under the proposed Natural Resources Plan

In April 2016, the Waste Management Institute of New Zealand (WasteMINZ) released the final version of *Technical Guidelines for Disposal to Land*. These guidelines set out new standards for disposal of waste to land and, if the Regional Council implements the new guidelines, then there will be significant changes to the operation of cleanfill sites in the region, including tighter controls. In the 'Technical Guidelines for Disposal to Land' (2016)[9] 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 lan*dfill gas.

Waste acceptance criteria comprises:

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

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

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

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 incidental5 or attached biodegradable materials (e.g. vegetation) to be no more than 2% by volume per load; and*
- *maximum chemical contaminant limits are local natural background soil concentrations.*

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

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.

For some types of waste, Class 2-4 landfills are competing directly with Class 1 landfills. However, Class 2-4 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 2-4 landfills also have much lower compliance costs than landfills. Because of these differing cost structures, cleanfills charge markedly less for disposal than Class 1 landfills. In Wellington charges for depositing cleanfill materials currently average approximately $10 per cubic metre.[10]

The currently consented and active Class 2-4 landfills sites in the region are listed in Table 7.

Table 7: Consented and Active Class 2-4 Landfills

Name/Operator	Location	Class	Consent Expiry (earliest applicable)
Carterton Transfer Station	Dalefield Road, Carterton District	4	
T&T Landfill	289 Happy Valley Rd, Owhiro Bay, Wellington 6023	4	Jun 2049
C&D Landfill	Landfill Rd, Happy Valley, Wellington City	2	Jun 2026
Masterton landfill	Nursery Rd, Masterton District	4	Sep 2045
Colonial Knobb Farm Holdings Ltd	32 Broken Hill Road, Porirua, City	4	Sep 2039
Kalanmac Holdings Ltd	Kiln Street, Silverstream, Upper Hutt City	4	
Wainuiomata landfill (closed landfill)	Coast Road, Wainuiomata, Hutt City	4	Oct 2019
Higgins Quarry	Kāpiti Coast District	4	Feb 2049

The consent conditions for each of these sites are different. For example, the range of materials which can be disposed of at each site may vary as well as reporting requirements, and permitted discharges.

[10] Personal communication with C&D Landfill and T&T Landfill, Nov 2015

While there are a large number of consented fill sites, the number of these that are actively accepting material at any one time is difficult (if not impossible) to estimate. Many fill sites accept material for limited periods of time, meaning sites are continually opening and closing.

3.1.5 Assessment of Residual Waste Management Infrastructure

While the region is well-served in terms of disposal facility infrastructure overall, access to those facilities is restricted in certain areas – most notably the Wairarapa, which sends material for disposal to Bonny Glen – 150km away. Similarly, cleanfill disposal access is uneven with some areas having no immediate access to consented fills.

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.

There are a number of participants in the Wellington region’s hazardous waste market. Table 8 contains known hazardous waste operators in the region.

Table 8: Hazardous Waste Operators

Name	Location
Chemwaste Industries (part of EnviroWaste Technical Services Ltd)	Seaview, Hutt City
Enviropaints Ltd	Ōtaki, Kāpiti Coast
Waste Management Technical Services	Seaview, Hutt City
InterWaste Services	Broken Hill Rd, Porirua
Dawson Waste Services	Owhiro Bay, Wellington
Waste Petroleum Combustion (Oil Recovery [11])	Throughout North Island

Domestic quantities (up to 20kg or 20 litres) of hazardous waste may be dropped off at the Hazmobile (supported by the Greater Wellington and Hutt Valley Councils) when it is in service.

The Hazmobile will accept:

- Paint, stains and varnishes
- Paint stripper
- Petrol and oil
- Thinners and degreasers
- Garden chemicals
- Cleaning chemicals
- Gas cylinders
- Fluorescent bulbs
- Batteries
- Pool chemicals

The Hazmobile does not accept electronics, asbestos, medical waste or needles, ammunition, or explosives.[12]

In addition, some of the Councils' resource recovery facilities offer drop–off facilities for domestic quantities of hazardous waste.

Hazardous waste from commercial operations, or hazardous waste that is not accepted at the Councils' landfill facilities, can be handled by the commercial hazardous waste operators.

The Agrecovery Rural Recycling programme operates in the Wellington region with drop-off points at Martinborough, Masterton, and Ōtaki. This programme provides New

[11] http://www.oilrecovery.co.nz/waste-oil-collection-recovery/regular-collection/
[12] http://www.gw.govt.nz/Got-hazardous-waste-Go-to-the-Hazmobile-/
http://www.eventfinda.co.nz/2015/hazmobile/lower-hutt

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

The Masterton District Council site at Nursery Road accepts domestic quantities of "hazardous" waste that are periodically removed from the site by a licensed contractor, who provides certification of its disposal.

3.3 Recycling and Reprocessing Facilities

Waste processing and recycling facilities that handle materials collected in the Wellington region are listed in the following table.

Table 9: Details of Facilities

Facility Type	TA Area	Materials	Description
Composting	Wellington	Accepts food waste and greenwaste	Capital Compost. Static pile windrow, Southern landfill
	Kāpiti	Accepts greenwaste	Composting NZ. Static pile windrow
	Masterton	Accepts greenwaste	Nursery Road, Static pile windrow
	Hutt City	Nappies and greenwaste	Envirocomp, Hot Rot in-vessel
C&D Waste	Wellington	Timber, metal, concrete, brick etc.	Woods Waste -
Drop Off	Hutt City	Cans, bottles, paper and card	4 Council drop off sites
		Used paint	2 Paintwise paint drop off points
		Nappies	1 Envirocomp site
		Soft plastics (plastic bags)	Various retail sites (Warehouse, NW and Pak'nSave)
	Kāpiti	Used paint	1 Paintwise paint drop off point
		Soft plastics (plastic bags)	Various retail sites (Warehouse, NW and Pak'nSave)
		Household hazardous	Otaihanga RRF
	Masterton	Used paint	1 Paintwise paint drop off point

Facility Type	TA Area	Materials	Description
Drop-off		Soft plastics (plastic bags)	Various retail sites (Warehouse, NW and Pak'nSave)
		Farm plastics	1 Agrecovery site
	Porirua	Used paint	1 Paintwise paint drop off point
		Soft plastics (plastic bags)	Various retail sites (Warehouse, NW and Pak'nSave)
	South Wairarapa	Cans, bottles, paper and card	2 Council drop off sites
		Farm plastics	1 Agrecovery site
	Upper Hutt	Used paint	1 Paintwise paint drop off point
		Nappies	1 Envirocomp site
		Soft plastics (plastic bags)	Various retail sites (Warehouse, NW and Pak'nSave)
		Greenwaste	Taken to CNZ in Paraparaumu
	Wellington	Used paint	4 Paintwise paint drop off points
		Nappies	8 Envirocomp sites
		Soft plastics (plastic bags)	Second Treasures (Southern Landfill) and Various retail sites (Warehouse, NW and Pak'nSave)
		E-waste (drop off)	Second Treasures (Southern landfill)
E-waste processing	Wellington	E-waste dismantling, refurbishment and reuse	ReMarkIT
	Hutt City	E-waste	IT Recycla
	Masterton	E-waste dismantling, refurbishment and reuse	Wairarapa Resource Centre
	Upper Hutt	E-waste dismantling, refurbishment and reuse	Earthlink
Glass processing	Kāpiti	Glass crushing and paving manufacture	Silaca Glass Crushers
Hazardous	Hutt City	Hazardous and chemical wastes	Transpacific, Gracefield

Facility Type	TA Area	Materials	Description
	Porirua	Hazardous quarantine and medical waste	Broken Hill Rd, Porirua
	Wellington	Free drop off of domestic hazardous wastes	Up to 20L /kg per visit, Southern landfill
MRF	Hutt City	Kerbside collected mixed recyclables	2 Facilities: OJI MRF, WAM MRF
	Masterton	Further separation of kerb sorted recyclables	Wairarapa Environmental MRF
Other organic	Wellington	Food rescue	Kaibosh and Kiwi Community Assistance
Plastics Reprocessing	Porirua	Polystyrene	Poly Palace. Remanufacture into panel insulation products
Reuse Stores	Hutt City	Building materials	Various
		Household items	EarthLink
		Cartridges	Cartridge World
		Car parts	Various
	Kāpiti	Household Items	
		Building materials	Kāpiti Building Recyclers Ltd, Ace Building Recycle Barn
		Household items	Otaihanaga RRC, and Ōtaki RTS
		Cartridges	Cartridge World, Second Image
		Car parts	Various
	Masterton	Building materials	Renovators Ltd, Rummages
		Household Items	Wairarapa Resource Centre
	Porirua	Building materials	The Building Recyclers
		Household items	Trash Palace
		Cartridges	Cartridge World
		Car parts	Various
	Upper Hutt	Building materials	Ironman Building Recyclers, James Henry Joinery
		Cartridges	Cartridge World
		Car parts	Various
	Wellington	Building materials	No.8 Recyclers
		Household items	Second Treasures (Southern landfill)
		Cartridges	Cartridge World
		Car parts	Various

Facility Type	TA Area	Materials	Description
Scrap Metal	Hutt City	Ferrous and non-ferrous	Macaulay Metals, Ingot Scrap Metals, Sims Pacific, General Metal Recyclers, Total Recycling Ltd
	Kāpiti	Ferrous and non-ferrous	Rameka Metal Recyclers Ltd
	Masterton		Wairarapa Scrap Metals Ltd
	Porirua		Ingot Scrap Metals, Wellington Scrap Metals
	Upper Hutt		Upper Hutt Metals
	Wellington	Ferrous and non-ferrous	Wellington Scrap Metals
Rendering	Wellington	Animal by-products from meat processing	Taylor Preston Ltd

3.3.1 Assessment of Recycling and Reprocessing Facilities

While the region has a good range of recycling and reprocessing facilities, overall the ability to access these from all parts of the region is restricted.

To date there has been a notable issue in respect of the provision of recyclable material recovery facilities (MRF). While there are three facilities (one in Masterton and two in Seaview, Hutt City), access to these has been restricted to the facility operators and their direct contractors. This has impeded competition in the private recycling collection market, with one operator having to transport collected recyclable material to Palmerston North for processing, adversely affecting the economics of their service. During the course of developing this Waste Assessment, one of the MRF operators, OJI, initiated the construction of a new larger, automated MRF with sufficient capacity to accept material from around the region, and from different operators. At the time of writing the facility had been constructed and was undergoing testing. It is expected to become fully operational in before the end of-2016.

Organic waste processing facilities are also unevenly spread, with garden waste collected in the Hutt Valley and Porirua being transported to Paraparaumu for composting. While the Capital Composting facility at Southern landfill accepts food waste for processing in windrows, the quantity of food waste processed is small, and there is not a facility in the region that would be capable of, for example, processing large amounts of recovered food and catering waste or biosolids.

Construction and demolition (C&D) waste sorting facilities are not well represented. Woods Waste operates out of Wellington central and some materials are separated at Southern landfill and at C&D landfill, but there is a notable lack of dedicated C&D sorting and processing facilities. These facilities separate out metals, wood, concrete and brick, plasterboard, and some plastics for recovery.

While there is a range of drop-off facilities provided across the region, there is no standardisation of these facilities and the range of materials that are accepted is variable.

Similarly, reuse stores are variable and generally dependent on the presence of local community groups for their operation.

Within the context of current legislative and policy arrangements, there is reasonable provision for e-waste collection and recovery within the region – although still room for greater levels of recovery.

The recovery of polystyrene has been led by Poly Palace and WAM at Seaview RTS. It is understood that Poly Palace has recently announced its closure. While other plastics are collected for processing there is no local processing market for these materials.

4.0 Waste Services

4.1 Council Waste Services

4.1.1 Council-contracted Collection Services

The tables below outline the key Council-provided refuse and recycling collection services.

4.1.1.1 Kerbside Collection of Refuse

Table 10: Council Kerbside Refuse Collections

Council	Kerbside collection service	Charges/funding	Refuse collection contractor	Contract review dates
Carterton District Council	User pays bags (weekly)	$2.70	Earthcare Environmental Ltd.	2017
Hutt City Council	User pays bags (weekly)	$2.50	Transpacific Allbrite	Dec 2019
Kāpiti Coast District Council	No Council service	N/A	N/A	N/A
Masterton District Council	User pays bags (weekly)	$3.20	Earthcare Environmental Ltd.	2017
Porirua City Council	User pays bags (weekly)	$2.50	Waste Management NZ Ltd	1/09/2011 3 years +1+1
South Wairarapa District Council	User pays bags (weekly)	$8 /10pk (part rates funded)	Earthcare Environmental Ltd.	2017
Upper Hutt City Council	User pays bags (weekly)	Varies.	Waste Management NZ Ltd	30 October 2016 + 2
Wellington City Council	User pays bags (weekly)	$2.50	EnviroWaste Services Ltd	Expiry:2nd August 2019 Rights of Extension: 3 years after

4.1.1.2 Kerbside Recycling Collection

Table 11: Council Kerbside Recycling Collections

Council	Kerbside collection service	Materials	Refuse bag/wheelie bin collection contractor	Contract review dates
Carterton District Council	Kerb sort 2 55L crates (paper & card separate) (weekly)	Paper, cardboard, glass bottles, plastic containers 1-7*, steel and aluminium cans	Earthcare Environmental Ltd.	2017
Hutt City Council	Kerb sort 55L crate (weekly)	Paper, cardboard, glass bottles, plastic containers 1-7*, steel and aluminium cans	Transpacific Allbrite	Dec 2019
Kāpiti Coast District Council	Private service provision	Through bylaw provisions, private service providers must collect: paper, cardboard, glass bottles, plastic containers 1-7, steel and aluminium cans	N/A	N/A
Masterton District Council	Kerb sort 2 55L crates (paper & card separate) (weekly)	Paper, cardboard, glass bottles, plastic containers 1-7*, steel and aluminium cans	Earthcare Environmental Ltd.	2017
Porirua City Council	Kerb sort 60L crate (weekly)	Paper, cardboard, glass bottles, plastic containers 1-7*, steel and aluminium cans	Waste Management NZ Ltd	1/09/2011 3 years +1+1
South Wairarapa District Council	Kerb sort 2 55L crates (paper & card separate) (weekly)	Paper, cardboard, glass bottles, plastic containers 1-7*, steel and aluminium cans	Earthcare Environmental Ltd.	2017
Upper Hutt City Council	Private service provision	N/A	N/A	N/A

Council	Kerbside collection service	Materials	Refuse bag/wheelie bin collection contractor	Contract review dates
Wellington City Council	2 stream: glass in 45L crate, mixed in 140L wheeled bin or recycling bag	Paper, cardboard, glass bottles, plastic containers 1-7*, steel and aluminium cans	EnviroWaste Services Ltd	Expiry:2nd August 2019 Rights of Extension: 3 years after

*Excluding polystyrene (plastic number 6)

The data on Council-provided services from the previous two tables is summarised in the two following tables.

Table 12: Summary of Council Services

	Rubbish		Recycling	
	Containers	Charges (RRP)	Containers	Materials
Carterton		$2.70		Paper, glass, cans, plastic 1-7
Hutt		$2.50		Paper, glass, cans, plastic 1-7
Kāpiti	Services provided by private sector			
Masterton		$3.20		Paper, glass, cans, plastic 1-7
Porirua		$2.50		Paper, glass, cans, plastic 1-7
South Wairarapa		$0.80		Paper, glass, cans, plastic 1-7
Upper Hutt		Varies	Services provided by private sector	
Wellington		$2.50		Paper, glass, cans, plastic 1-7

Table 13: Summary of Council Contracts and Renewal Dates

Council (consent expiry)	Refuse Collection	Recycling Collection	RTS/RRC	Composting	Transport	Landfill
Carterton	Earthcare Environmental (2017)	Earthcare Environmental (2017)	Earthcare Environmental (2017)	Earthcare Environmental (2017)	Earthcare Environmental (2017)	
Hutt	Waste Management NZ Ltd (2019)	Waste Management NZ Ltd (2019)	Earthlink			Waste Management NZ Ltd (2021)
Kāpiti			Otaihanaga lease Midwest (2023) Waikanae Composting NZ (2017) Ōtaki ESL (2018)	Composting NZ (2022)	EnviroWaste Services Ltd (ongoing)	Otaihanaga cleanfill & biosolids Composting NZ (2016)
Masterton	Earthcare Environmental (2017)	Earthcare Environmental (2017)	Earthcare Environmental (2017)	Earthcare Environmental (2017)	Earthcare Environmental (2017)	
Porirua	Waste Management NZ Ltd (2016)	Waste Management NZ Ltd (2016)	Metallic Sweepings Ltd			EnviroWaste Services Ltd (2018)
South Wairarapa	Earthcare Environmental (2017)	Earthcare Environmental (2017)	Earthcare Environmental (2017)	Earthcare Environmental (2017)	Earthcare Environmental (2017)	
Upper Hutt	Waste Management NZ Ltd (2018)					
Wellington	EnviroWaste Services Ltd (2022)	Collection EnviroWaste Services Ltd (2022) Processing OJI (2026)	WCC Owner / Operator Kai to Compost Operations divested December 2015	WCC Owner / Operator		HG Leach (2019)

4.1.2 Waste Education and Minimisation Programmes

Most Councils in the region provide a level of waste minimisation education and support for community waste minimisation initiatives. These programmes generally promote appropriate waste management behaviour such as reuse, recycling, recovery, and treatment required.

Programmes that focus on raising awareness and encouraging positive action are implemented in the wider community, with schools, businesses and community groups, or at community events. They are commonly run in partnership with a range of agencies and organisations including EarthLink, Sustainability Trust, Greater Wellington Regional Council, Enviroschools Foundation, and Keep Porirua Beautiful.

Current educational initiatives undertaken by each of the councils is shown in the table below:

Table 14: Council Waste Education and Minimisation Programmes

Council	Schools	Community	Business
Carterton District Council		Waste minimisation advice Wairarapa Waste Management Environmental Awards	Promote Cleaner Production Wairarapa Waste Management Environmental Awards
Hutt City Council	World of Waste tours Enviroschools	Bike Tech (bike re-use) Eco Fashion Show	Greening your business Silver Lining (product redesign and use of recovered materials)
Kāpiti Coast District Council	Enviroschools	Eco Design Advisor (Sustainable home advice) Waste Reduction Grants	Waste Reduction Grants
Masterton District Council	Enviroschools Paper 4 Trees	Waste minimisation advice Wairarapa Waste Management Environmental Awards	Promote Cleaner Production Wairarapa Waste Management Environmental Awards
Porirua City Council	Trash Palace Education Programme Enviroschools	Support Trash Palace, public waste minimisation workshops (for example, composting and recycling workshops) for the local community Waste minimisation advice to households	Work with Porirua businesses to support waste minimisation and develop recycling systems

Council	Schools	Community	Business
		through various media Te Maara Community garden and community compost facility Support the annual Housing New Zealand Makeover week Reusable nappy hire service and reusable nappy making workshops,	
South Wairarapa District Council		Waste minimisation advice Wairarapa Waste Management Environmental Awards	Promote Cleaner Production Wairarapa Waste Management Environmental Awards
Upper Hutt City Council	Enviroschools	Website information and promotion via local newspapers	Subsidised waste audits for community and business Eco design advisor
Wellington City Council	Enviroschools Sustainability Trust Waste Audits 1 FTE Waste Education Officer providing school visits, landfill and Recycle Centre tours, compost workshops, free compost/worm farm resources Waste Minimisation Grant Fund & School Recycling Grant Fund	Waste Minimisation Grant Fund Landfill and Recycle Centre tours, educational stalls at events, free event recycling bins & hoods for use Website information Brochures	Waste Minimisation Grant Fund awarded to Sustainability Trust in 2015 to complete 10 business waste audits within the year

4.1.2.1 Wellington Region Waste Minimisation Education Strategy

In 2013, the combined Councils in the region produced the *Wellington Region Waste Minimisation Education Strategy* (WMES), which sets out a vision, aims and objectives and a range potential areas for combined action. The areas for action identified are summarised in the table below:

Education (E) Initiatives	Sectors		
	Residential	Businesses	Schools
E1: Organics	Organics investigation and subsequent WMES funding proposal. The key sectors to be addressed will be further clarified after a more detailed investigation of the regions organics waste stream. Interim promotion of diversion options for residents and businesses while the investigation is on-going.		Regional (or national) toolkits and programmes – investigate options and opportunities for promoting uptake of regionally available toolkits and programmes
E2: Paper	Regional (generic) promotion of kerbside recycling	Working with business and the public to promote waste minimisation, thereby reducing waste related costs for consumers and businesses alike	
E3: Plastics			
E4: Timber	Timber investigation (R11) and subsequent WMES funding proposal (if required) – acknowledging the very low cost of some C&D waste disposal options within the Wellington region as a potential barrier to local council influence in this area. Interim promotion of diversion options for residents and businesses while the investigation is on-going.		
E5: Events	Develop and promulgate regional resources for waste minimisation at events		
E6: Communications	The communication of consistent messaging using a common brand is important to ensure communities and businesses are able to recognise and easily access relevant and useful information. For example, generic promotion of kerbside recycling. This is also important for achieving stakeholder input and buy-in on shared/common goals		
E7: Littering	Investigate a regional approach to education on littering and promoting community led clean-ups		
E8: e-Waste	The promotion of reuse and recycle centres around the region		

4.1.3 Other Council Services

In addition to the services described above, there are other waste-related programmes and services provided by the Councils. All the Councils undertake rates-funded clean ups of illegal dumping, and provide litter bins in public places. Porirua City, Upper Hutt City, Hutt City, and Wellington City are all members of the Public Place Recycling scheme and provide public place recycling bins in key areas.

4.1.4 Solid Waste Bylaws

In addition to key strategic waste infrastructure assets, the Councils also have responsibilities and powers as regulators through the statutory obligations placed upon them by the WMA. The Councils operate 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.

Under the WMA, the Councils were required to review their waste bylaws by July 2012. Waste-related bylaws must not be inconsistent with the Councils' WMMPs. Table 15 summarizes the current scope of solid waste bylaws throughout the region.

Table 15: Solid Waste Bylaws - Wellington Region

Council	Date	Licensing provisions	Approved Containers	Restrictions on materials	Events	Collection requirements	Facility requirements
Carterton							
Hutt	2008		✓			✓	
Kāpiti	2010	✓	✓	✓ (haz)	✓	✓	
Masterton	2012	✓[13]		✓ (haz)		✓	
Porirua	2009		✓	✓		✓	✓
South Wairarapa	2012	✓[13]		✓ (haz)		✓	
Upper Hutt	2005	✓[13]		✓ (haz)		✓	✓
Wellington	2008		✓	✓		✓	✓

A number of the bylaws are very similar and use similar wording (e.g. Masterton and Upper Hutt), but overall there is little standardisation in what the bylaws cover and how they address key issues. Key issues that could be addressed through a more standardised approach to bylaws include:

[13] The bylaw contains a clause requiring Council consent and providing for the Council to impose conditions but it is not a formal licensing clause

- Licensing of operators and facilities
- Restrictions on material that is collected and landfilled
- Definitions
- Allowance for technology change
- Events
- Tyres and other difficult wastes
- Controls over private collectors of residual wastes
- Collection containers (e.g. colours)
- Container restrictions (e.g. 240-litre wheeled bin bans)
- Multi-unit dwellings, rural waste
- Collection areas and days
- Cleanfills.

It is understood that the Councils of the region have agreed to progress the development of a regional solid waste bylaw (as approved by the Councils in 2011), and that work on this will be advanced within the period of the current WMMP. If the regional bylaw is in place by 2016/17, this will fall inside the timeframe for the statutory review of the Councils' current bylaws.

4.1.5 Funding for Council Services

Table 16: Summary of 2014/15 Annual Reports

	Expenditure ($000)				Income ($000)				
Council	**Landfill/ RTS**	**Collections**	**Other[14]**	**Total**	**User Charges**	**General Rates**	**Targeted Rates**	**Levy & Other**	**Total**
Carterton	$405	$291		**$695**	$187	$189	$340	$29	**$745**
Hutt*	$8,062			**$8,062**	$13,888	-$5,887		$61	**$8,062**
Kāpiti	$682		$1,034[15]	**$1,734**	$531	$636		$172	**$1,339**
Masterton	$2,139	$576	$732	**$3,447**	$2,516	$308	$466	$157	**$3,447**
Porirua	$3,740	$1,404		**$5,144**	$6,453	$283	$260	$1,852	**$5,144**
South Wairarapa*	$1,093	$384		**$1,477**	$318	$718	$432		**$1,468**
Upper Hutt*	$232			**$232**	$594	-$363		$1	**$232**
Wellington	$4,195	$8,090	$1,661	**$13,946**	$13,253	$0	$0	$1,335	**$14,589**

Source: Data provided by TAs except where indicated by * data from Annual Reports 2014/15

[14] Includes a range of services including interest on capital, education, projects etc.
[15] includes depreciation on capex loans of $394,456 that is not funded through rates

The table above shows the different ways in which the Council's services are funded across the region. Expenses range from $232,000 in Upper Hutt to $13.9 million in Wellington City.

All Councils have some level of cost recovery through user-charges. In Hutt City, user-charges substantially exceed operating costs and result in approximate $5.9 million being returned to general rates. This operating surplus is understood to be primarily from Silverstream landfill.

Upper Hutt City also produces a small surplus from income (also as a result of a return from Silverstream landfill). Upper Hutt does supply a Council-contracted refuse collection service, but this is understood to be cost-neutral, as the operator directly receives all bag sales income as compensation for providing the service.

Wellington largely breaks even, with user charges all but offsetting the costs of waste management and minimisation including refuse and recycling collections. Again landfill income is understood to be the primary source of income.

By contrast the Wairarapa Councils all have a much higher rates-burden from waste services, with South Wairarapa meeting nearly 80% of its costs through general and targeted rates while for Carterton it is in the order of 60%. This likely reflects a number of factors, including the costs of providing services to a predominantly rural district, and relatively high costs of transport and disposal for residual waste.

4.2 Current Joint Solid Waste Initiatives/Services

The Councils currently work together on a number of shared services initiatives. These include:

- Landfill ownership and management – Wellington and Porirua have joint ownership of Spicers landfill.
- Facility usage – Hutt and Upper Hutt– agreement for usage of Silverstream landfill, all Councils in the Wairarapa use Masterton's Nursery Road Resource Recovery Centre
- Bulk haulage – the Wairarapa councils have a joint agreement for haulage of waste to landfill
- Waste management and minimisation planning – all the Councils of the region are participating in the development of the waste assessment and joint WMMP
- Solid waste bylaws. Work is underway to develop a region-wide solid waste bylaw.
- Innovation, trials – disposal options for sewage sludge - Wellington City, Porirua City and Kāpiti Coast District
- Masterton, Carterton, and South Wairarapa Districts have a joint waste and recycling contract
- Waste Minimisation Education Strategy. Actions include Nappy Lady (Green Parenting) workshops, eco-mailbox stickers, zero waste events, video resources, and food waste investigation (which led to the national 'Love Food Hate Waste' campaign)
- Initiated the development of the national 'Love Food Hate Waste' campaign

4.2.1 Assessment of Council Services

4.2.1.1 Assessment of Collection Services

There is a range of collection services and approaches to the provision of these services. While there is some justification for tailoring local service provision to the needs of local communities, there is potentially substantial benefit in greater standardisation of these services and adoption of industry best practice.

While there is far from a consensus around best practice collection and processing systems, there is a convergence towards certain systems in new contracts – notably two-stream collection of recyclable materials, with glass collected separately (as is undertaken in Wellington City), and a growing move towards smaller (80-140-litre)wheeled bins for refuse.

A key issue is the implementation of the new Health and Safety at Work Act 2015, which came into force from 1 April 2016. This has put new requirements on the principals to ensure that the safest systems are chosen, with cost being considered insufficient justification for not doing so. This issue will be of particular relevance for most of the Councils in the region, as the majority of systems involve manual handling, which is considered to present greater health and safety risks than automated collection and sorting systems.

The difference in service level provision across the Councils is likely to remain a barrier, however, with two Councils – Kāpiti and Upper Hutt – no longer providing a rates-funded Council recycling collection service, and Kāpiti also withdrawing from direct service provision of residual waste collection. Having moved away from service provision, these Councils may be reluctant to re-enter the collection market in the immediate future.

4.2.1.2 Assessment of Other Services

The provision of other waste services across the different Councils is variable. Most Councils have school environmental education programmes and there are a variety of services available to provide advice and support to the community and businesses in some areas.

All Councils provide litter and illegal dumping clean up, but only four offer public place recycling services.

The solid waste bylaws have potential to be aligned for greater effectiveness and efficiency, particularly around definitions, operator licensing, and data collection.

4.3 Non-Council Services

There are a number of non-Council waste and recycling service providers operating in the region. The number of operators are listed in the table below

Table 17: Waste Collection Services

Number of service providers	Private Residential	Private Commercial	Non Hazardous Special Waste
Carterton	2	2	1
Hutt	9	8	4
Kāpiti	7	5	4
Masterton	2	2	1
Porirua	5	6	4
South Wairarapa	2	2	1
Upper Hutt	4	4	2
Wellington	6	6	3

Refer Appendix A.5.0 for a list of service providers.

Table 18: Diverted Material Services for Businesses

Number of service providers	Recycling	Organic waste	Other (Tyres, e-waste, re-use, etc.)
Carterton	2	2	1
Hutt	6	2	5
Kāpiti	2	1	3
Masterton	2	2	2
Porirua	2	2	4
South Wairarapa	1	2	2
Upper Hutt	2	1	2
Wellington	3	3	4

Table 19: Diverted Material Services for Households

Number of service providers	Recycling	Greenwaste
Carterton	1	2
Hutt	4	3
Kāpiti	4	1
Masterton	1	2
Porirua	2	2
South Wairarapa	1	2
Upper Hutt	3	1
Wellington	1	1

4.3.1 Assessment of Non-Council Services

The waste and recovered materials market is relatively fragmented in terms of both geography and by sector. While the three landfills in the region are Council-controlled, the operation of two of these are contracted to the large waste companies: Waste Management NZ Ltd and EnviroWaste Services Ltd, with the third managed by another significant national landfill operator, HG Leach.

The two large waste companies dominate collections and services within the Wellington metropolitan area, while the Wairarapa is dominated by Wairarapa Environmental, which operates the Council services as well as having a very strong market share of local service provision (as a result of acquiring the small local collection companies).

Of concern to the Councils, with regards to meeting their waste management objectives, is the increasing proportion of the kerbside refuse market controlled by the private waste operators, particularly as the objectives of the private waste operators are at variance to those of the Councils. To increase their market share and their profitability, the private operators in several areas are competing for customers for their subscription services on the basis of price and the convenience of their product. This is of particular concern with regards to any increase in the usage of large wheeled bins. Residential users of large wheeled bins have been shown to dispose of greater quantities of recyclable and compostable materials, such as greenwaste, than users of smaller wheeled bins or user-pays refuse bags[16].

In the resource recovery sector, specialist companies tend to dominate each particular field – for example Macaulays Metals is the largest scrap metal dealer, Composting NZ is the largest composting operator, and Woods Waste dominates the C&D recovery market.

[16] D Wilson (2014) The Horror of 240L Wheeled Bins. Presentation to WasteMINZ Conference 2014

The private sector is generally very good at responding to commercial opportunity and ensuring that services are available where there is a viable demand. Within this, however, it has been noted that there are several areas where the level of private sector service provision is not as great as might be expected. These include:

- Greenwaste collection (only one operator in Wellington and the Hutt, one in Kāpiti Coast, and one in the Wairarapa)
- Private recyclables collections (currently constrained by the availability of sorting facilities, which is likely to ease mid-2016)
- Construction and demolition waste sorting and recovery
- Composting and organic waste processing.

5.0 Situation Review

5.1 Waste to Class 1-4 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*. The definitions of the four classes of landfills provided in the Guidelines are summarised in the following sections.

5.1.1.1 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.

5.1.1.2 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.

5.1.1.3 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.

5.1.1.4 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.

5.2 Overview of Waste to Class 1-4 Landfills

In general terms, there are four distinct waste catchments within the Wellington region, delineated by the Rimutaka Ranges and the Tararua Ranges, which separate the Wellington Harbour cities from the Wairarapa and Kāpiti Coast. Most of the waste generated within each of these four catchments is disposed of at a single facility and only minor quantities of waste enter the catchments from outside their boundaries.

Waste from the Wairarapa (Masterton, Carterton, and South Wairarapa Districts) is virtually all disposed of at the privately-owned Bonny Glen Class 1 municipal landfill in Rangitikei District or the council-owned, closed landfill in Masterton District. Each of the

councils operates transfer stations from which the residual waste is taken directly to Bonny Glen landfill. Cleanfill is disposed of at the closed council-owned Masterton landfill, which no longer accepts other wastes.

Kāpiti Coast District waste is primarily disposed of at the Horowhenua District Council-owned Class 1 landfill in Levin. Kāpiti Coast District's waste is aggregated at Otaihanga and Ōtaki transfer stations before being bulk-hauled to Levin landfill. Some waste from Kāpiti Coast District is disposed of at Silverstream landfill. Cleanfill and some special wastes are disposed of at the council-owned landfill at Otaihanga, which is in the process of being capped and closed.

Waste from Upper Hutt City and Hutt City is disposed of primarily at the Hutt City Council-owned Class 1 Silverstream landfill. There is a privately-owned transfer station in Hutt City, from which residual waste is also disposed of at Silverstream landfill. There are three operating Class 4 cleanfills in the catchment. Some waste from these cities may be disposed of at other facilities, but there is no recent data upon which to base an estimate.

Southern and central Wellington City waste is disposed of at the council-owned Class 1 Southern landfill. There are two operating Class 2-4 landfills within Wellington City boundaries.

Porirua City waste and most waste from northern Wellington City (Tawa and Johnsonville) is disposed of at Porirua City Council-owned Class 1 Spicer landfill. There is one Class 2-4 landfill in Porirua City, which is not currently accepting waste.

5.3 Waste Quantities

5.3.1 Waste to Class 1 Landfills

The quantity of waste from the Wellington region that is disposed of at Class 1 landfills has been estimated primarily on an analysis of product codes from weighbridges at Silverstream, Southern, and Spicer landfills, Masterton and Kāpiti coast Districts transfer stations. The landfill operators' waste levy returns have been used to verify the weighbridge data analysis.

The analysis is based on the following:

- The data includes all waste, subject to the exceptions discussed below, being disposed of from the Wellington region to Class 1 landfills, including landfills inside and outside of the region. Minor amounts of cleanfill and special wastes being disposed of at 'closed' Class 1 landfills in the region are also included. These materials are levy exempt.
- The data includes both waste upon which the waste levy has been paid and cleanfill that has been classified by the landfill operator as diverted material for levy return purposes. Data on these waste streams are presented separately. The tonnages for "Levied waste" have been based on the operators' waste levy returns to MfE or on weighbridge records for waste transported from transfer stations to Class 1 landfills.

- An anomalous disposal of 50,000 m^3 of sewage sludge by Masterton District Council in 2013 is excluded from the analysis. The disposal represents the clearing of treatment ponds after approximately 35 years use.
- The Wainuiomata landfill, in Hutt City, closed on 31 December 2012. After that time, most of the waste that was disposed of at the facility was disposed of at either the Seaview transfer station, from which waste is transported to Silverstream landfill, or was transported directly to Silverstream landfill.
- The "General" category includes waste from the following activity sources - construction & demolition, domestic kerbside, industrial/commercial/industrial, landscaping, and residential. In a few instances, it also includes cleanfill upon which the waste levy has been paid.
- The "Cleanfill" category comprises materials imported into the landfill sites and given a product code that allows them to be identified as either cleanfill or virgin excavated natural materials. The waste levy has not been paid on the waste materials in this category. In terms of the activity sources of waste, cleanfill includes both virgin excavated natural material and construction and demolition waste.
- Cover material that is sourced within the landfill site has not been included in the analysis. While all three landfills in Wellington region source cover material from within the site, only one records the weight of cover material. In terms of the activity sources of waste, cover material of this sort is virgin excavated natural material.
- Recovered and recycled materials that are identifiable from weighbridge records are *not* included in the waste total. Some of these materials will have been identified in weighbridge records as entering the facility as recycling, while some of the materials will have been recovered from incoming waste. Weighbridge records do generally not allow this differentiation to be made.
- Sludges, while shown separately, are, in terms of activity source, special wastes. The sludges are primarily from wastewater treatment plants.

The estimates for the five financial years 2010/11 to 2014/15 are presented in Table 20 and Figure 13. Tonnages are given for separate waste streams, based on the activity sources of the waste materials. The levied waste data, broken down by disposal facility, is presented in Table 21.

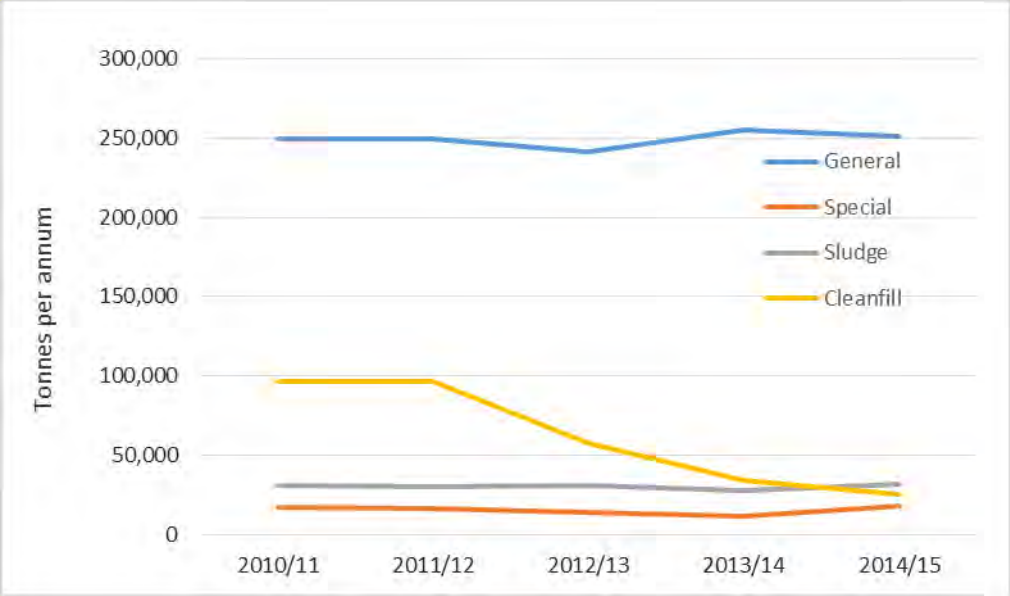
The equivalent tonnage for 2009/10, taken from information in the previous waste assessment, is also shown.

Table 20: Waste to Class 1 Landfills from Wellington Region

Tonnes/annum	2009/10 (1)	2010/11	2011/12	2012/13	2013/14	2014/15
General	-	250,001	249,523	242,849	256,274	252,536
Special	-	16,804	15,862	13,279	10,973	17,717
Sludge	-	30,997	30,035	30,487	27,191	31,823
Levied waste	**301,807**	**297,802**	**295,421**	**286,615**	**294,439**	**302,076**
Cleanfill (2)	-	96,419	96,790	57,903	34,394	24,942
TOTAL	**-**	**394,221**	**392,211**	**344,518**	**328,833**	**327,018**

(1) Derived from information in previous waste assessment
(2) Classified by the landfill operators as 'diverted material' upon which the waste levy has not been paid.

Figure 13: Waste to Class 1 Municipal Landfills from Wellington Region



The four categories of waste display different trends over the five-year timeframe analysed. Tonnages of sludge and special wastes remained relatively consistent through the period analysed. A large, one-off disposal of sewage sludge in 2013/14 has not been included in the analysis.

The tonnages of cleanfill, region-wide, decreased significantly, from 96,000 tonnes in 2010/11 to 25,000 tonnes in 2014/15, a 74% decrease. A significant proportion of this decrease, about 52%, occurred at Southern landfill. This decrease can be associated with an increase in tonnages of waste material in 2010-2012 that was associated with Rugby World Cup developments and significant yard improvements at Wellington Railway Station. Disposal of these materials decreased substantially in subsequent

years. The impact of the global financial crisis on construction activity is likely to also have been a factor. If construction activity increases this could see a reversal of the decline in cleanfill tonnage.

General waste, which includes construction & demolition, domestic kerbside, industrial/ commercial/industrial, landscaping, and residential waste, remained relatively consistent through the five years. There was a 1.0% increase in the tonnage of general waste between 2010/11 and 2014/15.

Tonnage data for levied waste disposed of at each of the landfills individually is presented in Table 21. Note that the "TOTAL" row in this table is the same as the "Levied waste" row in Table 20.

Table 21: Levied Waste from Wellington Region - by Class 1 Landfill

Levied waste to Class 1 landfills - Tonnes/annum	2010/11	2011/12	2012/13	2013/14	2014/15
Bonny Glen & Levin	36,603	37,891	40,801	44,097	45,214
Silverstream	95,506	88,685	91,936	117,356	125,885
Southern	80,635	86,928	82,781	81,764	81,492
Spicer	59,353	56,287	56,954	51,222	49,485
Wainuiomata	25,706	25,630	14,143	-	-
TOTAL	**297,802**	**295,421**	**286,615**	**294,439**	**302,076**

More detailed data on the quantity of waste disposed of at the individual Class 1 landfills and transfer stations in Wellington region is provided in A.4.1.

5.3.2 Other Waste Disposed of to Land

5.3.2.1 Class 2 - 4 Landfills

As outlined in section 5.2, there are a number of sites other than Class 1 landfills in Wellington region where waste materials are disposed of to land. These sites range from quarries, where only overburden from the site is disposed of, to commercial operations that accept construction and demolition wastes and/or inert cleanfill materials. Council-owned "closed" landfills that no longer accept "household waste" (as defined in the WMA), but do accept cleanfill and small amounts of special waste are not included in the analysis.

While Class 2 - 4 landfills are generally required to obtain resource consents to operate, few are required to report, as a consent condition, to the regional council or a territorial authority on the quantity of materials that are disposed of. As a result, little quantitative

information is available for these sites. This issue is nationwide, and not restricted to the Wellington region. As a 2011 MfE report on non-levied disposal facilities stated[17]:

> *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.*

Two operators of the major Class 2 landfills in Wellington region have provided an estimate for the quantity of material disposed of at their site. This information has been used to estimate the quantity of waste material disposed of at Class 2-4 landfills throughout Wellington region. This estimate is shown in Table 22.

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. To evaluate the estimate that has been made based on Wellington operator data, Table 22 shows the results of applying the per capita estimates from three other sources to the population of the Wellington region. Christchurch cleanfill tonnage data from 2009, obtained through its cleanfill licensing bylaw, has also been used to calculate a tonnage estimate for Wellington region.

Table 22: Estimates of Disposal to Class 2-4 Landfills in Wellington Region

Disposal to Class 2-4 landfills in Wellington Region	Tonkin & Taylor 2014 [18]	Waste Not Consulting 2006 [19]	Wellington operator estimate 2015	Canterbury bylaw data 2009 [20]	SKM 2008[21]
Tonnes per capita disposal	0.19	0.91	1.06	1.46	1.50
Tonnes per annum (2015 population estimate)	94,520 [(1)]	452,179	525,000	726,813	747,602

[(1)] This figure differs from that presented in the Tonkin & Taylor report (21,902 tonnes), which was incorrect.

Using the per capita estimates from previous studies to calculate the quantity of material disposed of at Class 2-4 landfills in Wellington region results in a range from 94,000 tonnes to nearly 750,000 tonnes per annum. The estimate of 525,000 tonnes per

[17] Ministry for the Environment (2011) *Consented Non-levied Cleanfills and Landfills in New Zealand: Project Report*. Wellington: Ministry for the Environment
[18] Tonkin & Taylor (2014), *New Zealand Non-Municipal Landfill Database*, prepared for Ministry for the Environment
[19] Waste Not Consulting (2006), *Waste Composition and Construction Waste Data,* prepared for Ministry for the Environment
[20] Christchurch City Council *State of the Environment Monitoring Cleanfill Indicator Reporting Sheet* at http://resources.ccc.govt.nz/files/Waste_2128_QuantityOfMaterialDispoedOfInCleanfills-docs.pdf
[21] SKM (2008) Waste Facilities Survey - Methodology and Summary of Results, prepared for Ministry for the Environment

annum, based on information from Wellington region facility operators, converts into a per capita disposal rate of 1.06 tonnes per capita per annum.

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 streams, such as construction and demolition waste.

5.3.2.2 Farm Waste Disposed of On-site

Very little research has been conducted on the quantity of waste generated on farms and disposed of on-site. One of the few substantive pieces of research, a 2013 study of farm waste in Canterbury, found that 92% of the farms surveyed practised one of the "3B" methods (burn, bury, or bulk store indefinitely) for on-site disposal of waste.[22] The Canterbury study calculated average annual tonnages of waste for four different types of farm in the region. 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.

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.[23] The report considered "non-municipal landfills" to include "cleanfills, industrial fills, construction and demolition fills, and farm dumps".

Using the raw data from the 2014 study, taken from spreadsheets provided by MfE, the estimates in Table 23 of on-farm disposal of waste in Wellington region have been prepared. The estimates for Wellington region have been customised for the region by adjusting the numbers of the four types of farms to reflect the Wellington situation.

It should be noted that not all of the figures in the table are the same as the corresponding figures in the published report, as errors in the spreadsheets were corrected while preparing the estimates for this waste assessment.

Based on the data contained in the 2013 Canterbury and 2014 national studies, the 1,516 farms in the Wellington region 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, over 37,000 tonnes of waste per annum are estimated to be disposed of in this manner across the region.

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

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

Table 23: Estimated On-farm Disposal of Farm Waste in Wellington Region

On-farm disposal of farm waste in Wellington region- tonnes/annum	Dairy	Livestock	Arable	Viticulture	TOTAL
Number of farm holdings (2012)	201	1,041	196	78	**1,516**
Non-natural rural waste (T/farm/annum)	6.1	8.9	7.4	5.5	
Domestic waste (T/farm/annum)	0.6	0.08	1.1	0	
Organic materials (T/farm/annum)	21.2	21.2	3.2	10	
Total waste generated (T/farm/annum)	**27.9**	**30.18**	**11.7**	**15.5**	**26.7**
Total tonnes/annum per farm, disposed of on-farm	25.7	27.8	10.8	14.3	**24.6**
Total waste disposed of on-farm (T/annum)	**5,170**	**28,898**	**2,111**	**1,109**	**37,288**

Of this total of 37,000 tonnes of waste, 30% (11,381 tonnes per annum) is non-natural rural waste. This waste stream includes materials such as scrap metal, treated timber, fence posts, plastic wraps and ties, crop netting, glass, batteries, and construction and demolition wastes.

Over two-thirds of farm waste is organic materials (25,520 tonnes per annum), which the survey found to include animal carcasses and crop residues.

5.3.3 Summary of Waste Disposed of to Land

The previous sections have quantified the disposal of solid waste to land through three separate mechanisms: waste to Class 1 landfills, farm waste disposed of onsite, and waste to Class 2-4 landfills. The disposal of solid waste to land in 2015 in Wellington region is summarised in Table 24.

Table 24: Waste Disposed of to Land - 2015

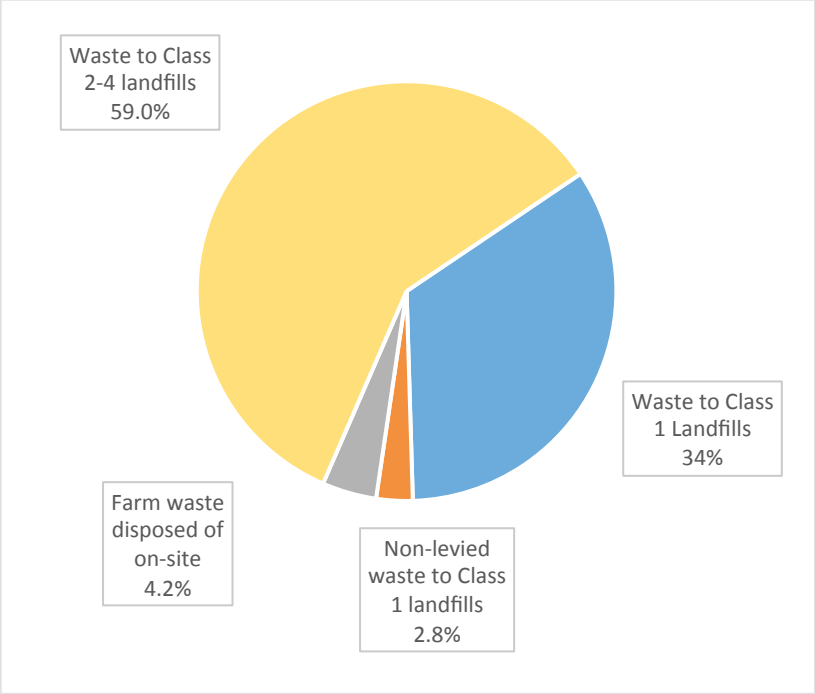
Waste disposed of to land in Wellington region - 2015	Tonnes 2015	% of total	Tonnes/capita/ annum
Levied waste to Class 1 landfills			
General	252,536	28.4%	0.508
Special	17,717	2.0%	0.036
Sludge	31,823	3.6%	0.064
Subtotal	**302,076**	**34.0%**	**0.608**
Non-levied waste to Class 1 landfills			
Cleanfill	24,942	2.8%	0.050
Farm waste disposed of on-site			
All waste	37,285	4.2%	0.075
Waste to Class 2-4 landfills			
All waste	525,000	59.0%	1.057
TOTAL	**889,303**	**100.0%**	**1.790**

It has been estimated that a total of 889,303 tonnes of solid waste were disposed of to land in Wellington region in 2015. Waste disposed of at Class 2-4 landfills comprised nearly 60% of the total, and was equivalent to more than 1 tonne per person in 2015.

It should be noted that the reliability of the estimates for the different types of waste disposal varies. The data on waste to Class 1 landfills is reliable, being based on weighbridge records and waste levy returns. On the other hand, the accuracy of the estimates of waste to Class 2-4 landfills cannot be determined, as the estimates are based on information provided by site operators. The estimate of farm waste is potentially the least reliable, being based on data from a relatively small study of farms in Canterbury.

The data is illustrated in Figure 14.

Figure 14: Waste disposed of to land - 2015



5.4 Composition of Waste to Class 1 Landfills

This section presents the composition of waste disposed of at Class 1 landfills from Wellington region in the 2014/15 financial year. The composition is presented in this section using the 12 primary classifications in the SWAP. A more detailed composition, using further secondary classifications, is provided in A.4.2.

The composition has been calculated as follows:

- General waste disposed of at Silverstream, Southern, and Spicer landfills is deemed to have the same composition as general waste at Silverstream landfill, as was determined by a SWAP survey in June 2014. The catchments for these three landfills are similar, being urban and industrialised, and there are no other recent SWAP results available for Southern or Spicer landfills. Therefore, it is considered appropriate to apply the Silverstream composition to all three landfill tonnages, particularly in the absence of other applicable data.
- All greenwaste dropped off at the separate disposal points at Silverstream landfill and most greenwaste at Spicer landfill was classified as levied waste in 2014/15, rather than diverted material. A high proportion of greenwaste at Southern landfill was composted, and classified as diverted material for levy purposes. To reflect this, the proportion of greenwaste in the Silverstream SWAP result has been reduced by 20%. This has the effect of reducing the quantity of greenwaste disposed of to landfill at the three facilities combined by an amount equivalent to that diverted at Southern landfill.
- General waste from Kāpiti Coast, Carterton, South Wairarapa, and Masterton districts is deemed to have the same composition as general waste at Kāpiti Coast transfer stations, as determined by a SWAP survey in September 2013. The

four districts are sufficiently similar, containing a mixture of rural properties and small towns, that it is considered appropriate to use the Kāpiti Coast data for all four areas, particularly in the absence of data specific to the other districts.

- In all cases, waste identified by weighbridge product codes as being either special waste or sludge has been classified as "potentially hazardous".
- The compositions as described above have been applied to tonnages for the 2014/15 year on which the waste levy has been paid.
- Tonnages of materials identified as being non-levy paid from weighbridge product codes and waste levy returns have been excluded from the analysis.

The primary composition of levy-paid waste from Wellington region disposed of to Class 1 landfills is shown in Figure 15 and Table 25 on the next page. The primary compositions are presented for both general waste - excluding special waste and non-levied cleanfill - and general waste and special waste combined - excluding non-levied cleanfill.

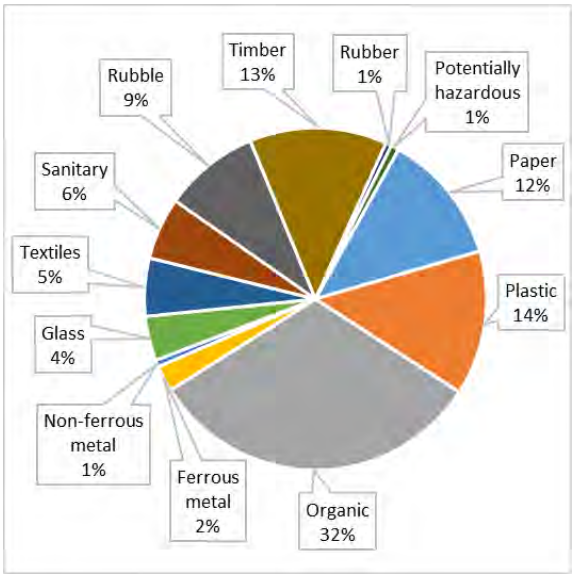
A more detailed composition, using 24 secondary classifications, is provided in A.4.2.

Organic material, which includes food waste, greenwaste, and other organic material represents the greatest proportion of the waste streams shown. Organic waste comprises 31.9% of general waste and 26.7% of general waste and special wastes combined. In the composition of general waste, plastic is the second largest component, at 13.6%, but timber and paper represent similar percentages, at 13.0% and 12.4% respectively.

When special wastes are combined with the general waste, potentially hazardous materials represent the second largest proportion, at 17.0%. These materials include contaminated soils and sludges.

Figure 15: Composition of Waste to Class 1 Landfills

General waste
excluding special waste and cleanfill



General waste and special waste
excluding cleanfill

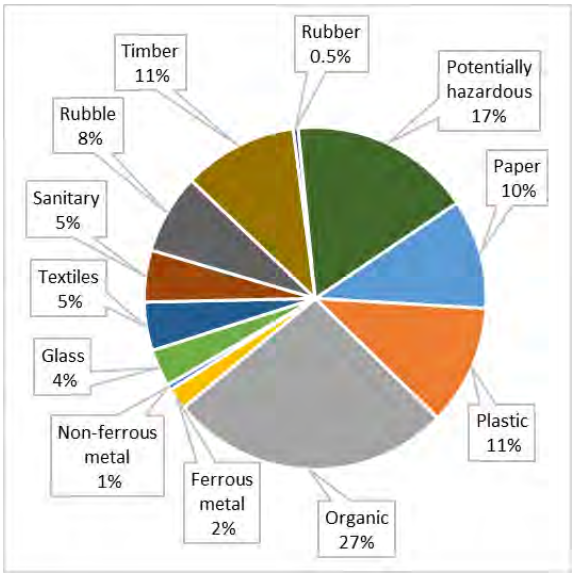


Table 25: Composition of Levied Waste to Class 1 Landfills

Composition of Levied Waste to Class 1 Landfills - 2014/15	General waste - excludes special waste and cleanfill		General waste and special waste - excludes cleanfill	
	% of total	Tonnes 2014/15	% of total	Tonnes 2014/15
Paper	12.4%	31,400	10.4%	31,400
Plastic	13.6%	34,449	11.4%	34,449
Organic	31.9%	80,589	26.7%	80,589
Ferrous metal	2.5%	6,202	2.1%	6,202
Non-ferrous metal	0.6%	1,626	0.5%	1,626
Glass	4.2%	10,616	3.5%	10,616
Textiles	5.5%	13,868	4.6%	13,868
Sanitary	5.9%	14,818	4.9%	14,818
Rubble	9.1%	22,908	7.6%	22,908
Timber	13.0%	32,795	10.9%	32,795
Rubber	0.5%	1,389	0.5%	1,389
Potentially hazardous	0.7%	1,878	17.0%	51,418
TOTAL	**100.0%**	**252,536**	**100.0%**	**302,076**

5.5 Activity Source of Waste

This section presents the activity source of levied waste disposed of at Class 1 municipal landfills from Wellington region. The composition is presented in this section using six of the seven "activity sources" specified in Volume One of the *New Zealand Waste Data Framework*. The seventh activity source, virgin excavated natural material, which would be primarily soil used as cover material, has not been used. While all three landfills in Wellington region source cover material from within the site, only one records the weight of cover material and the waste levy is not paid on cover materials of this type.

The activity source of the waste has been calculated as follows:

- General waste disposed of at Silverstream, Southern, and Spicer landfills is deemed to have the same proportion of activity sources as general waste at Silverstream landfill, as determined by a SWAP survey in June 2014. The catchments for these three landfills are similar, being urban and industrialised. Therefore, it is considered appropriate to apply the Silverstream activity sources to all three landfill tonnages, particularly as other relevant data is not available.
- General waste from Kāpiti Coast, Carterton, South Wairarapa, and Masterton districts is deemed to have the same activity sources as general waste at Kāpiti Coast transfer stations, as determined by a SWAP survey in September 2013. The four districts are sufficiently similar, containing a mixture of rural properties and small towns, that it is considered appropriate to use the Kāpiti Coast data for all four areas, particularly as no other relevant data is available.
- The "Kerbside refuse" data in both the Kāpiti Coast and Silverstream SWAP surveys included kerbside refuse from domestic and commercial properties. To account for this when calculating the "Domestic kerbside" activity source, it has been assumed that 5%, by weight, of kerbside collections are from industrial/commercial/institutional sources.
- All tonnage data is taken from weighbridge records and waste levy returns for the 2014/15 year.
- The tonnage for special wastes has been taken from weighbridge records, and is the same as that shown in Table 20 for "Special" and "Sludge" combined for 2014/15.
- Tonnages of materials identified as being non-levy paid have been excluded from the analysis.

The activity source of waste from Wellington region disposed of at Class 1 landfills is shown in Table 26. The activity source is presented for both general waste - excluding special waste and cleanfill - and general waste and special waste combined - excluding cleanfill on which the waste levy has not been paid.

Table 26: Activity Source of Waste to Class 1 Landfills

Activity source of levied waste to Class 1 landfills from Wellington region - 2014/15	General waste - excludes special waste and cleanfill		General waste and special waste - excludes cleanfill	
	% of total	Tonnes 2014/15	% of total	Tonnes 2014/15
Construction & demolition	12.7%	32,099	10.6%	32,099
Domestic kerbside	40.5%	102,403	33.9%	102,403
Industrial/commercial/institutional	34.3%	86,494	28.6%	86,494
Landscaping	6.1%	15,476	5.1%	15,476
Residential	6.4%	16,064	5.3%	16,064
Specials	0.0%	0	16.4%	49,540
TOTAL	**100.0%**	**252,536**	**100.0%**	**302,076**

Domestic kerbside refuse is the largest activity source of levied waste being disposed of to Class 1 landfills from the Wellington region. Domestic kerbside refuse comprises 41% of the general waste stream (excluding special waste and cleanfill) and 34% of general waste and special waste combined (excluding cleanfill).

Waste from industrial/commercial/institutional sources is the second largest activity source and construction and demolition waste the third largest.

5.6 Diverted Materials

5.6.1 Overview of Diverted Materials

Kerbside recycling collections are available to residential properties in all areas of Wellington region through both council-contracted and private service providers. The exceptions to this are rural properties in some areas.

Drop-off facilities for recyclable materials, either at a landfill or transfer station or as a stand-alone facility, are available in all areas of the region, other than Upper Hutt City. A small number of privately-operated drop-off facilities are also available.

Commercial recycling and scrap metal collectors operate throughout the region.

Commodities, such as glass, plastic, and metal containers, paper, and cardboard are handled by a small number of aggregators, processors, and exporters. Scrap metal is generally handled through a separate processing system than other materials.

Greenwaste drop-off facilities are available at all of the council-owned landfills and transfer stations in the region. Private greenwaste collections are also available.

Greenwaste from the Wairarapa drop-off facilities is processed at the Masterton transfer station. Greenwaste collected at Southern landfill is processed on-site along with food waste. Greenwaste from Kāpiti Coast drop-off facilities is processed commercially by

Composting New Zealand. Greenwaste collected separately at Silverstream landfill is handled as waste at the site and not classified as a "diverted material" for waste levy purposes. Most greenwaste collected separately at Spicer landfill is used for erosion control but is not classified as a "diverted material" for waste levy purposes.

A significant proportion of greenwaste is generated by commercial arborists. This waste material is generally chipped *in situ* and used as mulch without entering any "waste stream", as such.

Food waste collected in the region is co-processed with greenwaste at Southern landfill.

Significant quantities of meat waste are rendered by the meat processing industry. Meat wastes are also collected from supermarkets and butcheries for rendering.

5.6.2 Kerbside Recycling and Drop-Off Facilities

Tonnage data for kerbside recycling and drop-off facilities, separately and combined, is presented in Table 27. The data is for all services and facilities in Wellington region combined. Data on the individual territorial authorities can be found in A.4.3.

The following points relate to the data in Table 27:

- Separate tonnages for Carterton District Council kerbside recycling and drop-off facilities are not available. All of these materials are taken to the Masterton transfer station for processing, but the weights are not recorded separately.
- Separate tonnages for South Wairarapa District Council kerbside recycling and drop-off facilities are not available. All of these materials are taken to the Masterton transfer station for processing, but the weights are not recorded separately.
- The tonnage figure for Masterton transfer station includes recyclable materials both dropped off at the facility and collected commercially from throughout Wairarapa.
- Upper Hutt City Council did not provide a kerbside recycling service after February 2013. After that date, two private service providers offered kerbside recycling services to residents. The time series of data, however, is complete, with the private kerbside recycling collectors providing data to council.
- Tonnages of recyclable materials from privately-owned drop-off facilities are not included as no data is available.
- Kāpiti Coast District Council ceased providing a kerbside recycling service after September 2013. The time series of data is complete, with the licensed waste and recycling collectors providing data to council.

Table 27: Kerbside Recycling and Drop-Off Facilities

Tonnes/annum	2010/11	2011/12	2012/13	2013/14	2014/15
Kerbside recycling	26,776	28,587	26,960	26,659	26,375
Drop-off facilities	9,137	7,407	5,933	8,544	7,016
TOTAL	**35,914**	**35,994**	**32,893**	**35,204**	**33,391**

In 2014/15, approximately 33,000 tonnes of materials were collected through kerbside recycling and drop-off facilities. Approximately 80% of this material was through kerbside recycling, both council-operated and private.

5.6.3 Composition of Kerbside Recycling

The composition of kerbside recycling collected by both councils and private service providers is presented in Table 28. The composition is based on a weighted average of data provided to Hutt, Wellington, and Porirua City Councils by their contracted service providers. The tonnage data is for 2014/15, as shown in Table 27.

Table 28: Composition of Kerbside Recycling in Wellington Region

Composition of kerbside recycling - 2014/15	% of total	Tonnes/ annum
Mixed paper	47.3%	12,485
Glass bottles & jars	38.4%	10,116
Plastic containers	6.8%	1,787
Aluminium cans	0.5%	123
Steel cans	2.5%	656
Contamination	4.6%	1,208
TOTAL	**100.0%**	**26,375**

Mixed paper is the largest component of kerbside recycling, comprising 47%, by weight, of the total. Glass bottles & jars comprise 38% of the total.

5.6.4 Commercially-Collected Diverted Materials

Several waste operators in Wellington region collect divertable materials from commercial and industrial organisations. Cardboard/paper and scrap metal collections are the most common, although other recyclable commodities, such as glass bottles and other containers, are also collected in this manner.

Most commercially-collected commodities are processed at one of three materials recovery facilities - Masterton District Council's Masterton transfer station, Waste Management's Seaview facility, and OIJ's Fullcircle facility in Hutt City.

Scrap metal other than that collected through kerbside recycling collections, is processed separately, with Macaulay Metals being the major collector and processor.

A range of other materials are also diverted on a commercial basis, such as:

- Concrete, which is crushed and used for aggregate
- Scrap plastic from plastic manufacturers that is reprocessed into feedstock
- Clothing and textiles, used for rags or resale.

As there is no verifiable data on these other diverted material streams, only the main diverted materials for which data is available are included in Table 29. The data in the table below includes metals processed by Macaulays Metals, and commercially-collected, non-kerbside recyclables processed at Masterton transfer station, Waste Management's Seaview facility, and OIJ's Fullcircle facility in Hutt City. It is recognised that there is likely to be some double-counting of scrap metal, as Macaulays Metals may handle some metals from the other facilities. Any double-counting is likely to be minor.

Table 29: Commercially-Collected Diverted Materials

Diverted materials, excluding council and private domestic kerbside recycling collections	Tonnes/annum 2015
Cardboard/paper/containers	14,904
Scrap metal	101,877
TOTAL	**116,781**

Based on data provided by recycling processors, approximately 15,000 tonnes of cardboard, paper, and recyclable containers were collected commercially and processed in 2015.

Based on information provided by the scrap metal industry, over 100,000 tonnes of scrap were collected in 2015. This represents a per capita rate for Wellington region of 207 kg/capita/annum, when metals from kerbside collections are included. There is little reliable New Zealand data against which this figure can be checked, but a recent publication[24] gave the per capita scrap metal recovery rate for Australia as 177 kg/capita/annum, so the figure for Wellington appears reasonable.

[24] Golev, A., Corder, G., Modelling metal flows in the Australian economy, Journal of Cleaner Production (2015), viewed on 22/01/2016 at http://dx.doi.org/10.1016/j.jclepro.2015.07.083 http://wealthfromwaste.net/wp-content/uploads/2015/09/Modelling-metal-flows-in-the-Australian-economy.pdf

5.6.5 Diversion of Organic Waste

Greenwaste, meat waste, and food waste are the principal organic materials that are diverted in Wellington region.

Commercial collections of food waste, excluding meat products, are available to supermarkets, restaurants, and food manufacturers. Southern landfill is the only site in the region where food waste is composted. Data for composted food waste has been taken from Southern landfill records.

Greenwaste is collected on a commercial basis from residential properties and separately collected at all transfer stations and landfills. Greenwaste is composted at Masterton transfer station, Southern landfill, and Composting NZ's Otaihanga facility. Minor quantities of wood waste are also composted at Southern landfill. Data on composted greenwaste has been taken from the facilities' weighbridge records.

Greenwaste collected separately at Silverstream and Spicer landfills is primarily disposed of on-site and not classified as a "diverted material" for waste levy purposes. Consequently, greenwaste collected separately at these facilities has not been included in this analysis.

Meat processing waste and meat waste from supermarkets and butchers are rendered into tallow and blood and bone meal by Taylor Preston. This diverted material stream has been estimated, with the estimate being based on publicly-available documents.

Several organisations collect edible food waste for re-distribution on a not-for-profit basis. This diverted material stream has been estimated using publicly-available documents.

Organic waste is diverted from landfill disposal through other means, which are not quantified in this waste assessment, including:

- arborists chip considerable quantities of vegetation, much of which is disposed of as mulch
- piggeries collect food waste from supermarkets and food manufacturers for use as stock feed.

Table 30 estimates the quantity of diverted organic waste in Wellington region in 2015.

Table 30: Diversion of Greenwaste and Food Waste - 2015

Organic waste diversion - 2015	Tonnes per annum - 2015
Greenwaste and wood waste	19,785
Food waste - composted	1,121
Food waste - recovered	200
Meat waste - rendered	25,000
TOTAL	**46,106**

It is estimated that over 46,000 tonnes of organic waste were diverted from landfill disposal in 2015. Over half of this total was rendered meat waste from meat processing and commercial collections. The accuracy of the estimate of meat waste that is rendered was not able to be verified with the processor.

6.0 Performance Measurement

6.1 Current Performance Measurement

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

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 Statistics NZ population estimates and the Class 1 landfill waste data in section 5.3.1, the per capita per annum waste to landfill in 2014/15 from Wellington region can be calculated as in Table 31 below. The estimate includes special wastes but excludes unlevied cleanfill materials.

Table 31: Waste Disposal per Capita – Wellington Region

Calculation of per capita waste to Class 1 landfills	
Population (Stats NZ 2015 estimate)	496,900
Total waste to Class 1 landfill (tonnes 2014/15)	302,076
Tonnes/capita/annum of waste to Class 1 landfills	**0.608**

In 2014/15, approximately 0.608 tonnes of levied waste was disposed of at Class 1 landfills for each person in the Wellington region.

The movement of waste across territorial authority boundaries makes it difficult to estimate per capita waste disposal rates for the individual councils in the region.

However, geographic distances between the Class 1 landfills in the region restrict, but do not eliminate, the cross-boundary movement of waste. Estimates for the four separate waste "catchments" in the region can be made if the following are assumed:

- all waste from Upper Hutt City and Hutt City is disposed of at Silverstream landfill
- all waste from Wellington City and Porirua City is disposed of at Southern and Spicer landfills
- all waste from Kāpiti Coast District is disposed of at the transfer stations in the district
- all waste from Carterton, Masterton, and South Wairarapa Districts is disposed of at the transfer stations in the districts.

Based on these assumptions, which are known not to be entirely accurate, per capita disposal rates for the four waste catchments are calculated as shown in Table 32. The estimates include special wastes but exclude unlevied cleanfill materials.

Table 32: Waste Disposal per Capita – by Waste Catchment - 2014/15

Calculation of per capita waste to Class 1 landfills - 2014/15	Kāpiti Coast District	Wellington & Porirua	Upper Hutt & Hutt	Wairarapa
Population (Stats NZ 2015 estimate)	51,400	258,300	144,000	43,200
Total levy-paid waste to Class 1 landfills (tonnes 2014/15)	30,015	130,977	125,885	15,199
Tonnes/capita/annum of waste to Class 1 landfill	0.584	0.507	0.874	0.352

By considerable margins, the greatest rate of waste per capita is disposed of at Class 1 landfills from Upper Hutt City and Lower Hutt City and the lowest rate per capita is from Wairarapa.

The low disposal rate from Wairarapa is associated with a lower level of industrial and commercial activity and a higher proportion of rural properties. A substantial proportion of rural waste is disposed of on-site.

The high disposal rate from Upper Hutt City and Hutt City could be associated with higher levels of industrial and commercial activity than in the other areas. Additionally, waste from other areas is understood to be transported to Silverstream landfill for disposal. Anecdotally, it is understood that some kerbside refuse from Kāpiti Coast District is disposed of at Silverstream landfill. As the major waste collectors' depots are all in Hutt City, it is likely that collection vehicles often dispose of their final load of waste at Silverstream landfill. Quantitative information on any other cross-boundary movements of waste to Silverstream is not available.

The per capita estimates for waste disposal for Wellington region and the four separate catchments are compared to estimates for other districts in Table 33. The data for other districts has been taken from the results of SWAP surveys by Waste Not Consulting Ltd.

Table 33: 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
Tauranga and WBoP District 2010	0.452
Napier/Hastings 2012	0.483
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.

The per capita disposal rate for Upper Hutt and Hutt City is the highest rate of the territorial authorities shown. While it is accepted that there is some cross-boundary movement of waste into the catchment, the effect cannot be quantified.

6.1.2 Per Capita Domestic Kerbside Refuse to Class 1 Landfills

The quantity of domestic kerbside refuse disposed of per capita per annum has been found to vary considerably between different areas. There are several reasons for this variation.

Kerbside refuse services are used primarily by residential properties, with small-scale commercial businesses comprising a relatively small proportion of collections (typically on the order of 5-10%). In districts where more businesses use kerbside wheelie bin collection services - which can be related to the scale of commercial enterprises and the services offered by private waste collectors - the per capita quantity of kerbside refuse can be higher. There is relatively little data in most areas on the proportion of businesses that use kerbside collection services, so it is not usually possible to provide data solely on residential use of kerbside services.

The type of service provided by the local territorial authority has a considerable effect on the per capita quantity of kerbside refuse. Councils that provide wheelie bins (particularly 240-litre wheelie bins) or rates-funded bag collections generally have higher per capita collection rates than councils that provide user-pays bags. The effect of rates-funded bag collections is reduced in those areas where the council limits the number of bags that can be set out on a weekly basis.

Evidence indicates that the most important factor determining the per capita quantity of kerbside refuse is the proportion of households that use private wheelie bin collection services. Households that use private wheelie bins, particularly larger, 240-litre wheelie bins, tend to set out greater quantities of refuse than households that use refuse bags. As a result, in general terms the higher the proportion of households that use private wheelie bins in a given area, the greater the per capita quantity of kerbside refuse generated.

Other options that are available to households for the disposal of household refuse include burning, burying, or delivery direct to a disposal facility. The effect of these on per capita disposal rates varies between areas, with residents of rural areas being more likely to use one of these options.

The disposal rate of domestic kerbside refuse for Wellington region has been calculated to be 206 kg per capita per annum in 2014/15. It is stressed that this figure is an estimate based on two SWAP surveys of disposal facilities that, when combined, represent less than half of all waste from the region disposed of at Class 1 landfills. A more accurate estimate is not possible because:

- a large proportion of the kerbside refuse market is controlled by private waste collectors and no councils, other than Kāpiti Coast District Council and Upper Hutt City Council, are provided with data by the waste collectors
- no recent SWAP surveys have been undertaken at other facilities in the region

- not all of the landfills in the region gather data on vehicle types that would allow kerbside refuse to be quantified
- at the landfills that do gather data on vehicle types, the dataset is not sufficiently complete or accurate enough to be used to quantify kerbside refuse.

Table 34 compares the per capita rate of disposal of kerbside refuse in Wellington region with other urban areas in New Zealand. Data for the other districts has been taken from SWAP surveys conducted by Waste Not Consulting.

Table 34: Per Capita Disposal of Kerbside Refuse – Comparison with Other Areas

District and year of survey	Kg/capita/ annum	Comment
Christchurch City 2011	110	Fortnightly 140-litre refuse wheelie bin. Weekly organic collection
Auckland Council 2012	160	Range of legacy council services.
Hamilton City 2013	182	Rates-funded refuse bags, max. 2 per week
Tauranga City and Western Bay of Plenty District 2010	183	User-pays bags in Tauranga. No council service in WBoP.
Wellington region 2014/15	**206**	**Estimate based on SWAP surveys at Silverstream landfill and Kāpiti Coast**
Taupo District 2013	212	User-pays refuse bags
Hastings District/Napier City 2012	214	User-pays refuse bags (Hastings) & rates-funded bags max. 2 bags/week(Napier)
Rotorua District 2009	216	Council rates-funded Kleensaks. No kerbside recycling service

Of the urban areas that have been assessed, Christchurch City has the lowest per capita disposal rate of kerbside refuse. This is associated with the diversion of organic waste through the council's kerbside organic collection and the council's high market share.

Rotorua has the highest disposal rate of the urban areas shown in the table. This is associated with the high proportion of households in Rotorua that use private collector wheelie bin services and the absence of kerbside recycling services.

6.1.3 Per Capita Kerbside Recycling

Per capita recycling rates for Wellington region are calculated in Table 35.

Points to be noted in the analysis include:

- Carterton and South Wairarapa Districts' tonnages include materials dropped off at the transfer stations as separate data is not available for kerbside recycling alone.
- South Wairarapa District's kerbside recycling service was introduced during the 2010/11 year.

Table 35: Per Capita Kerbside Recycling – Kg/Capita/Annum

Kerbside recycling	2010/11	2011/12	2012/13	2013/14	2014/15
Kerbside recycling	26,776	28,587	26,960	26,659	26,375
Population	476,933	481,861	486,790	491,500	496,900
Kg/capita/annum	**56**	**59**	**55**	**54**	**53**

The per capita rate of kerbside recycling in Wellington region decreased marginally from the 2011/12 year to the 2014/15 year. The peak of 59 kg/capita/annum occurred in 2011/12 and is associated with the introduction of a two-bin recycling system in Wellington City. In the 2014/15 year, 53 kg of kerbside recycling were collected for every resident of the region.

The decrease in per capita recycling could be associated with a number of factors, including a change in packaging materials (such as from glass to plastic bottles) or changes in consumer consumption patterns (such as a decrease in newspaper purchases).

The figure of 53 kg/capita/annum is compared to data from other councils in Table 36, along with a brief description of the kerbside recycling system in each district. The per capita recycling rates for the individual territorial authorities are provided in Table 37 .

The comparability of data is open to some debate because issues such as measuring and reporting of contamination is inconsistent or the population that is served has not been clearly reported. However, the available information indicates that per capita rates of kerbside recycling in Wellington region are lower than most of the other districts reporting data.

Table 36: Per Capita Kerbside Recycling – Kg/Capita/Annum

District	Kg/capita/ annum	System type
Napier City Council	52 kg	Fortnightly bags or crates
Wellington region	**53 kg**	**Various systems**
Ashburton District	62 kg	Weekly bags or crates depending on area
Tauranga City Council	65 kg	Private wheelie bin collection service
Invercargill City Council	69 kg	Fortnightly 240-litre wheeled bin, commingled
Waipa District	73 kg	Weekly/Fortnightly 55-litre crate, separate paper collection
Waikato District	74 kg	Weekly 55-litre crate, separate paper collection
Dunedin City	77 kg	Fortnightly 240-litre wheeled bin, fortnightly crate for glass
Horowhenua District	81 kg	Weekly crate
Auckland Council	84 kg	Fortnightly 240-litre commingled wheelie bins or 140-litre wheelie bin with separate paper collection
Waimakariri District Council	85 kg	Fortnightly 240-litre wheeled bin, commingled
Hamilton City Council	86 kg	Weekly 45-litre crate, separate paper collection
Palmerston North City	87 kg	Fortnightly 240-litre wheeled bin for commingled materials alternating with 45-litre crate for glass
Christchurch	109 kg	Fortnightly 240-litre wheeled bin

While data on kerbside recycling collections is readily available, accurate and reliable data relating to the total quantity of diverted materials, which includes commercial recycling, is not available for most districts.

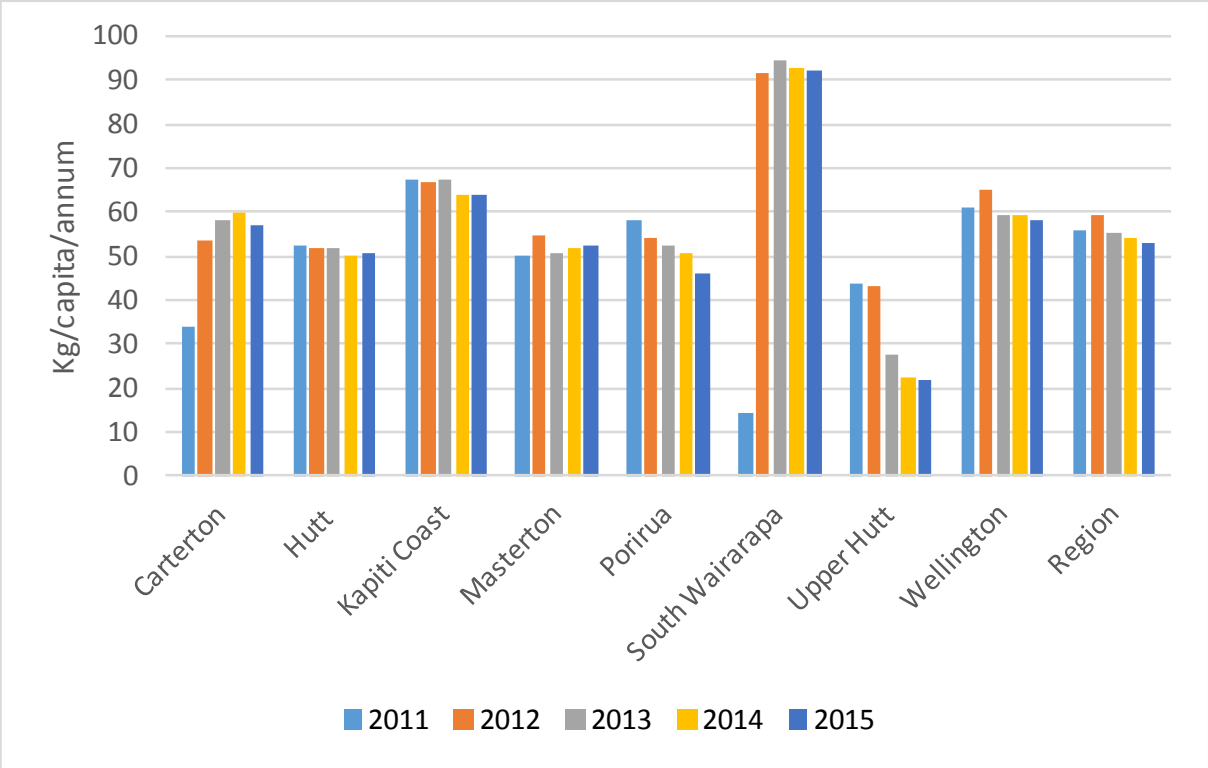
Per capita recycling rates for the individual territorial authorities are provided in Table 37 and Figure 16.

Table 37: Per Capita Kerbside Recycling - Kg/Capita/Annum - By Area

Kerbside recycling - includes council and private collections - kg/capita/per annum	2010/11	2011/12	2012/13	2013/14	2014/15
Carterton (1)	34	53	58	60	57
Hutt	53	52	52	50	50
Kāpiti Coast	67	67	67	64	64
Masterton	50	55	51	52	52
Porirua	58	54	52	51	46
South Wairarapa (1)	14	92	95	93	92
Upper Hutt	44	43	28	22	22
Wellington	61	65	59	60	58
WELLINGTON REGION	**56**	**59**	**55**	**54**	**53**

(1) Includes transfer station drop-off tonnages

Figure 16: Per Capita Kerbside Recycling – Kg/Capita/Annum - By Area



Although the per capita kerbside recycling rates vary significantly between the different council areas, several factors need to be taken into consideration:

- The number of households in each area served by kerbside recycling collections has not been taken into account in the calculations
- Residents of rural areas, both those with kerbside recycling and those without, may be more likely to use drop-off facilities than residents of urban areas because of the convenience factor
- Many residents of Carterton District may use Masterton transfer station for their recycling drop-off
- The Wellington City kerbside recycling rate increased markedly when the two-bin system was introduced
- Upper Hutt City Council discontinued its kerbside recycling service in February 2013. Two of the four private operators collecting kerbside refuse also offer kerbside recycling services.
- All of the private operators collecting kerbside refuse in Kāpiti Coast District also offer kerbside recycling services.

6.1.4 Comparison of Activity Source of Waste to Class 1 Landfills

Table 38 compares the proportions of the different activity sources of waste from three other areas with Wellington region. Derivation of the Wellington region data is discussed in section 5.5 Special wastes and cleanfill are excluded from the analysis.

Table 38: Comparison of Activity Sources of Waste with Other Districts

% of waste to landfill – excl. special waste and cleanfill	Christchurch City	Hamilton City	Taupo District	Wellington region
Year of audit	2012	2013	2013	2013 - 2014
Construction & demolition	27.3%	16.9%	17.6%	12.7%
Domestic kerbside (1)	28.4%	27.9%	30.0%	40.5%
Industrial/commercial/ institutional	32.4%	45.4%	36.6%	34.3%
Landscaping	4.2%	3.9%	3.6%	6.1%
Residential	7.7%	6.0%	12.2%	6.4%
TOTAL	100%	100%	100%	100%

(1) Includes both council and private kerbside collections and includes an unknown proportion of refuse from commercial properties

The relative proportions of the activity sources of waste in each district reflect the economic activity in the area and other factors, such as earthquake reconstruction in

Christchurch. The low proportion of C&D waste in Wellington region is likely to be associated with a low level of construction activity compared to the other areas.

6.1.5 Council Bag Share of Domestic Kerbside Refuse Market

All of the councils in Wellington region (other than Kāpiti Coast District Council) currently provide for kerbside refuse collection services to residents, based on user-pays plastic refuse bags. Kāpiti Coast District Council no longer offers this service to residents, having ceased the sale of refuse bags in July 2013. In all areas where a council service is offered, the council service is in competition for market share with private refuse collectors.

In section 6.1.2, the uncertainties related to quantifying the domestic kerbside refuse market are discussed. However, by extrapolating the results of two SWAP audits across the region, a figure of 206 kg/capita/annum of domestic kerbside refuse (from Table 26) has been derived. This figure includes both council and private collections.

The most accurate basis for measuring the individual council's share, by weight, of the domestic kerbside refuse market is by converting the number of refuse bags sold by the councils each year into a tonnage figure. This tonnage (based on an average bag weight of 6.25 kg) can then be used to calculate each council's share of the domestic kerbside refuse market for the year, based on total kerbside collection equalling 205 kg/capita/annum. The calculation for Wellington region in 2014/15 is shown below.

Table 39: Council Bag Share of Domestic Kerbside Refuse Market - 2014/15

Council bag share of domestic kerbside refuse market - by weight - assuming 206 kg/capita/annum of domestic kerbside refuse generated	
Total tonnage of domestic kerbside refuse	102,403
Number of council refuse bags sold	2,812,167
Tonnage of council refuse bags at 6.25 kg/bag	17,576
Tonnage of council refuse bags as % of total tonnage	**17.2%**

The results of the calculations for individual territorial authorities for the last five years are shown in Table 40. It is emphasised that these are high-level estimates of the councils' market shares and have not involved the detailed data-gathering and analysis that would be required for more reliable estimates to be made. It should also be noted that the market share is calculated on the basis of weight, not the numbers of households using the services. Low volume users tend to be more likely to use a bag service as is provided by most councils, meaning the share of households is likely to be higher than indicated on the basis of weight. Further estimates made by some of the councils are presented in Appendix A.7.0.

The regional calculations do not take into account a number of factors that would need to be considered to produce a precise estimate for any individual TA. One such factor, for example, is the number of properties serviced by kerbside refuse collections. In

some areas, private collectors service a wider area than the council's collection and some remote properties receive no kerbside service at all. These factors have not been taken into account.

Table 40: Council Bag Share of Domestic Kerbside Refuse Market (by Weight)

Council bag share of domestic kerbside refuse market – by weight [1]	2010/11	2011/12	2012/13	2013/14	2014/15
Carterton	23%	21%	19%	19%	19%
Hutt	19%	18%	15%	15%	15%
Kāpiti Coast	19%	19%	10%	0%	0%
Masterton	23%	23%	20%	22%	21%
Porirua	19%	17%	16%	13%	12%
South Wairarapa	27%	29%	32%	33%	36%
Upper Hutt	21%	18%	15%	12%	10%
Wellington	30%	28%	27%	26%	24%
WELLINGTON REGION	24%	23%	20%	18%	17%

(1) Assuming each refuse bag weighs 6.25 kg and every resident generates 206 kg of domestic kerbside refuse per year.

Region-wide, the council bag share of the domestic kerbside refuse market has declined from approximately 24%, by weight, in 2010/11 to 17% in 2014/15, assuming a per capita domestic kerbside refuse disposal rate of 205 kg/capita/annum for all areas of the region.

The only council to have increased its market share over this period has been South Wairarapa District Council. In that district, the cost of the Council's user-pays refuse bags is rates-subsidised, resulting in the Council service being more competitive than in other areas.

6.1.6 Diversion Rate - by Material Type

Section 5.4 presents the composition of waste disposed of at Class 1 landfills from Wellington region. In section 5.6, the diversion from landfill disposal of several waste materials has been summarised. By combining the two sets of data, a mass balance for these materials can be estimated and diversion rates calculated for each. The results of this analysis are shown in Table 41.

Table 41: Diversion Rates for Selected Recoverable Materials - 2014/15

Diversion rate of selected recoverable materials - 2014/15	Mixed paper and containers	Scrap metal	Greenwaste	Food and meat waste
Kerbside recycling collections	26,375	0	0	0
Commercial recycling collections	14,904	101,877	0	0
Composted	0	0	19,785	1,121
Recovered	0	0	0	200
Rendered	0	0	0	25,000
Subtotal	**41,279**	**101,877**	**19,785**	**26,321**
Class 1 landfill	38,888	7,828	27,921	39,934
Recovery rate	**51.5%**	**92.9%**	**41.5%**	**39.7%**

Based on the available data, scrap metal has the highest recovery rate, with over 90% of metals being recovered as opposed to landfill disposal. This can be compared to a recent study showing the recovery rate for Australia being about 70%.[25] Mixed paper and containers (primarily packaging materials) had an estimated recovery rate of 51%. This compares to a Packaging Council of NZ estimated recovery rate for New Zealand of approximately 56%.[26]

Greenwaste and food and meat waste both had recovery rates of about 40%. It should be noted that the recovery rate for food and meat waste would be markedly lower if rendered meat processing by-products were not included in the total. It could be argued that industrial by-products are not "waste materials", as such, but one output of the industrial process. If rendered meat by-products were not considered to be "recovered", the recovery rate for food and meat would be 3%.

6.1.7 Diversion Potential of Waste to Class 1 Landfills

An estimate of the composition of waste disposed of at Class 1 landfills from the Wellington region has been provided in section 5.4. The estimate is presented in terms of the twelve primary categories recommended by the SWAP. The estimate has been based on SWAP surveys in Kāpiti Coast District and Silverstream landfill in 2013 and 2014. These surveys classified waste into 24 materials types, most of which identify the recoverability of a material.

[25] Golev, A., Corder, G., Modelling metal flows in the Australian economy, Journal of Cleaner Production (2015), viewed on 22/01/2016 at http://dx.doi.org/10.1016/j.jclepro.2015.07.083 http://wealthfromwaste.net/wp-content/uploads/2015/09/Modelling-metal-flows-in-the-Australian-economy.pdf

[26] PAC.NZ historical data, no longer available online

Based on an analysis of the secondary composition presented in A.4.2, the diversion potential of the waste disposed of at Class 1 landfills from Wellington region has been estimated as shown in Table 42 below.

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. 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. As with the primary composition presented in Table 25, the diversion potential is presented for both general waste - excluding special waste and non-levy paid cleanfill - and general waste and special waste combined - excluding non-levy paid cleanfill.

Table 42: Diversion Potential of Levied Waste to Class 1 Landfills

Diversion potential of levied waste to Class 1 landfills from Wellington region		General waste - excludes special waste and cleanfill		General waste and special waste - excludes cleanfill	
Primary category	**Secondary category**	**% of total**	**Tonnes 2014/15**	**% of total**	**Tonnes 2014/15**
Paper	Recyclable	10.8%	27,316	9.0%	27,316
Plastics	Recyclable	1.2%	2,925	1.0%	2,925
Putrescibles	Kitchen/food	15.8%	39,934	13.2%	39,934
Putrescibles	Greenwaste	11.1%	27,921	9.2%	27,921
Ferrous metals	All	2.5%	6,202	2.1%	6,202
Non-ferrous metals	All	0.6%	1,626	0.5%	1,626
Glass	Recyclable	3.4%	8,647	2.9%	8,647
Textiles	Clothing/textile	1.5%	3,768	1.2%	3,768
Rubble	Cleanfill	2.3%	5,712	1.9%	5,712
Rubble	Plasterboard	1.8%	4,516	1.5%	4,516
Timber	Untreated/ unpainted	2.2%	5,660	1.9%	5,660
Potentially hazardous	Sewage sludge	0.0%	0	10.5%	31,823
TOTAL DIVERTABLE		**53.2%**	**134,227**	**55.0%**	**166,050**

Over 50% of both waste streams analysed could, theoretically, be diverted from landfill disposal. The largest divertable component of both waste streams is kitchen/food waste. The second largest divertable component of the general waste stream that excludes special waste is paper, which comprises 10.8% of the total. The second largest divertable component of the waste stream that includes special waste is sewage sludge, which comprises 10.5% of the total.

7.0 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 in Wellington region's context are likely to include the following:

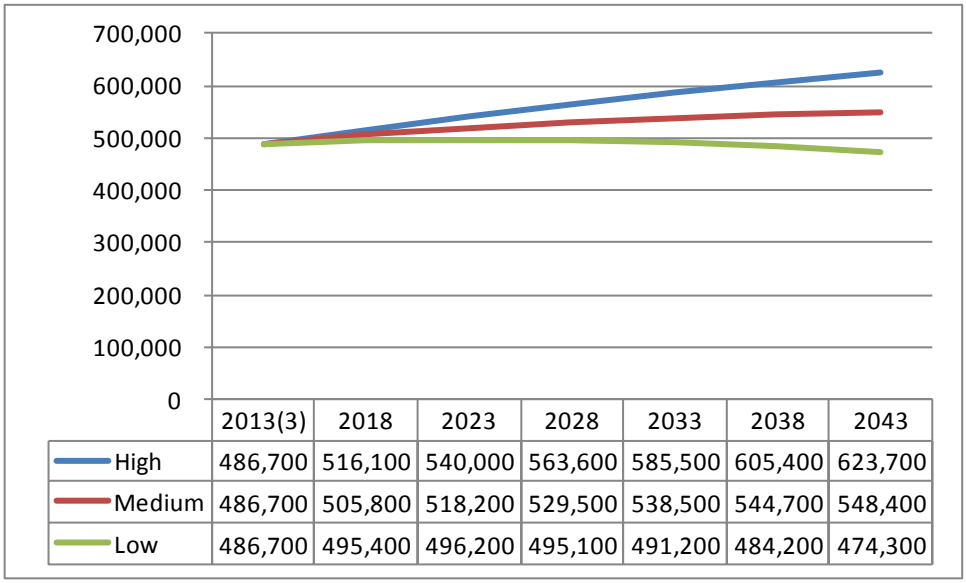
- Overall population growth
- Economic activity
- Changes in lifestyle and consumption
- Changes in waste management approaches

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

Statistics NZ population projections (updated February 2015) are presented below.

Table 43: Forecast Wellington Region Population



	2013(3)	2018	2023	2028	2033	2038	2043
High	486,700	516,100	540,000	563,600	585,500	605,400	623,700
Medium	486,700	505,800	518,200	529,500	538,500	544,700	548,400
Low	486,700	495,400	496,200	495,100	491,200	484,200	474,300

Source: Statistics New Zealand

Table 44: Forecast Change in Wellington Region Population

	Population change	Average Annual (%)	30-Year Total %
High	+137,000	0.8%	28%
Medium	+61,700	0.4%	13%
Low	-12,400	-0.1%	-3%

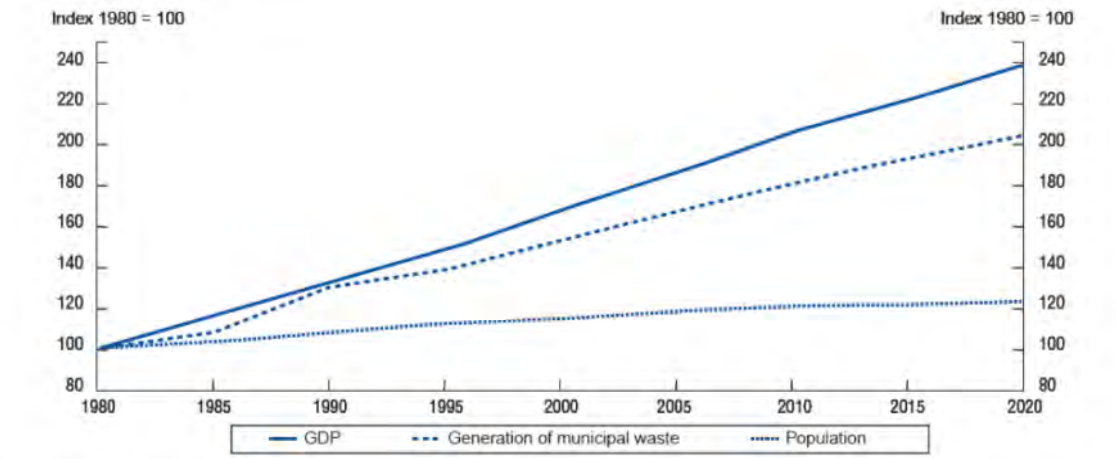
The forecasts represent a wide range of possible future outcomes. Estimating demand for future waste services is a necessary balance between ensuring sufficient infrastructure is available and not over-committing capital. While there are a number of drivers, it is considered that the "medium" series provides a conservative basis for estimating the future increased demand for waste management services due to population growth.

7.1.2 Economic Activity

Overall, the economy in the region has grown relatively slowly, but steadily, in recent years and it is anticipated that this will continue. The implications for waste management are, therefore, that anticipated growth in economic activity will result in an increase in the amount of waste generated. There is a need to ensure that planned changes in services and facilities are sufficiently future proofed.

For reference, Figure 17 below shows the growth in municipal waste in the OECD plotted against GDP and population.

Figure 17: Municipal Waste Generation, GDP and Population in OECD 1980 - 2020



Source: OECD 2001.

Research from the UK[27] and USA[28] 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. To be able to use GDP and population as accurate predictors of waste generation requires establishing correlations between changes in these factors and changes in waste generation. Ideally, co-efficients for each factor would be calculated, with an analysis, such as regression analysis, performed to determine the impact of each of the factors, and projections conducted from this base data.

When data is analysed for the Wellington region, however, the correlations between population, GDP, and waste and recycling are not apparent. While population and GDP have increased over the last 10 years, waste to disposal and to recovery has declined slightly since 2005. Plotting these numbers against each other therefore produces negative correlations. A likely explanation for this disconnect between population and GDP and waste generation is incomplete datasets – particularly around material recovered by the private sector and material going to Class 2-4 landfills.

7.1.3 Changes in Lifestyle and Consumption

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

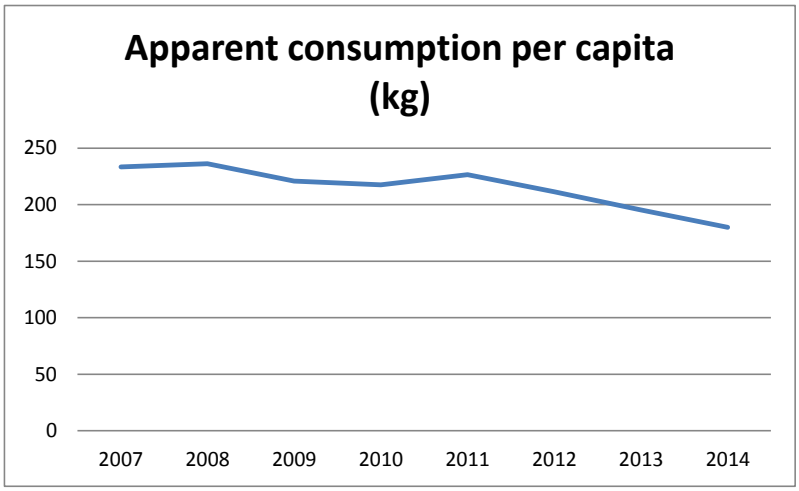
Consumption habits will affect the waste and recyclables generation rates. For example, there has been a national trend related to the decline in newsprint. In New Zealand, the production of newsprint has been in decline since 2005, when it hit a peak of 377,000 tonnes, falling to 276,000 tonnes in 2011.[29] Further indication of the decline in paper consumption comes from the Ministry for Primary Industry statistics shown in Figure 18.

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

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

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

Figure 18: Apparent Paper Consumption per Capita



7.1.4 Changes in Waste Management Approaches

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

- 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, 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.

7.1.5 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.

Population and economic growth will drive moderate 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.

7.1.6 Projections of Future Demand

Total waste and recovered material quantities in Wellington region are estimated to grow slowly over the next ten years in line with population and economic growth. For the purposes of projecting total waste quantities, it has been assumed that kerbside refuse, greenwaste, and all recyclables will grow in line with population. The Stats NZ 'med' population projection has been used for estimating kerbside recycling and refuse. It is assumed that other waste to landfill (mainly industrial/commercial/institutional waste and drop-off materials) and C & D waste will grow at a similar rate as GDP, with an assumed growth rate of 2% per annum.

Figure 19: Mid-Level Projection - No Significant Change in Systems or Drivers

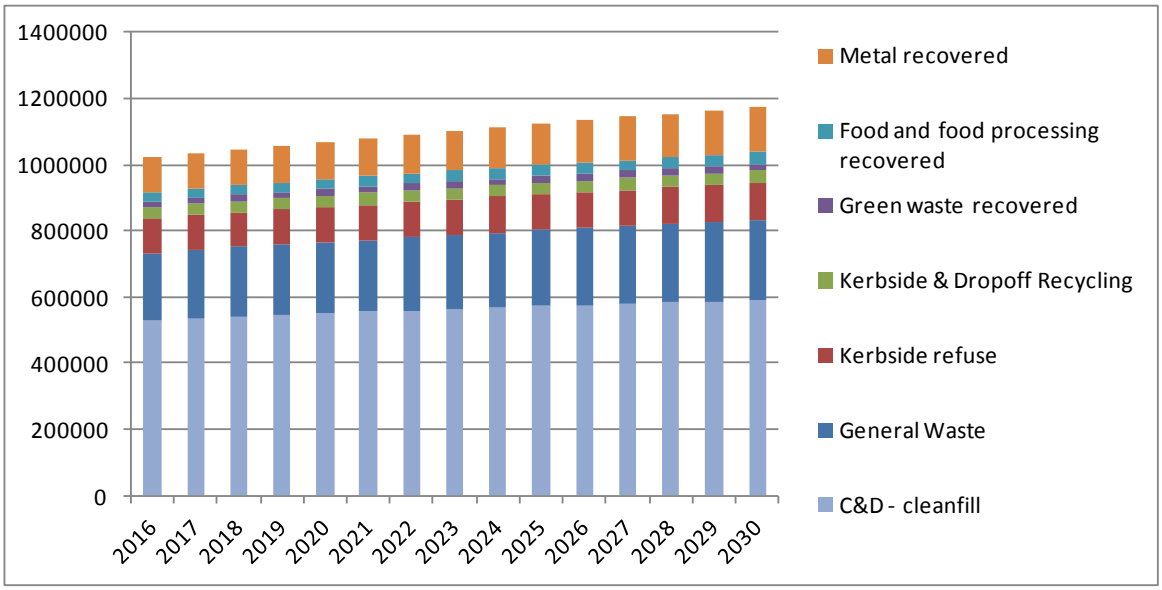
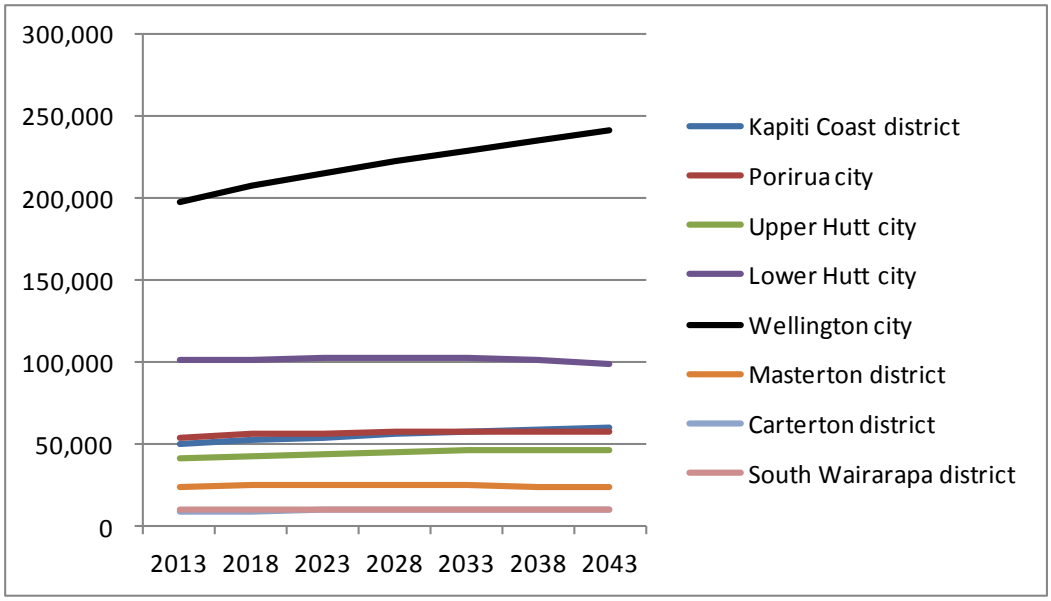


Figure 20: Number of Households



One key element of future demand is the demand for household services. As household numbers increase, this will precipitate a corresponding increase in the service requirement. The above chart shows that the numbers of households requiring service will increase steadily in Wellington City but remain essentially static in other parts of the region.

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:

- Data quality and management of data
- Cleanfill numbers and tonnages
- Declining Council market share of kerbside refuse and recycling collections
- The amount of kerbside recycling per capita is relatively low compared to other TAs
- Recycling performance static or declining
- Biosolids management currently reliant on landfilling of all material
- Low diversion rate of organics, including both greenwaste and food waste
- Councils operate a range of different funding and management models, which is a barrier to greater collaboration. Despite this, there is potential for greater joint working in Council service delivery (e.g. more consistent approach to kerbside services)
- There is no food waste processing capacity
- Information about the amount and type of waste that is going to unregulated disposal (farm pits, cleanfill and burning) is scarce
- Rural areas have a number of recycling drop-off points but rural services are still somewhat limited

- Recycling services at public events (such as markets and sports events) are not promoted
- Provision of public place recycling bins is limited.

7.2.1 Waste Streams

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

- More kerbside recyclables both from domestic and commercial properties
- Organic waste, particularly food waste both from domestic and commercial properties
- Industrial and commercial plastic is a significant part of the waste stream which may be able to be recycled
- 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 a significant part of the waste stream which may be able to be recovered
- E-waste collection and processing capacity in the district, while better than many areas, has room for improvement
- Biosolids
- Waste tyres may not be a large proportion of the waste stream, however the effectiveness of the management of this waste stream is unknown. Issues with management of this waste stream have recently been highlighted nationally

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

7.2.2 Hazardous Wastes

Potentially hazardous household wastes such as paint, oil, and chemicals are collected at transfer stations. There is a need to review the provision of these services at the transfer stations to ensure proper storage and management procedures are followed, so as to protect the health of workers, the public and the environment.

Options for hazardous wastes include:

- Reviewing management procedures of hazardous wastes at transfer stations
- Undertaking more detailed monitoring and reporting of hazardous waste types and quantities, including medical waste
- Improving public information about correct procedures for managing hazardous wastes, including medical waste and asbestos
- Introducing a bylaw licensing collectors. This will improve information on hazardous waste movements and enable enforcement of standards

7.2.2.1 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. All three Class 1 landfills in the region are consented to take asbestos, as is the Nursery Road cleanfill site in Masterton, and operators must comply with consent conditions and operational Health and Safety requirements.

7.2.2.2 Medical Waste

The Pharmacy Practice Handbook[30] states:

> *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.*

Medical waste removal and disposal are currently adequately catered for in the region in respect of institutional wastes. Sources of medical waste from households have no special provision.

7.2.2.3 E-waste

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

There are a limited number of collection points in the region at the transfer stations and resource recovery facilities and there is no consistent region-wide approach to e-waste management.

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

8.0 Initial Review of the 2011 Waste Management and Minimisation Plan

An initial review of the 2011 WMMP was undertaken to inform the current Waste Assessment, and to help identify potential improvements to the effectiveness of a new WMMP. The key points emerging from the initial review are noted below.

8.1 Data

The data contained in the 2011 WA and WMMP is of variable quality and there are substantial gaps in the data, in particular around privately managed wastes, cleanfill, and quantities of materials recovered.

8.2 Key Issues

The 2011 WA and WMMP correctly identified many of the key issues facing the region including:

- Poor quality data
- Inconsistency in service provision
- Inconsistency in regulation
- High quantities of biosolids disposed of at some landfills
- Large quantities of organic material disposed of to landfill.

8.3 Other Issues Not Addressed

There are a number of issues that either were not addressed in the previous WMMP or have since emerged. These include:

- **Council market share.** Many of the Councils have a relatively small share of the kerbside refuse collection market and, in most cases, it is declining. This reflects a move towards private operators' wheeled bin services and away from the bag-based services that the Councils offer. This issue was not addressed in the 2011 WA or WMMP.
- **Declining recycling rates**. The quantities of material being recycled by households is relatively low across the region and is continuing to decline
- **Lack of recovery of C&D materials**. There is a lack of infrastructure to recover construction and demolition-type materials such as concrete, brick, wood, metal, and plasterboard. Much of this material is likely to be currently going to Class 2-4 landfills.

8.4 New Guidance

New Guidance from MfE on Waste Management and Minimisation Planning was released during the development of this Waste Assessment. The 2011 WA and WMMP, while consistent with the guidance at the time they were written, do not fully align with the new (2015) MfE Guidance. The new guidance places more emphasis on funding of plans, inclusion of targets and how actions are monitored and reported. The 2011

documents did not provide data in accordance with the National Waste Data Framework, as suggested by the new guidance.

8.5 Actions

The current WMMP proposes 19 regional actions. While each of these actions may be justified, there is no priority assigned to the actions and no structure provided to guide how they might best work together and be implemented. A Governance Committee was formed in November 2015 to establish formal reporting and accountability on the WMMP.

8.6 Implementation Plan

The 2011 WMMP does not contain a clear plan for implementation of the proposed actions that includes assignment of responsibilities, allocation of resources, and delivery timeframes.

8.7 Limited Progress

Potentially as a result of the last two points, limited progress has been made on implementing the actions contained in the 2011 WMMP. Only four of the 19 actions have been taken forward, with only the education strategy having so far been completed. Work on a regional solid waste bylaw is in progress, there has been some progress on biosolids investigation, and development of a subsequent WMMP is underway.

9.0 Statement of Options

This section sets out the range of options available to the Councils 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 that have the greatest effect on the Councils' ability to meet their statutory obligations are:

1. **Increasing quantities of levied waste to Class 1 landfills** - The tonnage of levied waste to Class 1 landfills increased 5.4% between 2012/13 and 2014/15. Population in the region increased 2.1% during this period.
2. **Poor data quality** - A lack of data, particularly on the activities of the private waste and recycling sector, limits Councils' ability to effectively manage waste in the region. This constrains ability to plan for and respond to future demand
3. **Disposal of unknown quantities of waste to Class 2-4 landfills** - While the data on Class 2-4 landfills that is available to the Councils is very limited, it is likely that considerable quantities of recoverable materials are disposed of to these facilities.
4. **Declining Council kerbside refuse market share** – Available tonnage data suggests that the share of the market attributed to council user pays bag collections is declining. Households instead are increasingly choosing private services, in particular large wheeled bins. Evidence suggest use of wheeled bins leads to greater quantities of waste disposed of including more organic material and items that could be recycled.
5. **Suboptimal overall recycling performance.** The Wellington region has a below average level of recycling performance compared to other centres in NZ.
6. **Recycling performance static/declining**. Not only is recycling performance weak overall, but data suggests it is static or declining in most areas. This may be related to the increasing market share of large wheeled bins for rubbish.
7. **Sewage sludge/biosolids management.** The primary disposal pathway for biosolids is landfill. Where this material has high moisture content it can create landfill management issues. It also represents a high fraction of organic waste that could potentially be recovered for beneficial use.
8. **Low diversion rate on organics.** While a large proportion of meat processing waste is recovered through rendering and a reasonable fraction of garden waste is composted, there is very little diversion of food waste and there is further room to capture and compost more garden waste. Food and green waste represent the largest fractions of material being landfilled and so this is potentially the biggest opportunity to improve diversion.
9. **Councils operate a range of different funding and management models.** Perhaps the greatest barrier to enhanced collaboration is that waste is managed

in divergent ways among the constituent councils and each council responds primarily to the particular drivers within their area. Differing ownership of assets, service delivery expectations, and rates funding levels all create differing imperatives.

10. **Unrealised potential for greater joint working in Council service delivery.** The locally focused approach to waste management has resulted in a range of systems, many of which have evolved over time, and are not necessarily configured to deliver optimum results in terms of cost and waste minimisation performance. There are likely to be gains from a more consistent approach that utilises best practice (e.g. more consistent approach to kerbside services)

In general, despite having a joint WMMP since 2011, waste management in the region has been quite disjointed. This is partly a function of geography and the different drivers within each area, but it may also reflect that potential benefits of closer working have not been fully realised.

9.2 Regulation

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
R1	**Maintain existing bylaw regimes**	Maintaining bylaw status quo would not have a positive effect on any the key issues.	*Social/Cultural:* uneven understanding of the waste flows in the district *Environmental*: variable ability to guard against environmental degradation through illegal disposal, variable ability to require environmental performance standards are met (e.g. recyclable material is separated) *Economic:* No change to current systems. *Health*. Limited ability to monitor and enforce actions of current providers and ensure public health is protected	A lack of data and controls on private operators limits Councils' ability to effectively manage waste in the region. This constrains ability to plan for and respond to future demand	Councils would implement and enforce existing bylaws; monitoring and reporting on waste quantities and outcomes. Minor changes will be required to align with the National Waste Data Framework.
R2	**Review Solid Waste Bylaws and implement Regional Solid Waste Bylaw.** **The regional bylaw would look to provide**	1 Increasing quantity of waste to landfill 2 Data quality and management of data 3 Cleanfill numbers and tonnages	*Social/Cultural:* better understanding of the waste flows in the district, wider range of services offered to residents	Improved bylaws would, as a minimum, require reporting of waste material quantities. Collecting waste data is imperative to planning how to increase	Councils would develop and enforce the bylaws; monitoring and reporting on waste quantities and outcomes The solid waste bylaw must

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
	consistency and provide a wider range of regulatory powers. This could include: • **Licensing of operators and facilities** • **Restrictions on material that is collected and landfilled** • **Events** • **Tyres and other difficult wastes** • **Controls over private collectors of residual wastes** • **Container restrictions (e.g. 240L wheeled bin bans, colours)** • **Multi-unit dwellings, rural waste** • **Cleanfills.**	5 Suboptimal overall recycling performance 6 Recycling performance static/ declining 8 Poor diversion rate on organics	*Environmental:* would increase diversion from landfill and information about disposal practices and could potentially guard against environmental degradation through illegal disposal *Economic:* increase cost for operators; additional resources will be required to monitor and enforce the regulatory system *Health*. greater monitoring of providers to ensure no adverse health risks occur	waste minimisation across Council provided services and commercial waste streams The bylaw could also be used to require minimum performance standards. This could be a key mechanism for addressing waste streams currently controlled by the private sector and how they provide their collection services. Requiring provision of a recycling collection to all customers, and preventing the use of large bins for refuse collection, could decrease the amount of waste sent to landfill. The amount of recyclables requiring processing would increase.	not be an unreasonable hindrance on private business seeking to take advantage of opportunities to take part in waste minimisation and waste management activities. This includes how waste, recovery, diversion, recyclables and disposal is defined within the document. In considering a licensing approach, the Councils should seek to liaise with the other initiatives (e.g. BoP/Waikato regional project, Auckland Council). Consistency across regions would help reduce unnecessary administrative burden for private operators, and unintended consequences such as less well-regulated areas becoming a target for undesirable practices, such as clean filling, and poorly managed waste facilities.

9.3 Measuring and Monitoring

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
M1	**Status Quo**	Maintaining data status quo would not have a positive effect on any the key issues	*Social/Cultural:* uneven understanding of the waste flows in the district in particular in respect of recovered material and material to other than Class 1 disposal facilities *Environmental*: Limited ability to monitor and report on environmental outcomes *Economic:* Limited understanding of waste flows restricts ability to identify waste recovery opportunities and creates risk around waste facility and service planning which increases costs. *Health*. Lack of data on potentially harmful wastes and their management	A lack reliable information to monitor and plan for waste management in the region	Councils currently gather data on waste streams they manage or facilities or services they own as well as information supplied by the private sector through licensing or similar
M2	**Implement National Waste Data Framework**	2 Data quality and management of data	*Social/Cultural:* improved knowledge of waste flows	The Waste Data Framework would enhance the ability	Councils would implement the Waste Data Framework

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
			and better information available to the public on waste and recovery performance *Environmental*: Improved ability to monitor and manage waste collection and disposal information and make appropriate planning and management decisions *Economic:* improved understanding of waste flows resulting in better targeted waste and recovery services and facilities. *Health*. Potential for improved data on hazardous and harmful wastes	to share and collate information improving overall knowledge of waste flows. It currently only covers material to disposal however.	by putting standard protocols in place for the gathering and collation of data. This would enable sharing and consolidation of data at a regional level
M3	**Audit waste stream at transfer stations and kerbside every 4-6 years and before and after significant service changes and monitoring of waste flows through contract for**	2 Data quality and management of data	*Social/Cultural*: Identifying material streams for recovery could lead to job creation *Environmental*: Ability to identify materials and waste streams for potential	Would not impact on the status quo prediction of demand directly, but would assist in identifying recovery opportunities which could impact facility	Councils would maintain existing service arrangements Minor changes would be required to align with the National Waste Data

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
	kerbside refuse collections and licensing conditions.		recovery and reduction *Economic*: Ability to identify materials and waste streams for potential recovery and reduction, giving rise to new business opportunities and reduction of disposal costs *Health*. Potential for improved data on hazardous and harmful wastes	provision	Framework.
M4	**Increase monitoring to gather more information in strategic areas, such as commercial waste composition; waste management in rural areas; cleanfill, construction and demolition waste. Audit cleanfill waste streams wherever possible to understand composition of waste.**	2 Data quality and management of data 3 Cleanfill numbers and tonnages	*Social/cultural:* could raise awareness of waste management in areas where currently very little is known; enable greater monitoring of providers to ensure no adverse health effects occur. Identifying material streams for recovery could lead to job creation. *Environmental*: increased ability to identify additional/altered services to increase diversion of waste from landfill.	Analysis of available data has shown that there are gaps in knowledge and understanding of waste streams. Availability of more data, and tailoring of services accordingly, could increase demand for recycling services and reduce waste to landfill.	Councils should initiate and oversee research, studies and audits; and feed results into future iterations of waste assessments and WMMP. Councils may need to develop bylaw and licensing systems to gather more data.

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
			Economic: there may be additional costs for new programmes put in place. Ability to identify materials and waste streams for potential recovery and reduction, giving rise to new business opportunities and reduction of disposal costs. *Health*. Potential for improved data on hazardous and harmful wastes		

9.4 Communication and Education

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
CE1	**Continue existing education programmes including application of the Regional Waste Education Strategy**	1 Increasing quantity of waste to landfill 5 Suboptimal overall recycling performance 6 Recycling performance static/declining	*Social/Cultural*: community will be aware of options, engaged in the waste management process, and take a level of ownership of waste issues. *Environmental:* education programmes aim to establish and support positive behaviours that reduce environmental impact. *Economic:* currently funded. *Health*. Public informed of health risks of waste materials and appropriate disposal pathways	Awareness of waste issues and behaviour would not change significantly from current situation.	Councils would continue to fund and coordinate a wide range of education programmes.
CE2	**Extend existing communication programme to focus on additional target audiences e.g. farmers, new mothers, retired people, businesses, less engaged sectors of the community.**	1 Increasing quantity of waste to landfill 5 Suboptimal overall recycling performance 6 Recycling performance static/declining	*Social/cultural:* community will be more aware of options and more engaged in the waste management process, taking a higher level of ownership of the issue. *Environmental:* education programmes would seek to	Expanding the target audience may improve results in increased recycling and decreased unwanted behaviour such as landfilling and other land disposal.	Councils would fund and/or coordinate education programmes.

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
			establish, support and extend positive behaviours that reduce environmental impact. *Economic:* could potentially be funded through waste levy funding. *Health*. Information regarding health risks of waste materials and appropriate disposal pathways would reach a wider audience. More vulnerable sectors of the public informed of health risks related to waste management. Messages better targeted to audiences needs		
CE3	**Extend existing communication programmes to support any new rates-funded services provided by the Councils (e.g. food waste collections)**	1 Increasing quantity of waste to landfill 5 Suboptimal overall recycling performance 6 Recycling performance static/declining	*Social/cultural:* community will be more aware of options and more engaged in the waste management process, taking a higher level of ownership of the issue. Information regarding health risks of waste materials and appropriate disposal	Depending on the new rates-funded services that are provided, this could potentially contribute to a significant reduction in demand for landfill, and an increase in demand for recycling services and processing. Education alone will not support	Councils would fund and coordinate education programmes.

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
			pathways would reach a wider audience *Environmental:* education programmes would seek to establish, support and extend positive behaviours that reduce environmental impact *Economic:* could initially be funded through waste levy funding when new services are introduced; subsequent communications would be rates-funded *Health*. Information regarding health risks of relevant waste materials and appropriate management targeted to audiences needs	behaviour change. Pathways need to be provided for residents and businesses to take action on education messages.	
CE4	**Regional co-ordination and delivery of waste education programmes**	1 Increasing quantity of waste to landfill 2 Data quality and management of data 5 Suboptimal overall recycling performance 6 Recycling performance static/declining	*Social/cultural:* More consistent messaging and better leverage on education spend assisting community to be more aware of options and more engaged in the waste management process;	Analysis of data suggests there is significant potential to reduce, reuse and recycle more waste. Communities should reduce their reliance on residual waste collections and demand for recycling	Regional coordination and delivery would be undertaken on behalf of Councils (through a jointly funded position or structure). Local needs could be met by working more closely with specific councils and the

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
			Environmental: Enhanced ability to establish positive behaviours that reduce environmental impact. *Economic:* consider funding through waste levy funds. *Health*. Information regarding health risks of relevant waste materials and appropriate management able to be targeted to audiences needs	services will increase.	community.

9.5 Collection Services

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
CS1	**Status Quo. Different types of collection services and mechanisms for provision are continued throughout the region**	Maintaining collections status quo would not have a positive effect on any the key issues.	*Social/Cultural:* Council and the collection contractor have a responsibility to mitigate the risks associated with kerbside bag collections. Private operators do not necessarily always provide the appropriate levels of	Would not impact on the status quo prediction of demand.	Each Council's role is varied depending on their service provision configuration.

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
			service, for example, at peak times. *Environmental:* no new impacts. *Economic:* no new impacts. *Health*. Vulnerable sectors of the community may chose not to access waste services due to cost. In some areas there is limited capacity to reduce costs through recycling		
CS2	**Enhanced Status Quo.** **Councils seek to standardise collection systems and methodologies and procure shared services where there are clear strategic advantages**	1 Increasing quantity of waste to landfill 2 Data quality and management of data 4 Declining Council kerbside refuse market share 5 Suboptimal overall recycling performance 6 Recycling performance static/declining 10 Potential for greater joint working in Council service delivery	*Social/Cultural:* The impacts will vary depending on the configurations of services that are implemented. In general, council and the collection contractor have a responsibility to mitigate the risks associated with kerbside bag collections. Private operators do not necessarily always provide the appropriate levels of service, for example, at peak times. *Environmental:* The impacts will vary depending	The impacts will vary depending on the configurations of services that are implemented. It could be expected that standardising of services would lead to overall improved levels of diversion due to wider participation in recycling and the ability to present more consistent messages to the community	Currently each Council's role is varied depending on their service provision configuration. Varying roles would be expected to continue but each councils role could change – for example if one council takes a lead role in contract management for a shared service. Councils will need to consider shared service arrangements as part of their S17A reviews and this should inform future

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
			on the configurations of services that are implemented. It could be expected that standardising of services would lead to overall improved levels of service provision including recycling *Economic:* The impacts will vary depending on the configurations of services that are implemented. Shared services should lead to more economically efficient outcomes and reduce total costs to the community. *Health*. The impacts will vary depending on the configurations of services that are implemented. Vulnerable sectors of the community may chose not to access waste services due to cost. Where there is limited capacity to reduce costs through recycling this could be mitigated through improved service provision		procurement programmes

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
CS3	**Public sector exits collection service provision and licenses private sector operators to provide services to nominated service levels**	1 Increasing quantity of waste to landfill 2 Data quality and management of data 3 Cleanfill numbers and tonnages 4 Declining Council kerbside refuse market share 5 Suboptimal overall recycling performance 6 Recycling performance static/declining	*Social/Cultural:* Private operators do not necessarily always provide the appropriate levels of service, for example, at peak times, or in more remote/less economic areas. *Environmental:* Potential for increased waste to disposal/less recycling if the licensing regime does not contain appropriate measures. *Economic:* Rates would reduce for households but private user pays charges would increase for households. *Health*. Vulnerable sectors of the community may chose not to access waste services due to cost.	Could impact on the status quo prediction of demand slightly if private provision leads to increased disposal (e.g. through larger waste containers.) or reduced recycling (e.g. through reduced levels of service)	Councils would (individually or collectively) have responsibility for licensing operators, and monitoring and enforcing license provisions. Provisions could include supply of data, restrictions on container size, requirement to provide recyclables collections etc. A number of councils are currently faced with declining market share (particularly for waste collection services). This option acknowledges this reality and sees councils withdrawing from competition with private services
CS4	**The Councils in the region provide kerbside food waste collection services funded through rates.**	1 Increasing quantity of waste to landfill 2 Data quality and management of data 5 Suboptimal overall	*Social/Cultural:* residents would be provided with an increased range of services. Collection services would not be provided to rural	This is likely have a significant impact on the amount of waste diverted; reducing the future demand for landfill, and increasing	Councils would provide food waste kerbside collection services through a contract or other type of service agreement.

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
		recycling performance 6 Recycling performance static/declining 8 Poor diversion rate on organics 10 Potential for greater joint working in Council service delivery	dwellings (these may or may not have access to private providers). *Environmental:* Food waste to landfill would be reduced which would lessen the environmental impact from landfills. *Economic:* residents would pay for the collections through rates, By providing an organic waste collection service, rubbish collection costs can be reduced (through container size and/or frequency of collection). *Health*. Households would be able to manage organic wastes safely through a regular collection	the future demand for organic waste processing. A facility/facilities would be required to process the collected organic waste. In the Wellington Region landfill pricing is an important variable/driver to consider in the business case for any new service or the regionalisation of existing services	Councils would manage and monitor service provision and collect full data on the collection service. Additional resource may be required to manage this new service. Councils would need to recover costs for this service through rates; either general rate or a targeted rate charged to those residents that are eligible for the service.
CS5	**The Councils seek to provide a standardised recycling service across the region. This would not necessarily entail procuring a single service provider but adoption of**	1 Increasing quantity of waste to landfill 2 Data quality and management of data 5 Suboptimal overall recycling performance 6 Recycling performance	*Social/Cultural:* residents would be provided with an more standardised range of services *Environmental:* Recycling rates could be expected to improve due to wider	The impacts will vary depending on the configurations of services that are implemented. It could be expected that standardising of services would lead to overall	Currently each Council's role is varied depending on their service provision configuration. Varying roles would be expected to continue but each council's role could change – for

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
	an agreed methodology which was used as the basis for procurement of the service by Councils either on their own or in shared service arrangements	static/declining 10 Potential for greater joint working in Council service delivery	participation in recycling and the ability to present more consistent messages to the community. *Economic:* residents would pay for the collections through rates, By providing improved recycling services, rubbish collection costs can be reduced (through container size and/or frequency of collection). *Health*. More households would be able to manage recyclables through a consistent collection	improved levels of diversion due to wider participation in recycling and the ability to present more consistent messages to the community	example if one council takes a lead role in contract management for a shared service. Councils that do not currently provide a rates funded recycling service would need to enter into a contract management role (or have this done on their behalf by a shared service partner council) Councils will need to consider recycling service provision including shared service arrangements as part of their S17A reviews and this should inform future procurement programmes
CS6	**The Councils in the region provide full kerbside collection services funded through rates. This service would enable recycling, organic waste and rubbish to be collected. By providing a comprehensive recycling and organic**	1 Increasing quantity of waste to landfill 2 Data quality and management of data 4 Declining Council kerbside refuse market share 5 Suboptimal overall	*Social/Cultural:* residents would be provided with a much wider range of services. Communication would be based on a consistent system, resulting in a community that is more aware of options and engaged in the waste	This would likely have a significant impact on the amount of waste diverted; reducing the future demand for landfill significantly and reducing reliance on recycling drop-off points; and increasing the future demand for recycling and	Councils would provide three kerbside collection services, through a contract or other type of service agreement. Councils would manage and monitor service provision and collect full data on the collection service.

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
	waste collection service, rubbish collections can be reduced (through container size and/or frequency of collection).	recycling performance 6 Recycling performance static/declining 8 Poor diversion rate on organics 10 Potential for greater joint working in Council service delivery	management process. Collection services would not be provided to rural dwellings (these may or may not have access to private providers). *Environmental:* the new services would provide for positive behaviours that reduce environmental impact. Vehicle movements around the region would be reduced. *Economic:* residents would pay for all collections through rates; however most residents would no longer need to pay a private collector for services. A small number of households might experience an increase in rates but not receive the service; unless the service is funded through a targeted rate. There would be an impact on the private sector as their customer base would be significantly	organic waste services and processing. Improvements to recycling processing facility/ies may be required, and a facility/facilities would be required to process the collected organic waste.	Additional resource may be required to manage this new service, which could be managed through a CCO, joint business unit or in-house. Councils would need to recover costs for this service through rates; either general rate or a targeted rate charged to those residents that are eligible for the service.

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
			reduced (there is the potential for some operators to go out of business); however there would conversely be the opportunity to provide services on behalf of the Councils. *Health*. Vulnerable sectors of the community would have access waste and recovery services. Households would be able to manage organic wastes safely through a regular collection		
CS7	**Wairarapa and Kāpiti councils provide farm waste and recycling collection services targeted at improving management of farm wastes. The exact nature of the services would need to be determined but could encompass on property on demand collections using skips/hiab bins or similar to accommodate large**	1 Increasing quantity of waste to landfill 2 Data quality and management of data 3 Cleanfill numbers and tonnages 5 Suboptimal overall recycling performance 6 Recycling performance static/declining 10 Potential for greater joint working in Council	*Social/Cultural:* All sectors of the community would be catered for. *Environmental:* Rural waste is an issue that is receiving increasing attention, with particular concern around management of hazardous wastes. Provision of appropriate services could substantially improve local soil and groundwater	Most rural waste does not enter the formal waste management system, and so uptake of a service would increase demand for recycling and disposal capacity.	Council would provide a facilitation role for the service and would look to link with and leverage from work being done nationally and regionally on farm waste services. There is potential for this initiative to be supported by RMA rules and objectives in the Regional Plan

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
	quantities and reduce the frequency of collection (thus constraining costs).	service delivery	quality. *Economic:* It is proposed that the service would be user pays or part user pays. Farms are commercial enterprises and from that perspective should have the same expectations on them for managing their wastes. It would mean additional costs for farms some of whom would not be willing to pay, and whom would view traditional on farm means of disposal (burn or bury) as preferable. *Health*. Hazardous wastes would be better managed and reduce risks of entry of these substances into the environment through land air and water contamination.		

9.6 Infrastructure

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
IN1	**Status Quo:** **Council owned Class 1 landfills and transfer stations.** **Council and private Class 2-4 disposal facilities** **Council organic waste processing** **Private recyclable processing** **Private organic waste processing**	Maintaining infrastructure status quo would not have a positive effect on any the key issues.	*Social/Cultural:* No change. Variable access to facilities for communities. Variable reuse opportunities. *Environmental:* No change. Biosolids, and C&D waste still going to disposal *Economic:* Economic impacts will vary across the region. Landfills can be valuable assets for the community and reduce the rates burden from waste management. *Health*. Health impacts are managed through ensuring consent conditions are adhered to.	Would not impact significantly on the status quo prediction of demand for	Councils owning landfills and facilities would continue to manage/oversee these
IN2	**Organic waste processing facility developed to manage biosolids and food waste streams.**	1 Increasing quantity of waste to landfill 7 Sewage sludge/biosolids management 8 Poor diversion rate on organics 10 Potential for greater joint working in Council	*Social/Cultural:* Potential for some cultural issues relating to the use of biosolids-derived compost on land. *Environmental:* improved management of landfills through removal of biosolids and food waste.	Would result in reduced demand for landfill and would increase demand for recovery processing facilities.	Councils would oversee the development of a processing facility, but the technical specifications and management could be contracted out. Councils could fund the new facility(s) in a variety of ways: capital funding

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
		service delivery	Improved landfill life. Potential for beneficial use of organic wastes to improve soil fertility *Economic:* Capital and operations implications from development of a facility *Health*. Health impacts are managed through ensuring consent conditions are adhered to and national guidelines on the application of biosolids to land are followed.		(potentially partly through waste levy funds) could be provided; or it could be developed through a BOOT contract or similar
IN3	**A Resource Recovery Network is developed. The RRN could include:** **A Resource recovery park hosting a range of facilities including organic waste processing, C&D waste processing and extensive reuse operations** **A network of 'Community Recycling Centres' (building on and adding to existing Transfer Stations**	1 Increasing quantity of waste to landfill 2 Data quality and management of data 5 Suboptimal overall recycling performance 6 Recycling performance static/declining 7 Sewage sludge/biosolids management 8 Poor diversion rate on organics	*Social/Cultural:* enhanced services enabling separation of materials and access to low-cost used goods. *Environmental:* improvement to waste recovery depending on exactly which expanded/additional services are introduced. *Economic:* Councils will need to invest funding in improving existing facilities	Would have an impact on demand for landfill and would increase demand for recycling/recovery services and processing facilities.	Councils' key role would be in overseeing and planning the development and implementation of the network. Councils could fund any new facility(s) in a variety of ways: capital funding (potentially partly through waste levy funds) could be provided; or it could be developed through a BOOT contract or similar. The application of funding

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
	and community facilities) **Standardised branding and material acceptance**	10 Potential for greater joint working in Council service delivery	and extending the network. *Health*. Enhanced services enabling separation of materials such as hazardous waste would facilitate appropriate disposal and reduce health impacts.		should ideally recognise the wider value of initiatives, including potential social and economic benefits. Councils would provide capital funding (potentially partly through waste levy funds) to significantly upgrade and improve the current RRP and drop-off facilities. This could be done through a direct service arrangement, or by sub-leasing space to the private or community sectors.

9.7 Leadership and Management

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
LM1	**Each Council responsible for own jurisdiction. Appoint regional Coordinator**	A regional coordinator will assist in progressing closer working in a number of areas including solid waste bylaws, education, and data	*Social/Cultural/Environmental/Economic/Health* no new impacts	No significant impact on status quo forecast of future demand	Councils continue to develop strategic documents, such as the WMMP, through the joint committee.
LM2	**Collaborate with private sector and community groups to investigate opportunities to enhance economic development through waste minimisation.**	1 Increasing quantity of waste to landfill 5 Suboptimal overall recycling performance	*Social/Cultural:* potential for downstream job creation. *Environmental:* potential enhancement through waste minimisation. *Economic:* could result in benefits for the local economy. *Health*. Health impacts dependent on the nature of the collaboration.	Councils use contractors to provide a range of cost effective waste management services. There are other waste minimisation activities such as reuse shops that are marginally cost effective in strictly commercial sense, but provide a great opportunity for a social enterprise/charitable community group. Having all three sectors working together can provide mutual benefits for all.	Councils to lead and facilitate. Councils recognise the importance of diversity in the mix of scales of economy and localised solutions. Councils will support a mix of economic models to target best fit solutions depending on the situation.
LM3	**Councils enter into shared service or joint procurement arrangements where there is mutual benefit**	1 Increasing quantity of waste to landfill 2 Data quality and management of data 4 Declining Council	*Social/Cultural*: some improved consistency in approach. *Environmental:* impacts depend on the	No significant impact on status quo forecast of future demand. The Wairarapa councils currently have a shared	Councils make a joint formal approach to neighbouring authorities to form collaborative partnerships on various

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
		kerbside refuse market share 5 Suboptimal overall recycling performance 6 Recycling performance static/declining 9 Range of different funding and management models 10 Potential for greater joint working in Council service delivery	implementation of collaborative strategies and projects. *Economic:* shared services could reduce costs and enable access to better quality services. *Health*. Enhanced services enabling separation of materials such as hazardous waste would facilitate appropriate disposal and reduce health impacts.	service contract, there may be opportunity for other areas (e.g. Hutt Valley) or if a new service is introduced (e.g. food waste collection)	strategic or operational projects, particularly those already highlighted as collaborative opportunities in the Waste Assessment. Where services are to be shared there will a need to align service provision and contract dates
LM4	**Establish a jointly held CCO or similar to manage assets and contracts**	2 Data quality and management of data 9 Range of different funding and management models 10 Potential for greater joint working in Council service delivery	*Social/Cultural*: Significantly improved consistency in approach. *Environmental:* Impacts depend on the implementation of projects. *Economic:* shared services could reduce costs and enable access to better quality services. Assets able to be leveraged to develop new needed infrastructure	The jointly held organisation would be able to leverage existing assets to develop new needed infrastructure and provide a consistent coordinated approach across the region. This could dramatically improve the ability to plan and manage waste across the region and respond to future demand requirements If landfills were jointly held then pricing at landfills	Councils would provide governance of the entity and ensure it was meeting its agreed objectives and performance measures Councils would also assign assets and contracts to the new entity for management on their behalf. Shareholding in the entity could be in some proportion to the value of assets, income, and

Ref	Option	Issues Addressed	Strategic Assessment	Impact on Current/Future Demand	Councils' Role
			Health. *:* Impacts depend on the implementation of projects.	could be configured to incentivise recovery and optimise asset life	contracts provided by each Council. There is also the possibility for public private partnerships in relation to the development of assets and/or service provision
LC5	**Lobby for enhanced product stewardship programmes**	1 Increasing quantity of waste to landfill 2 Data quality and management of data 5 Suboptimal overall recycling performance 6 Recycling performance static/declining	*Social/Cultural:* product take back will require behaviour change; potentially better management of hazardous materials. *Environmental:* improved resource efficiency. *Economic:* potential for producer pays schemes.	Product stewardship is specifically enabled in the WMA. Fully enacting this principle will help ensure true costs of products are reflected.	Promote current schemes and lobby Government for priority products such as tyres and e-waste.

9.8 Summary Table of Potential Scenarios

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

Scenario Name	Collections	Infrastructure	Regulation	Monitoring & Measuring	Education	Leadership & Management
Status Quo	Council user pays refuse Private refuse Private recycling Council Recycling	TA owned landfills TA & Private RTS Private MRF TA & Private composting	Regional bylaw with: operator and facility licensing, Data provision, recycling service standards, container restrictions etc.	Each Council gathers own data in line with National Waste Data Framework (no regional collation)	Regional Education Strategy, Specific regional programmes	Each Council responsible for own jurisdiction. Appoint regional Coordinator
Scenario 1: Expanded Status Quo	Private refuse Private recycling Council user pays refuse Council recycling **Council food waste** **Shared services where advantageous**	TA owned landfills TA & Private RTS Private MRF TA & Private composting **Joint Council food / biosolids facility**	Regional bylaw with: operator and facility licensing, Data provision, recycling service standards, container restrictions etc.	**Regional collation and analysis of data**	Regional Education Strategy **Coordinated regional programmes** **Standardised branding and signage**	Each Council responsible for own jurisdiction. Appoint regional Coordinator
Scenario 2: Full Resource Recovery	Council rates funded refuse Council recycling Council food waste **Facilitate farm waste collection services**	**CCO owned landfills** CCO & Private RTS Private MRF TA & Private Composting CCO food / biosolids facility **Resource Recovery Network and Park with C&D processing, Reuse, etc** **Community Recycling Centres/Drop off**	Regional bylaw with: operator and facility licensing, Data provision, recycling service standards, container restrictions etc.	Regional collation and analysis of data	Regional Education Strategy **Regional communication programme** Standardised branding and signage	Jointly held CCO or similar to manage assets and contracts

10.0 Statement of Councils' 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).[31]
- The WMA also requires TAs to have regard to the New Zealand Waste Strategy 2010. The Strategy has two high levels goals: 'Reducing the harmful effects of waste' and 'Improving the efficiency of resource use'. These goals must be taken into consideration in the development of the Councils' waste strategy.
- Under the Local Government Act 2002 (LGA) the Councils must consult the public about their plans for managing waste.
- Under the Resource Management Act 1991 (RMA), TA responsibility includes controlling the effects of land-use activities that have the potential to create adverse effects on the natural and physical resources of their district. Facilities involved in the disposal, treatment or use of waste or recoverable materials may carry this potential. Permitted, controlled, discretionary, non-complying and prohibited activities and their controls are specified within district planning documents, thereby defining further land-use-related resource consent requirements for waste-related facilities.
- Under the Litter Act 1979 TAs have powers to make bylaws, issue infringement notices, and require the clean-up of litter from land.
- The Health Act 1956. Health Act provisions for the removal of refuse by local authorities have been repealed by local government legislation. The Public Health Bill is currently progressing through Parliament. It is a major legislative reform reviewing and updating the Health Act 1956, but it contains similar provisions for sanitary services to those currently contained in the Health Act 1956.
- The Hazardous Substances and New Organisms Act 1996 (the HSNO Act). The HSNO Act provides minimum national standards that may apply to the disposal of a hazardous substance. However, under the RMA a regional council or TA may set more stringent controls relating to the use of land for storing, using, disposing of or transporting hazardous substances.
- Under current legislation and the new Health and Safety at Work Act the Council has a duty to ensure that its contractors are operating in a safe manner.

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

The Wellington region Councils, in determining their role, need 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.

11.0 Statement of Proposals

Based on the options identified in this Waste Assessment and the Councils' 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 Draft Waste Management and Minimisation Plan.

It is expected that the implementation of these proposals will meet forecast demand for services as well as support the Councils' goals and objectives for waste management and minimisation. These goals and objectives will be confirmed as part of the development and adoption of the 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 Councils to ensure the provision of waste services adequately protects public health.

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

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

Privately-provided services will be regulated through local bylaws.

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

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

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 Councils' role in meeting the forecast demand for services.

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

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

A.1.0 Medical Officer of Health Statement

Regional Public Health
Better Health For The Greater Wellington Region

13 October 2016

Duncan Wilson
Eunomia Research & Consulting (NZ)
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Auckland 1245
New Zealand

Tēnā koe Duncan

Re: Wellington Region Waste Assessment April 2016
Medical Officer of Health Comments under Section 51 - Waste Minimisation Act 2008

This letter is a summary of my review of the Draft Wellington Region Waste Assessment dated 22 April 2016. Specific comments were also provided within the draft document that I reviewed.

Overall I think this is a comprehensive waste assessment which highlights some gaps in information to inform planning for waste minimisation and provides guidance for council activities to be included in a Waste Minimisation and Management Plan (WMMP).

In terms of public health, the biggest risk is the lack of information regarding quantities and fate of hazardous wastes and I support recommendations around improving this information, e.g. via a strengthened bylaw.

Public health can be protected long term by minimising the impact of waste on our environment and therefore actions that minimise waste production should be supported. For this reason, I support actions that reduce waste to landfill and use of best practice for recycling and re-use of materials.

To support behaviour change will require more than education and communication strategies, and will involve ensuring the best choice around waste management is the easiest choice. This includes reviewing accessibility and price for doing the right thing, so certain populations are not disadvantaged (e.g. rural or low socioeconomic groups, or elderly residents).

Utilisation of an approach to involve a wide representation of consumers can help councils understand any barriers to doing the "right thing" and what the community believe would work best. This is a more proactive response than asking for public input on a draft WMMP and could involve focus groups or actively seeking input from community groups that might not normally engage in formal submission processes, to inform a draft WMMP. Such an approach is one way to ensure any decisions made around changes to waste management services do not have unintended consequences for some groups.

Other focuses I support include regional actions where this enhances efficiencies and a focus on reducing the amount of organic waste going to landfill.

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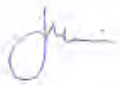
Regional Public Health looks forward to being involved in the update of the Wellington Region WMMP, as informed by this Waste Assessment. The WMMP review will be strengthened by aligning with the current Ministry for the Environment guidance that includes more emphasis on funding of plans, inclusion of targets and how actions are monitored and reported.

Ngā mihi



Dr Jill McKenzie
Medical Officer of Health
Regional Public Health

A.2.0 Glossary of Terms

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.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-improvingefficiency.

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.[32] 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

[32] 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[33]. No Priority Products have been declared as of May 2015.[34]

The following voluntary product stewardship schemes have been accredited by the Minister for the Environment:[35]

- 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:

[33] Waste Management Act 2008 2(8)

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

[35] http://www.mfe.govt.nz/waste/product-stewardship/accredited-voluntary-schemes

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

Application assessment criteria have also been published by the Ministry.

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

- The global price of carbon crashed during the GFC in 2007-8 and has never recovered. Prior to the crash it was trading at around $20 per tonne. The price has been as low as $2, but since in June 2015 the Government moved to no longer accept international units in NZETS the NZU price has increased markedly (currently sitting at around $18 per tonne)[36].
- The transitional provisions of the Climate Change Response Act, which were extended indefinitely in 2013 (but have now been reviewed), mean that landfills have only had to surrender half the number of units they would be required to otherwise[37]
- Landfills are allowed to apply for 'a methane capture and destruction Unique Emissions Factor (UEF). This means that if landfills have a gas collection system in place and flare or otherwise use the gas (and turn it from Methane into CO_2) they can reduce their liabilities in proportion to how much gas they capture. Up to 90% capture and destruction is allowed to be claimed under the regulations, with large facilities applying for UEF's at the upper end of the range.

Taken together (a low price of carbon, two for one surrender only required, and methane destruction of 80-90%) these mean that the actual cost of compliance with the NZETS has been negligible. Disposal facilities have typically imposed charges (in the order of $5 per tonne) to their customers, but these charges currently reflect mainly the costs of scheme administration, compliance, and hedging against risk rather than the actual cost of carbon.

[36] https://carbonmatch.co.nz/ accessed 19 July 2016

[37] The two for one transitional provisions are now to be phased out by the Government from 1 January 2017

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

Despite these constraints on the impact of the ETS, there may be potential for the picture to change in the future (to a degree). The United Nations Climate Change Conference, (COP21) to be held in Paris France in November – December of 2015, established universal (but non-binding) emissions reduction targets for all the nations of the world. The outcomes could result in growing demand for carbon offsets and hence drive up the price of carbon. The other factor which is likely to come into play is the removal of the transitional provisions from 1 January 2017– meaning that landfills will need to surrender twice the number of NZUs they do currently. Even in a 'worst case' scenario however where the transitional provisions are removed and the price of carbon rises dramatically to say $50 per tonne, the liability for a landfill that is capturing 80% of methane generated would only be $13.10.[38] Therefore while the ETS could have an impact on disposal costs in the medium term this level of impact will likely not be sufficient to drive significant change in the waste sector.

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

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.

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

- 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.[39]

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.

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

The HSNO Act provides minimum national standards that may apply to the disposal of a hazardous substance. However, under the RMA a regional council or TA may set more stringent controls relating to the use of land for storing, using, disposing of or transporting hazardous substances.[40]

A.3.12 Health and Safety at Work Act 2015 [41]

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

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

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

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

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

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

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.

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

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.

A.4.0 Data Detail

A.4.1 Waste to Class 1 Landfills - by Facility

Carterton Dalefield Road transfer station - Tonnes/annum	2010/11	2011/12	2012/13	2013/14	2014/15
General	1,396	1,309	1,071	939	872
Special	0	0	0	0	0
Sludge	0	0	0	0	0
Levied waste	**1,396**	**1,309**	**1,071**	**939**	**872**
Cleanfill	0	0	0	0	0
TOTAL	**1,396**	**1,309**	**1,071**	**939**	**872**

Kāpiti Coast Otaihanga and Ōtaki Resource Recovery Facilities and Otaihanga closed landfill- Tonnes/annum	2010/11	2011/12	2012/13	2013/14	2014/15
General	20,737	21,315	23,320	27,833	27,825
Special (1)	41	1,308	570	157	24
Sludge (1)	1,293	1,293	2,635	1,557	2,166
Levied waste	**22,071**	**23,916**	**26,525**	**29,547**	**30,015**
Cleanfill (unlevied)	6,927	6,483	2,251	4,224	274
TOTAL	**28,998**	**30,399**	**28,776**	**33,770**	**30,289**

(1) Special waste and sludges disposed of at the closed Otaihanga landfill are levy exempt, but are included in "Levied waste" totals throughout this document.

Martinborough transfer station - Tonnes/annum	2010/11	2011/12	2012/13	2013/14	2014/15
General	1,999	1,539	1,011	932	1,145
Special	0	0	0	0	0
Sludge	0	0	0	0	0
Levied waste	**1,999**	**1,539**	**1,011**	**932**	**1,145**
Cleanfill (unlevied)	0	0	0	0	0
TOTAL	**1,999**	**1,539**	**1,011**	**932**	**1,145**

Masterton transfer station - Tonnes/annum	2010/11	2011/12	2012/13	2013/14	2014/15
General	11,136	11,127	12,194	12,679	13,182
Special	0	0	0	0	0
Sludge	0	0	0	0	0
Levied waste	**11,136**	**11,127**	**12,194**	**12,679**	**13,182**
Cleanfill (unlevied)	16,740	30,188	26,564	11,454	964
TOTAL	**27,876**	**41,315**	**38,758**	**24,134**	**14,146**

Silverstream landfill - Tonnes/annum	2010/11	2011/12	2012/13	2013/14	2014/15
General	79,723	75,331	80,293	105,946	105,680
Special	10,896	8,527	6,932	7,202	13,302
Sludge	4,886	4,827	4,711	4,208	6,903
Levied waste	**95,506**	**88,685**	**91,936**	**117,356**	**125,885**
Cleanfill	0	0	0	0	0
TOTAL	**95,506**	**88,685**	**91,936**	**117,356**	**125,885**

Southern landfill - Tonnes/annum	2010/11	2011/12	2012/13	2013/14	2014/15
General	58,054	64,251	62,904	64,972	63,566
Special	5,626	5,726	4,589	2,333	3,020
Sludge	16,955	16,951	15,289	14,459	14,906
Levied waste	**80,635**	**86,928**	**82,781**	**81,764**	**81,492**
Cleanfill (unlevied)	39,855	30,657	15,175	3,959	2,532
TOTAL	**120,490**	**117,585**	**97,956**	**85,723**	**84,024**

Spicer landfill - Tonnes/annum	2010/11	2011/12	2012/13	2013/14	2014/15
General	51,249	49,021	47,913	42,973	40,266
Special	240	301	1,188	1,281	1,371
Sludge	7,863	6,965	7,853	6,968	7,848
Levied waste	**59,353**	**56,287**	**56,954**	**51,222**	**49,485**
Cleanfill (unlevied)	32,897	29,462	13,913	14,757	21,172
TOTAL	**92,250**	**85,749**	**70,867**	**65,979**	**70,658**

Wainuiomata landfill - Tonnes/annum	2010/11	2011/12	2012/13	2013/14	2014/15
General	25,706	25,630	14,143	0	0
Special	0	0	0	0	0
Sludge	0	0	0	0	0
Levied waste	**25,706**	**25,630**	**14,143**	**0**	**0**
Cleanfill	0	0	0	0	0
TOTAL	**25,706**	**25,630**	**14,143**	**0**	**0**

A.4.2 Composition of Waste to Class 1 Landfills

Composition of levied waste to Class 1 landfills from Wellington region 2014/15		General waste - excludes special waste and cleanfill		General waste and special waste - excludes cleanfill	
		% of total	Tonnes 2014/15	% of total	Tonnes 2014/15
Paper	Recyclable	10.8%	27,316	9.0%	27,316
	Non-recyclable	1.6%	4,084	1.4%	4,084
	Subtotal	**12.4%**	**31,400**	**10.4%**	**31,400**
Plastics	Recyclable	1.2%	2,925	1.0%	2,925
	Non-recyclable	12.5%	31,525	10.4%	31,525
	Subtotal	**13.6%**	**34,449**	**11.4%**	**34,449**
Putrescibles	Kitchen/food	15.8%	39,934	13.2%	39,934
	Comp. G'waste	11.1%	27,921	9.2%	27,921
	Non-comp G'waste	1.3%	3,273	1.1%	3,273
	Multi/other	3.7%	9,461	3.1%	9,461
	Subtotal	**31.9%**	**80,589**	**26.7%**	**80,589**
Ferrous metal	Primarily ferrous	1.1%	2,893	1.0%	2,893
	Multi/other	1.3%	3,290	1.1%	3,290
	Subtotal	**2.5%**	**6,202**	**2.1%**	**6,202**
Non-ferrous metal	**Subtotal**	**0.6%**	**1,626**	**0.5%**	**1,626**
Glass	Recyclable	3.4%	8,647	2.9%	8,647
	Glass multi/other	0.8%	1,969	0.7%	1,969
	Subtotal	**4.2%**	**10,616**	**3.5%**	**10,616**
Textiles	Clothing/textile	1.5%	3,768	1.2%	3,768
	Multi/other	4.0%	10,100	3.3%	10,100
	Subtotal	**5.5%**	**13,868**	**4.6%**	**13,868**
Sanitary	**Subtotal**	**5.9%**	**14,818**	**4.9%**	**14,818**
Rubble	Cleanfill	2.3%	5,712	1.9%	5,712
	Plasterboard	1.8%	4,516	1.5%	4,516
	Multi/other	5.0%	12,680	4.2%	12,680
	Subtotal	**9.1%**	**22,908**	**7.6%**	**22,908**
Timber	Untreated/unpainted	2.2%	5,660	1.9%	5,660
	Fabricated	2.7%	6,940	2.3%	6,940
	Multimaterial/other	8.0%	20,195	6.7%	20,195
	Subtotal	**13.0%**	**32,795**	**10.9%**	**32,795**
Rubber	**Subtotal**	**0.5%**	**1,389**	**0.5%**	**1,389**
Pot hazard	**Subtotal**	**0.7%**	**1,878**	**17.0%**	**51,418**
TOTAL		**100.0%**	**252,536**	**100.0%**	**302,076**

A.4.3 Diverted Materials to Kerbside Recycling and Drop-off Facilities - by area

Kerbside recycling - includes council and private collections - tonnes per annum	2010/11	2011/12	2012/13	2013/14	2014/15
Carterton (1)	279	445	494	519	504
Hutt	5,286	5,229	5,266	5,111	5,149
Kāpiti Coast	3,362	3,357	3,417	3,275	3,297
Masterton	1,195	1,316	1,226	1,248	1,273
Porirua	3,091	2,875	2,803	2,751	2,508
South Wairarapa (1)	136	888	927	924	923
Upper Hutt	1,788	1,758	1,146	924	919
Wellington	11,639	12,718	11,681	11,909	11,802
TOTAL	**26,776**	**28,587**	**26,960**	**26,659**	**26,375**

(1) Includes transfer station drop-off tonnages

Recycling drop-off - excludes private drop-off facilities - tonnes per annum	2010/11	2011/12	2012/13	2013/14	2014/15
Carterton (1)	-	-	-	-	-
Hutt	2,384	2,812	2,639	2,697	2,435
Kāpiti Coast	730	299	256	297	472
Masterton	2,052	1,119	2,142	2,790	2,930
Porirua	549	394	343	328	412
South Wairarapa (1)	-	-	-	-	-
Upper Hutt (2)	-	-	-	-	-
Wellington	537	481	480	606	616
TOTAL	**6,253**	**5,105**	**5,859**	**6,719**	**6,865**

(1) Separate data for transfer station drop-off tonnages not available
(2) Included in Hutt figures

A.5.0 Private Service Providers

A.5.1 Carterton District

General Classification	Provider
Diverted Materials Collection	Browns Bins
	Wairarapa Environmental Ltd
Organics Collection	Rob's Miniskips
	Wairarapa Environmental Ltd
Waste Collection	Browns Bins
	Rob's Miniskips
	Wairarapa Environmental Ltd

A.5.2 Hutt City

General Classification	Provider
Diverted Materials Collection	General Metal Recyclers Ltd
	Kiwi Auto Wreckers
	Toyota Commercial Dismantlers
	Waste Tyre Solutions Ltd
	Woods Waste
	EnviroWaste Services Ltd
	Fullcircle/Oji
	Low Cost Bins
	Owyak Bin Hire Ltd
	Sims Pacific Metals
	Waste Management
Organics Collection	Organics Waste Management
	Al's Litta Bins
	Owyak Bin Hire Ltd
	Waste Management
	The Wheelibin Company Ltd

General Classification	Provider
Waste Collection	Bin Hire Wellington Ltd
	Daily Waste
	EnviroWaste Services Ltd
	Econowaste
	Gordies Bins
	Low Cost Bins
	Owyak Bin Hire Ltd
	Waste Management
	Woods Waste
	Al's Litta Bins
	The Wheelibin Company Ltd

A.5.3 Kāpiti Coast District

General Classification	Provider
Diverted Materials Collection	Kiwi Auto Wreckers
	Waste Management NZ Ltd
	Waste Tyre Solutions Ltd
	EnviroWaste Services Ltd
	Woods Waste
	Clean Green
	Low Cost Bins
	Lucy's Bins
Organics Collection	Waste Management NZ Ltd
Waste Collection	Clean Green
	EnviroWaste Services Ltd
	Low Cost Bins
	Waste Management NZ Ltd
	Woods Waste
	Budget Waste
	Lucy's Bins

A.5.4 Masterton District

General Classification	Provider
Diverted Materials Collection	Browns Bins
	Kiwi Auto Wreckers
	Wairarapa Environmental Ltd
Organics Collection	Rob's Miniskips
	Wairarapa Environmental Ltd
Waste Collection	Browns Bins
	Rob's Miniskips
	Wairarapa Environmental Ltd

A.5.5 Porirua City

General Classification	Provider
Diverted Materials Collection	The Information Management Group (NZ) Limited
	Waste Tyre Solutions Ltd
	Wellington Scrap Metals
	Woods Waste
	Waste Management
	EnviroWaste Services Ltd
	Owyak Bin Hire Ltd
Organics Collection	Organics Waste Management
	Owyak Bin Hire Ltd
	Waste Management
Waste Collection	Bin Hire Wellington Ltd
	Daily Waste
	EnviroWaste Services Ltd
	Econowaste
	Owyak Bin Hire Ltd
	Waste Management

General Classification	Provider
	Woods Waste

A.5.6 South Wairarapa District

General Classification	Provider
Diverted Materials Collection	Browns Bins
	Kiwi Auto Wreckers
	Wairarapa Environmental Ltd
Organics Collection	Rob's Miniskips
	Wairarapa Environmental Ltd
Waste Collection	Browns Bins
	Rob's Miniskips
	Wairarapa Environmental Ltd

A.5.7 Upper Hutt City

General Classification	Provider
Diverted Materials Collection	Kiwi Auto Wreckers
	Waste Tyre Solutions Ltd
	Low Cost Bins
	Waste Management
Organics Collection	Waste Management
Waste Collection	Al's Litta Bins
	Econowaste
	EnviroWaste Services Ltd
	Low Cost Bins
	Waste Management

A.5.8 Wellington City

General Classification	Provider
Diverted Materials Collection	The Information Management Group (NZ) Limited
	Waste Tyre Solutions Ltd
	Wellington Scrap Metals
	Woods Waste
	EnviroWaste Services Ltd
	Waste Management
Organics Collection	Kaibosh
	Waste Management
	Kaicycle
	Organics Waste Management
Waste Collection	Bin Hire Wellington Ltd
	Daily Waste
	EnviroWaste Services Ltd
	Waste Management
	Owyak Bin Hire Ltd
	Woods Waste
	Dell

A.6.0 Transfer Station Detail

	Refuse per tonne	Green	Metal	Polystyrene	Wood	Inert	Tyres	TVs	Hazardous / Special	Recyclables	Reuse
Seaview Recycle & Transfer Station (Hutt City)	$148/tonne $30 per car, $5 per rubbish bag	$130 per tonne		$1800 per tonne			$320 per tonne	$25 each	Not Accepted	Free	Not Accepted
Otaihanga Resource Recovery Facility (Kāpiti Coast)	$161.50/tonne $24 per car, $4.70 bag	$3/bag - $15 per m3	Whiteware – stoves/dishwashers $18.50 each Whiteware – fridges/freezers $36 each Car bodies – fully stripped $36 Car bodies – unstripped (no rubbish) $155	$1900 per tonne		Demolition $161.50 per tonne $48.50 minimum charge	$5.50 car tyres $20 Truck tyres	$20 each	Waste Oil $1 per litre Hazardous waste - up to 1 litre $35 per unit Asbestos (double wrapped) $440 per tonne $50 minimum charge	Free	
Waikanae Greenwaste and Recycling Centre (Kāpiti Coast)		$3/bag - $15 per m3		Not Accepted							

	Refuse per tonne	Green	Metal	Polystyrene	Wood	Inert	Tyres	TVs	Hazardous / Special	Recyclables	Reuse
Ōtaki Refuse Transfer Station (Kāpiti Coast)	$148/tonne $23.40 per car, $4.20 per bag	$3/bag - $15 per m3	Fridge/Freezers (de-gassing and recycling fee) $27.40 per item Clean car bodies $23.60 Other car bodies $74	Not Accepted		Not Accepted	Car tyres $5.05 per tyre Truck/tractor tyres $12.30 per tyre Bulk tyres $358 per tonne	$20 each	Waste Oil - (80c per litre). Other Hazardous Not Accepted	Free	Not Accepted
Martinborough Transfer Station (South Wairarapa District)	$185 per tonne $16 per car	Car Boot $5.00 Van/Trailer Up to 250 kg $10.00 Large Trailer / Small Truck Up to 2 tonne $20.00 Large Truck Up to 6 tonne $41.00		Not Accepted	Not Accepted		$3 each. Bulk & Truct tyres $500 per tonne	Not Accepted	Not Accepted	Free	
Greytown Recycling Station (South Wairarapa District)	Not Accepted	Car Boot $5.00 Van/Trailer Up to 250 kg $10.00 Large Trailer / Small Truck Up to 2 tonne $20.00 Large Truck Up to 6 tonne $41.01		Not Accepted	Not Accepted	Not Accepted	Not Accepted	Not Accepted	Not Accepted	Free	

	Refuse per tonne	Green	Metal	Polystyrene	Wood	Inert	Tyres	TVs	Hazardous / Special	Recyclables	Reuse
Featherston Recycling Station (South Wairarapa District)	Not Accepted	Car Boot $5.00 Van/Trailer Up to 250 kg $10.00 Large Trailer / Small Truck Up to 2 tonne $20.00 Large Truck Up to 6 tonne $41.02		Not Accepted	Not Accepted	Not Accepted	Not Accepted	Not Accepted	Not Accepted	Free	
Pirinoa Recycling Station (South Wairarapa District)	Not Accepted	Car Boot $5.00 Van/Trailer Up to 250 kg $10.00 Large Trailer / Small Truck Up to 2 tonne $20.00 Large Truck Up to 6 tonne $41.03		Not Accepted	Not Accepted	Not Accepted	Not Accepted	Not Accepted	Not Accepted	Free	

	Refuse per tonne	Green	Metal	Polystyrene	Wood	Inert	Tyres	TVs	Hazardous / Special	Recyclables	Reuse
Castlepoint (Masterton District)	$195/tonne Car $20.00, $6.00 per bag	Car $5 $63.25 per tonne		Not Accepted	$170	$6 tonne for Cleanfill	Tyres (more than 4 tyres) $500.00/tonne plus GST Tyres (car & 4WD only) $2.80 each (incl GST) Tyres (car & 4WD, on rims) $3.80 each (incl GST) Tyres Truck $6.00 each (incl GST			Free	Free
Riversdale (Masterton District)	$170/tonne Car $20.00, $6.00 per bag	Car $5 $55 per tonne		Not Accepted	$170	$6 tonne for Cleanfill	Tyres (more than 4 tyres) $500.00/tonne plus GST Tyres (car & 4WD only) $2.80 each (incl GST) Tyres (car & 4WD, on rims) $3.80 each (incl GST) Tyres Truck $6.00 each (incl GST			Free	Free

	Refuse per tonne	Green	Metal	Polystyrene	Wood	Inert	Tyres	TVs	Hazardous / Special	Recyclables	Reuse
Masterton Masterton District)	$170/tonne Car $20.00, $6.00 per bag	Car $5 $55 per tonne		Not Accepted	$170	$6 tonne for Cleanfill	Tyres (more than 4 tyres) $500.00/tonne plus GST Tyres (car & 4WD only) $2.80 each (incl GST) Tyres (car & 4WD, on rims) $3.80 each (incl GST) Tyres Truck $6.00 each (incl GST		Grease Trap & Special Waste (for burial)* $170.00/tonne plus GST Sump $47.50 /tonne plus GST Sawdust $170.00/tonne plus GST Septic tank waste (to sewer) liquid $62.00 /tonne plus GST	Free	Free
Dalefield Road Transfer Station (Carterton District)	$195/tonne $17 Car	Car Boot $5.00 Small Trailer, ute $10.00 Large Trailer/Medium Truck less than 2 tonne $20.00 Large Truck up to 6 tonne $42.00					Tyres (per tonne) $510.00 Car &4WD Tyres – up to 4 tyres on rims >$3.50 each Truck Tyres – up to 4 tyres $5.50 each			Free	Free
Woods Waste (Ngaio, Wellington City)	Not open to the public										

	Refuse per tonne	Green	Metal	Polystyrene	Wood	Inert	Tyres	TVs	Hazardous / Special	Recyclables	Reuse
Southern landfill	$121.80/tonne Cars minimum charge $8.00, Commercial vehicles minimum charge $60.90	$56.40 per tonne Minimum charge for private cars: $5.00 Minimum charge for commercial vehicles and trucks: $28.20	Car bodies, stripped $20.00 per car body Car bodies, containing seats or refuse $40.00 per car bodyFridge / freezer degassing $25.00 per appliance			$15.00 per tonne (only available when landfill requires more cover)	Car tyres: $4.00 each Truck/tractor tyres: $10.00 each Tyres only - car $337.60 per tonne Tyres only - truck / tractor $426.70 per tonne		Up to 20kg or 20L of household hazardous waste is accepted free of charge. Asbestos / fish / sewage or any other special burial. Prior approval required. $148.60 per tonne Minimum charge: $74.30	Free	Free
Spicers landfill	$129.00/tonne Car $18.50	Car $10 $98.90 per tonne	Car bodies, clean Per car body $44.30 Car bodies, containing refuse Per car body $129.00	$2541.9 per tonne		$5.80 - $10.70 - $18.50 By prior approval	Car tyres: $5.50 each Truck/tractor tyres: $11.00 each Tyres only - $477.70 per tonne		Used Oil $1.50 per litre Special waste $197.80	Free	
Silverstream landfill	$118.00/tonne Cars $15.00		Cars $118 per tonne	$320 per tonne ($160 minimum charge)			Disposal of more than 4 whole tyres regardless of vehicle type $320.00		Price on application	Free	Free

A.7.0 Market Share Estimates

A.7.1 Wellington

Wellington City Council estimates that, based on an average set out of one bag per household per week, the number of bags sold, and resident surveys, the Council's bag service is used by over 40% of Wellington City households.

A.7.2 Porirua

Based on the number of households provided with the kerbside service and annual bag sales, Porirua City Council estimates that between 25% and 35% of Porirua households use Council's bags.