Appendix two

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Wellington Regional Waste Assessment

March 2011

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EXECUTIVE SUMMARY

The Waste Minimisation Act 2008 (the Act) requires territorial authorities to adopt a new Waste Management and Minimisation Plan (WMMP) by mid 2012. This provides the opportunity for the councils in the region to jointly review their current waste management plan policies and practices and plan future outcomes that will be most beneficial to the Wellington region as a whole.

This waste assessment has therefore been jointly prepared to inform the drafting of the first *"Councils of the Wellington Region Waste Management and Minimisation Plan".*

Currently the councils implement projects and services in accordance with their individual waste management plans. A number of these projects are joint initiatives. The councils believe that there is further scope for regional and/or sub-regional co-ordination through the joint planning of future initiatives and services. This approach is supported by section 45 of the Waste Minimisation Act 2008.

The councils propose developing a regional Waste Management and Minimisation Plan covering all the councils in the Wellington region. The regional plan is proposed to apply for six years. The councils see a number of benefits from this approach including:

- realisation of economies of scale
- sharing of information and outcomes
- shared funding of projects
- shared resources
- development of regionally consistent approaches to regulation, policy development and service provision
- enhanced impact from jointly working with Government and industry (single authoritive voice) for support in meeting the councils' legislative requirement to ensure effective and efficient waste management in the region.

"Reducing harm, improving efficiency" is the title slogan for the New Zealand Waste Strategy (2010) and represents the Government's vision for a society that values its environment and resources. The Strategy plays an overarching role in the comprehensive toolkit (legislation, international conventions, codes of practice, and voluntary initiatives) for managing and minimising waste in New Zealand. Councils must have regard to the Waste Strategy when developing their WMMPs.

For the purposes of this Wellington regional waste assessment the councils propose a vision of providing residents and ratepayers with highly effective, efficient and safe waste management and minimisation services in order to protect the environment from harm, and provide environmental, social, economic, and cultural benefits.

In addition the councils wish to consider the following goals:

- achieving waste minimisation through reduction, reuse, recycling and recovery where it is efficient and effective to do so;
- achieving effective and efficient waste management through highly cost effective council and/or privately provided waste management services;
- minimising the harmful effects of waste wherever practicable;
- providing economic benefit by using resources more efficiently;
- protecting public health; and
- gaining better information upon which to base future decisions regarding waste management and minimisation.

This review has suggested the following waste streams be considered for priority waste minimisation action:

- organic waste
- recyclable packaging and paper
- construction and demolition waste
- special wastes.

At workshops held in 2010, waste officers from the councils of the region agreed that the following outcomes reflected the councils' waste management objectives for the region:

- reduced total volumes of waste disposed to landfill;
- increased volumes of waste diverted through reuse and recycling;
- increased recovery of materials and/or energy from waste;
- communities that are well informed about the effects of waste and the opportunities they have to reduce waste;
- highly efficient waste management and minimisation services – whether or not these are provided by Council;
- continual improvement in the environmental performance of waste disposal facilities;
- clean streets and public areas;
- no significant health risks created by waste; and
- consistent and coordinated approaches to regulating waste management services.

The councils propose that they take an active role in both the provision of some services and in the general oversight of the performance of private sector operators where the private sector is providing services. The councils propose to maintain a network of waste collection sites (including transfer stations) and collection and recycling services targeted primarily at residential users. Commercial generators of waste have access to adequate services from the private sector. The councils also propose maintaining a network of sanitary disposal facilities in the region until those facilities reach the end of their useable/economic life.

The councils propose developing education and information services that will encourage the wider community to reduce, reuse, recycle, and responsibly dispose of waste. Finally, the councils propose engaging with business and community groups to effectively and efficiently manage and minimise waste. Special attention will be paid to waste streams that pose disproportionate risk to the environment and/or human health.

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 in 2011.

The wide range of waste services available in the Wellington region and provided either by the councils or by commercial waste industry will ensure that public health is adequately protected in the future. Wellington has access for at least 100 years or more to sanitary landfills that meet national legislative requirements.
There is also adequate access to the councils' and private sector provided refuse, hazardous waste and illegal dumping / litter collection services.

1 THE WELLINGTON REGION WASTE ASSESSMENT - INTRODUCTION

This waste assessment has been prepared on behalf of the territorial authorities of the Wellington region (the Councils) as prescribed in the Waste Minimisation Act (WMA) s51 (see Appendix A for a description of the key provisions).

All councils (excluding regional councils) are legally required to conduct a waste assessment and have regard to it in the review and preparation of their Waste Management and Minimisation Plans. The WMA also requires that this waste assessment be notified with the Waste Management and Minimisation Plan (WMMP) when it is drafted for public consultation. This process is required at intervals of no less than every six years.

1.1 What is the purpose of a waste assessment and how is it conducted?

The purpose of a waste assessment is to gather enough background information regarding levels of waste, existing services and future needs to enable a council (or group of councils) to determine a logical set of priorities and inform its activities.

To determine priorities, several steps are undertaken. First, the waste assessment compiles and analyses available information on existing waste management and minimisation infrastructure, as well as data regarding waste and diverted materials produced in the Wellington region. It essentially provides an inventory of the nine councils' combined circumstances in relation to waste management and minimisation.

Another key step is the requirement for forecasting future demand for services. This step is intended to provide a forward planning framework that considers both public health protection issues along with the councils' legal requirement to promote efficient and effective waste minimisation in their district areas.

The waste assessment also includes a summary review of reasonably practicable options available to the councils in terms of how they can meet future demand for services as well as how they might achieve their waste management and minimisation objectives. The councils' proposals are included in the waste assessment and these are then taken into account during the development of the draft Waste Management and Minimisation Plan that is prepared for public consultation prior to formal adoption and implementation.

This report completes the requirements of a waste assessment for the Wellington region. It takes a whole of region approach while examining the individual situation for each council. It contains: the legislative and strategic context for waste management and minimisation planning; a situational analysis of waste data and waste streams in the region; information about the region's existing services and facilities; predicted demand for waste management and minimisation services; and high-level options to meet these demands.

1.2 Process for development

This waste assessment has been developed during a period in which the councils are considering possible improvements to how waste is managed and governed in the region with a view to possible regional or sub-regional collaboration. It draws heavily on other documents,

including the councils' existing Waste Management Plans, Activity Management Plans and the Long-term Council Community Plans (LTCCPs), as relevant.

The waste officers and senior management from the councils have been involved in contributing to this waste assessment document.

1.3 What does this waste assessment contain?

A waste assessment is a legally prescribed process but councils have flexibility in how they undertake their waste assessment. Generally they should include four main components, including:

- a **compilation and analysis** of the available data on waste streams and diverted materials in the district(s) and any data trends (see chapter 3)
- an **inventory** of the existing waste management and minimisation services, infrastructure and facilities for the whole of the district(s), including both public and commercially operated services (see chapter 4)
- a **forecast** of future demand for waste management and minimisation services and consideration of waste minimisation objectives (see chapters 5-6)
- a **review** of reasonably practicable options available to meet the demands and waste minimisation objectives of the district(s) (see chapter 7)
- statements of proposal related to preferred **options** (chapter 8).

1.4 Key terms and acronyms

Cleanfill	A cleanfill is any landfill that accepts only cleanfill material which is described as material that when buried will have no adverse effect on people or the environment.
C&D Waste	Construction and demolition waste
Council(s)	Carterton District Council , Greater Wellington Regional Council, Hutt City Council, Kapiti Coast District Council, Masterton District Council, Upper Hutt City Council, Porirua City Council, South Wairarapa District Council, Wellington City Council
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 households.
ETS	Emissions Trading Scheme
Landfill	A disposal facility as defined in s7 of the Waste Minimisation Act 2008, excluding incineration.
LGA	Local Government Act
Managed fill	A disposal site requiring resource consent to accept well defined types of non-municipal waste, e.g. low-level contaminated soils.
MfE	The Ministry for the Environment
MRF	Materials Recovery Facility
MRB	Mobile Recycling Bin
NZWS	New Zealand Waste Strategy
RRC	Resource Recovery Centre

RTS	Refuse Transfer Station
SWAP	Solid Waste Analysis Protocol (SWAP) MfE led baseline programme to provide solid waste composition information
TA	Territorial Authority (a city or district council)
Waste	Waste means: - anything disposed of or discarded; and - 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 - to avoid doubt, includes any component or element of diverted material, if the component or element is disposed of or discarded
Waste Assessment	As defined by s51 of the Waste Minimisation Act 2008. A waste assessment must be completed prior to a WMMP being reviewed.
Wellington region	For the purposes of this waste assessment, equivalent to the area covered by the combined councils' boundaries.
WMA	Waste Minimisation Act 2008
WMMP	A waste management and minimisation plan as defined in s43 of the Waste Minimisation Act 2008

1.5 Documentation and accuracy

This document was prepared between May 2010 and January 2011 using information gathered from a variety of sources including data managed by the councils themselves.

While every effort has been made to achieve a reasonable degree of accuracy in this assessment, it should be noted that there are limitations due to level of data available, particularly about waste and diverted materials handled by commercial operators.

Where readily available, actual data has been collated and recorded with its source noted. In some cases where estimates have been used, the basis for estimates and other data limitations has been indicated.

Details regarding any limiting factors in preparing the waste assessment that are deemed to have materially impacted on the completeness or accuracy of the data, forecasts or options assessment have been noted where relevant.

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

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

2 LEGISLATIVE AND STRATEGIC CONTEXT

Strategic documents and legislation are combined in New Zealand to form the basic framework for waste management and minimisation. This chapter contains a brief summary of the national policy context and key legislation that the councils must consider in the development of their waste assessment and Waste Management and Minimisation Plan. It also discusses specific issues related to the Wellington region waste market and implications for future planning.

2.1 The New Zealand Waste Strategy (NZWS)

Waste management and minimisation in New Zealand is underpinned by the Government's core policy, The New Zealand Waste Strategy – reducing harm, improving efficiency (NZWS). The NZWS provides high level direction to guide the use of the tools available to manage and minimise waste in New Zealand.

Tools available include:

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

To convey the high-level direction the NZWS has two goals:

- Reducing the harmful effects of waste
- Improving the efficiency of resource use

The WMA (s44) requires that councils "have regard to" the NZWS or other such policy that is subsequently developed when preparing a WMMP. The strategy's flexible approach allows ensure that waste management and minimisation activities that are appropriate to local situations and desired community outcomes. Although they were not previously required to specifically consider the NZWS in the development of their local plans, the Wellington councils' existing waste management plans reflect consideration for the earlier NZWS 2002.

2.2 Key legislation

A number of Acts of Parliament provide the legal framework for waste management and minimisation in New Zealand, with the primary legislation driving waste management and minimisation planning being the Waste Minimisation Act (WMA) 2008, the Local Government Act (LGA) 2002, the Resource Management Act 1991 (RMA) and the Emissions Trading Amendment Act 2008.

Taken together these Acts provide the legislative imperative and tools to support progress toward the high-level direction outlined in the NZWS. The following section provides a brief summary of these key Acts, stating their relevance or implications to the Wellington region's situation.

2.2.1 The Waste Minimisation Act (WMA) 2008

The enactment of the WMA in 2008 represented a change in the Government's approach to managing and minimising waste. The WMA recognises the need to focus efforts higher on the waste hierarchy in terms of reducing and recovering waste earlier in its life cycle, shifting focus away from treatment and disposal. This change in focus is reflected in new tools enabled by the WMA such as a framework for developing accredited product stewardship schemes and the creation of a national waste disposal levy, half of which is distributed back to councils on a population basis.

The WMA represents an update and modernisation of waste legislation to emphasise and promote waste minimisation. The purpose of the Act (s3) is to *"encourage waste minimisation and a decrease in waste disposal in order to protect the environment from harm; and to provide environmental, social, economic and cultural benefits".*

The Act contains a mechanism for the accreditation and monitoring of product stewardship schemes to minimise waste from products. Product stewardship relates to a process through which those involved in the lifecycle of a product or service are involved in identifying and managing its health, safety and environmental impacts from the development and manufacture of a product through to its use and final disposal. Ideally product stewardship schemes will be designed to promote reduction of waste at the source, as well as make recycling, treatment and disposal safer and more efficient.

Territorial Authorities (TAs) have the opportunity to benefit from some schemes as they may improve the recovery and diversion of products they currently manage. In some cases TAs may be directly or indirectly involved in a scheme either on a voluntary or statutory basis. More on this topic is discussed in section 5.5.

Another key provision of the WMA is the imposition of an initial $10 plus GST levy on each tonne of waste to landfill to be paid by landfill operators. The levy will be used to fund waste minimisation projects as it will be partly distributed to councils (50%) with the rest provided to a contestable *Waste Minimisation Fund.* The levy will be reviewed in 2012. It is anticipated based on the first quarterly payment from MfE, that the Wellington region's councils will receive approximately $1.35 million per year that must be spent on waste minimisation activities in accordance with their WMMP(s).[1] This funding belongs to the individual councils, but can be pooled and spent jointly on suitable projects if agreed and documented in the councils' Waste Management and Minimisation Plan.

The WMA provides benefits but also a number of responsibilities. Part 4 is fully dedicated to the responsibilities of councils which *"must promote effective and efficient waste management and minimisation within their districts"* (s42).

The WMA does not prescribe specific waste management and minimisation targets, structure or content for council WMMPs, thus allowing significant local flexibility in approach. It is noted

[1] Estimate based on first quarterly payments announced by MfE,

however that there is the scope within the WMA for the Minister to set performance standards for the implementation of WMMPs and for councils who are not making satisfactory progress on their plans to receive ministerial direction to alter their WMMPs. At the time of writing, there have been no specific performance standards for councils set. Any possible performance standards in the future will need to be considered in the planning process as they may have a direct impact on the councils' strategy and waste related activities.

At just $10 per tonne, the waste levy does not provide a large economic disincentive to dispose of waste to landfill. Internationally, levies have tended to increase steadily over time once introduced. If this occurs, the levy will become an increasingly more effective tool for minimising waste to landfill. However, as the levy increases and when combined with the likely cost impact of the Emissions Trading Scheme (ETS) on waste to landfill, there will be an increasing economic incentive for waste generators to ensure waste generation is avoided and for councils without landfills to divert waste to beneficial use. There will also be increased incentives to illegally dump waste.

The Wellington Regions' residents will benefit financially by diverting materials from landfill to beneficial use, as they can avoid the increasing costs of waste disposal. For example, demand for recycling services is expected to increase if and when landfill costs increase. Increasing landfill costs will also improve the economic viability of alternatives to landfill such as waste minimisation services.

Councils are now required to report on their progress toward their WMMPs. To aid reporting, the objectives and expected outcomes of their WMMPs should be transparent and measurable.

2.2.2 Climate Change (Emissions Trading) Amendment Act 2008

The Climate Change Amendment Act 2008 provides the basis for a New Zealand Greenhouse Gas ETS. The Act requires landfill owners to purchase emission trading units to cover methane emissions generated from their landfill. Should any future solid waste incineration plants be constructed, the Act would also require emission trading units to be purchased to cover carbon dioxide, methane and nitrous oxide emissions from the incineration of household wastes.

The waste sector will not formally enter the ETS until 1 January 2011, at which time voluntary reporting can occur. Mandatory reporting requirements will apply from January 2012 and emission units will need to be surrendered as of 2013.

There are potentially large cost implications to the councils, as emissions liabilities are anticipated for all landfills in the region (Spicer, Southern and Silverstream), even those that include gas capture technology, although their liabilities should be lower than for landfills without gas capture or flaring. Ultimately these costs for emissions units will need to be paid by the councils and it is likely will be passed on to users in gate rates and user charges for waste collection and disposal services.

Depending on the price of emission units and the final emissions factors determined for each e landfill under the scheme, initial estimates indicate that the ETS could have the impact of between $10-20 per tonne of waste to landfill. The ETS may therefore be an important driver of waste diversion from landfill.

2.2.3 The Local Government Act 2002 (LGA 2002)

This Act requires councils to assess how well they provided collection and reduction, reuse, recycling, recovery, treatment and disposal of waste in their district, and makes councils responsible for the effective and efficient implementation of their waste management plan.

The LGA 2002 contains various provisions that may apply to TAs when they are preparing their WMMPs, including consultation and bylaw provisions. Part 8, sections 145−146, provide TAs with broad bylaw powers, including the power to make solid waste and waste management bylaws. Part 8, section 158, outlines provisions for the review of bylaws. The procedure for making a bylaw and the requirement for completing a special consultative procedure, when making a bylaw, are contained in sections 155 and 156.

The LGA 2002, Part 6, section 77, refers to legislative requirements for TA decision-making, including consideration of the benefits and costs of different options in terms of the present and future social, economic, environmental and cultural well-being of the district. Schedule 10 of the Act also includes requirements for information to be included in a long term council community plan (LTCCP), including summary information about their WMMP.

2.2.4 The Resource Management Act 1991 (RMA)

The RMA provides guidelines and regulations for the sustainable management of natural and physical resources. Although it does not specifically define 'waste', the Act 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 s 30 of the RMA, regional councils are responsible for controlling the discharge of contaminants into or onto 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; and the allocation and use of water.

Under 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, 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.

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 Relating to Certain Air Pollutants, Dioxins, and Other Toxics) Regulations 2004 (the NES for Air Quality). 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. The result is increased infrastructure and operational costs for qualifying landfills, although with costs potentially offset by the

harnessing of captured emissions for energy generation.

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 the operation of high-temperature hazardous waste incinerators. These prohibitions limit the range of waste treatment/disposal options available within New Zealand with the aim of protecting air quality.

2.3 Other legislation

The following is a summary of other legislation that is to be considered with respect to waste management and minimisation planning.

2.3.1 The Hazardous Substances and New Organisms Act 1996 (HSNO Act)

The HSNO Act addresses the management of substances that pose a significant risk to the environment and/or human health, from manufacture to disposal. 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.

Hazardous substances may be explosive, flammable, have the capacity to oxidise, toxic to humans and/or the environment, corrosive, or have the ability to develop any of these properties when in contact with air or water. 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, asbestos, agrichemicals, LPG and batteries.

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

2.3.2 The 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, s 25). It specifically identifies certain waste management practices as nuisances (s 29) and offensive trades (Third Schedule). The Health Act enables TAs to raise loans for certain sanitary works and/or to receive government grants and subsidies, where available.

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.

2.3.3 The Litter Act 1979 (and Amendment Act 2006)

The Litter Act provides councils with powers to create litter enforcement officers or “Litter Control Officers” who have powers to issue infringement notices with fines for those who have committed a littering offence.

The Litter Act was amended on 27 June 2006. The principal amendment was to strengthen the powers of TAs infringement fees, which are now increased from the original $100 to a maximum of $400. Territorial Authorities may adopt the amended infringement notice provisions provided they pass a new resolution including the 14 days public notification. TAs use the Litter Act as a method for regulating litter and illegal dumping although the enforcement process is difficult and often unsuccessful. There have been very few successful prosecutions in New Zealand under the Litter Act. A council legal advisor has stated that prosecuting litter offenders through the courts is not the most efficient way of dealing the litter problem as the fines imposed are not high enough to act as a deterrent.

2.3.4 The Health and Safety in Employment Act 1992

The Health and Safety in Employment Act 1992 outlines health and safety responsibilities for the management of hazards in relation to employees at work. This could potentially include working with hazardous substances and in the collection and management of waste. The Act requires employers to identify and manage hazards present in the workplace, provide adequate training and supervision, and supply appropriate protective equipment. Employers must take all practicable steps to ensure the safety of employees while at work, and in particular must take all practicable steps to (among other things) ensure employees are not exposed to hazards arising out of the arrangement, disposal, organisation, processing, storage, transport or use of things in their place of work.

The HSE Act places duties on any person in control of a place of work, (e.g. a principal), to ensure that people are not harmed by any hazard resulting from work activities. Those who employ contractors *therefore "have the same occupational health and safety obligations to contractors or contracted labour as they do their own employees"*. Employers therefore need to establish health and safety systems to manage the health and safety of any contractors or contracted labour.[2]

Principals cannot contract out of their responsibilities for health and safety through contract disclaimer clauses. From discussions with current council waste officers, it is believed that council staff are aware that the council is principal to the contract and that they take health and safety responsibilities seriously. At the time services are procured, many councils now require robust data and information (including health and safety) to ensure that they can make a considered choice of collection methodology.

[2] WasteMINZ (2007) *"Health and Safety Issues in the Solid Waste and Recoverable Resources Industry*, Waste Management Institute of New Zealand, Auckland.

3 THE WASTE SITUATION

This chapter contains available information about waste and diverted materials generated in the Wellington region that are recycled, recovered, treated or disposed of to landfill. The information includes data about quantities, trends, composition, source and destination of waste and diverted materials. This information also provides the basis for projecting future demand for waste management and minimisation services as outlined.

3.1 Waste to landfills operating in the Wellington region

Waste to landfill is recorded for Southern, Spicer, Wainuiomata and Silverstream Landfills. Data have been taken from the councils' annual records based on tonnage to landfill. It is noted that some sites use a significant amount of clean fill material that is used for operational purposes e.g. daily cover or on-site construction of roads. The data for "waste to landfill" does not include this clean-fill. This is because: clean-fill does not meet the definition of "waste" when it is used for a particular purpose; clean-fill can be highly variable and its inclusion would distort underlying trends in waste disposal; and clean-fill is by definition, benign in the environment and is therefore not the focus of this Plan.

The data collected are based on weighbridge records from each landfill that record the quantity of waste entering the landfill. The data are considered an accurate account of waste disposed of in the Wellington area. It is noted that this is not directly equivalent to the waste actually generated within each district of the Wellington Region. This is because some waste generated in one district (for example Wellington city) is disposed of in another (for example Porirua city). In other cases, some waste from within the Wellington region may be disposed of at other landfills outside the region. This is the case for some waste from Kapiti Coast, Masterton, Carterton and South Wairarapa where waste collected may be transported and disposed outside the region at Bonny Glen Landfill in Rangitikei District. The Hokio Landfill in Horowhenua District also has an agreement to take waste from Kapiti Coast District.

Data have been provided for all disposal of waste to landfills for the previous year (2009-2010) alongside historic data for some sites for prior years.

Table 3.1-1 Waste to selected landfills located within the Wellington region (excludes clean-fill and one-off events)

	Annual tonnage 2005/2006	Annual tonnage 2006/2007	Annual tonnage 2007/2008	Annual tonnage 2008/2009	Annual tonnage 2009/2010
Silverstream Landfill	100,162	99,511	113,213	108,160	109,281
Spicer Landfill	68,901	66,576	62,372	63,769	60,731
Wainuiomata Landfill	31,737	31,257	30,518	25,206	26,583
Southern Landfill	69,355	69,043	59,154	68,342	68,612
Total	**270,155**	**266,387**	**265,257**	**265,477**	**265,207**

Note: Table 3.1-1 and figure 3.1-1 do not include clean-fill used for operational purposes. Also excluded is a one-off event of 58,000 tonnes of waste received by the Silverstream Landfill due to the Waiwhetu Stream project. For the purposes of the waste assessment this "one off" event is noted but not included in the final data, since its inclusion would significantly distort underlying trends in waste to landfill.

Figure 3.1-1 Waste to selected landfills located within in the Wellington region (excludes clean-fill and one-off events) (tonnes)

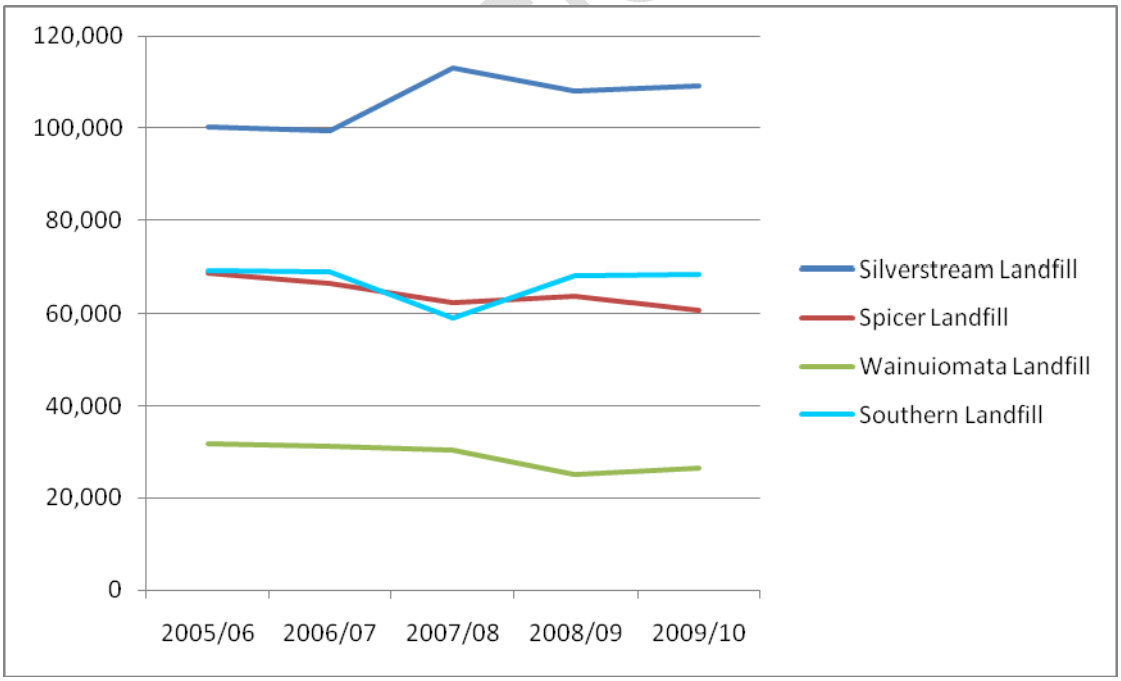


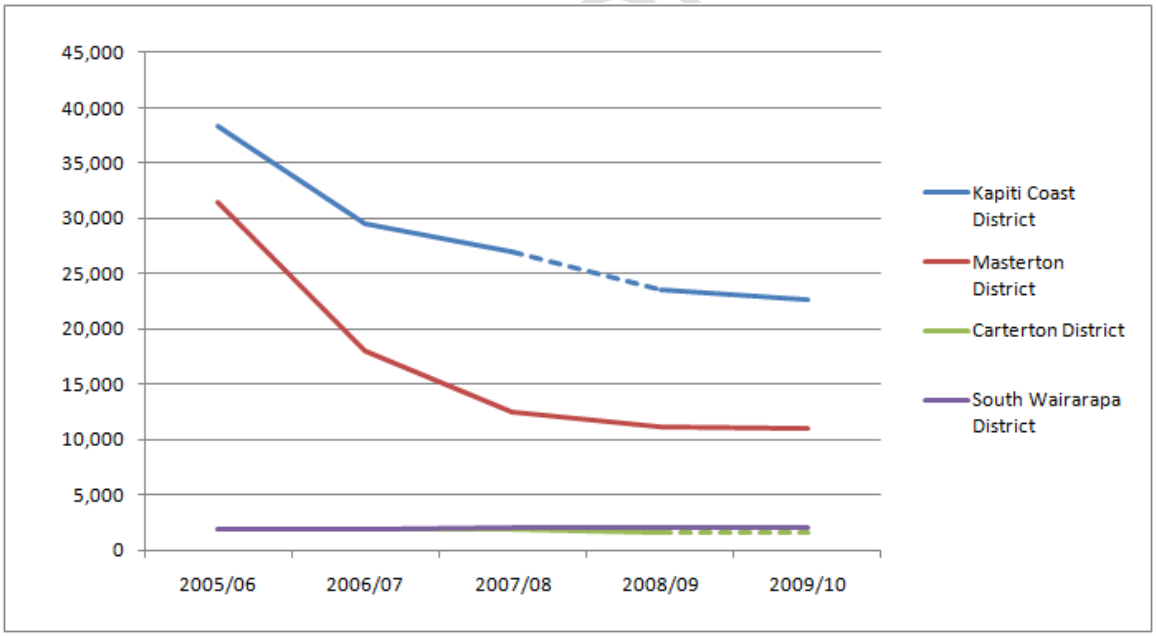
Figure 3.1-1 displays two distinct trends. Waste at Southern, Wainuiomata and Spicer Landfills has generally decreased by a modest amount since 2005. Silverstream Landfill shows a general modest increase over the period.

It should be noted that Wellington City was amongst the fastest growing areas in the country in the year to June 2009, according to population figures released by Statistics New Zealand, growing by over 1.4% a year. This growth may help to explain the flat trend in waste disposal from 2009, when one would expect more of a decrease due to challenging economic conditions. It is noted that a proportion of Wellington's household waste was disposed of at Spicer Landfill.

As the councils cannot control the commercial waste collectors in the region, waste operators using Mobile Garbage Bins are able to independently choose destinations for their collected waste so variations in landfill pricing may have resulted in waste flight to other sites with cheaper gate fees.

Figure 3.1-2 provides information on waste to landfill from Kapiti District and the three councils of the Wairarapa.

Fig 3.1-2 Waste to landfill (excludes clean-fill) from Kapiti District and the Wairarapa councils (tonnes)



Note: much of this waste is disposed of at landfills operating outside the Wellington region

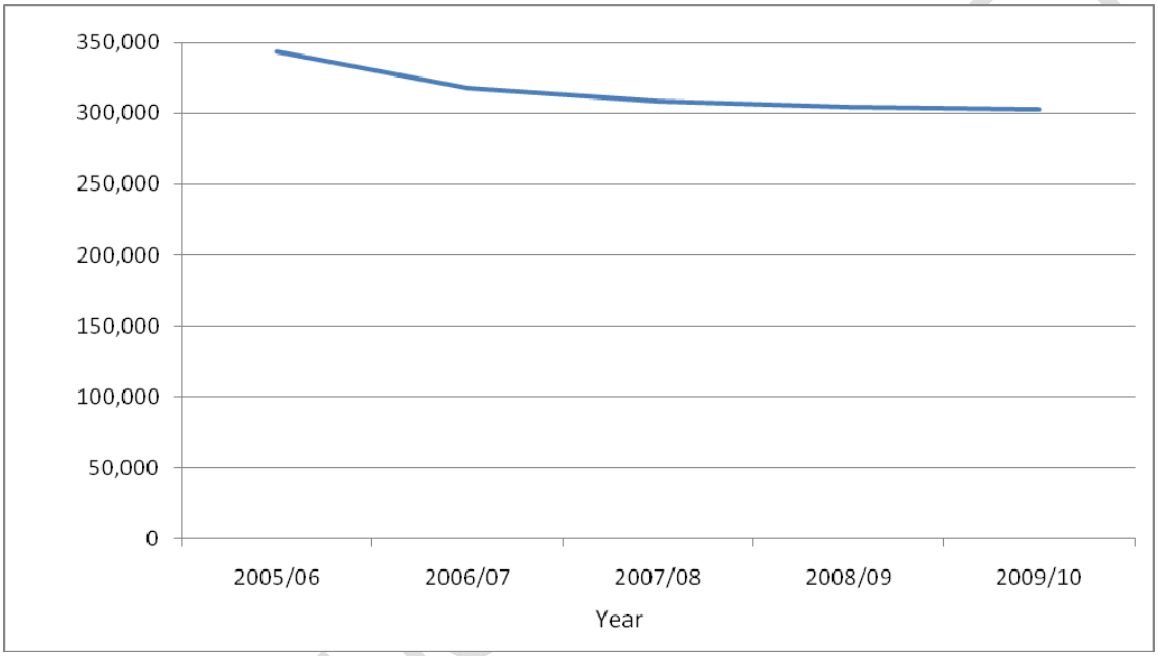
Kapiti Coast estimates that waste to landfill (via Otaihanga Landfill and transfer stations) was 22,000 for 2009/2010. Most of this waste was disposed of outside the region. No greenwaste from Kapiti Coast is disposed of to landfill.

A further 1,600 tonnes (for 2008/2009) was disposed of from Carterton, with South Wairarapa generating 2,000 tonnes and an estimated 11,000 tonnes for Masterton. The waste from

these councils is predominantly disposed of outside the region, at the Bonny Glen Landfill in Rangitikei District with some waste from Kapiti Coast destined for Hokio Landfill in Horowhenua District.

Overall trends of waste to landfill in the Wellington region become clearer when total tonnages to landfills are combined. Figure 3-1-3 shows the total waste to landfill from the Wellington region (excluding clean-fill and one-off factors in 2009-10). It shows an overall reduction in waste to landfill between 2005 and 2009-10.

Figure 3.1-3 Total waste to landfill from Wellington region (excludes clean-fill and one-off factors in 2009-10) (tonnes)



3.2 Per capita waste in the Wellington region

Waste per capita is a commonly used indicator for waste generation that looks at the total amount of waste produced divided by the total number of people in a defined area. It is an indicator of average waste production on a per person basis, but is not directly equivalent to the amount of waste an individual throws away each year, as waste is also included from commercial sources.

Figure 3.2-1 Waste to landfill (excludes clean-fill and one-off factors) (tonnes) and population for the Wellington region

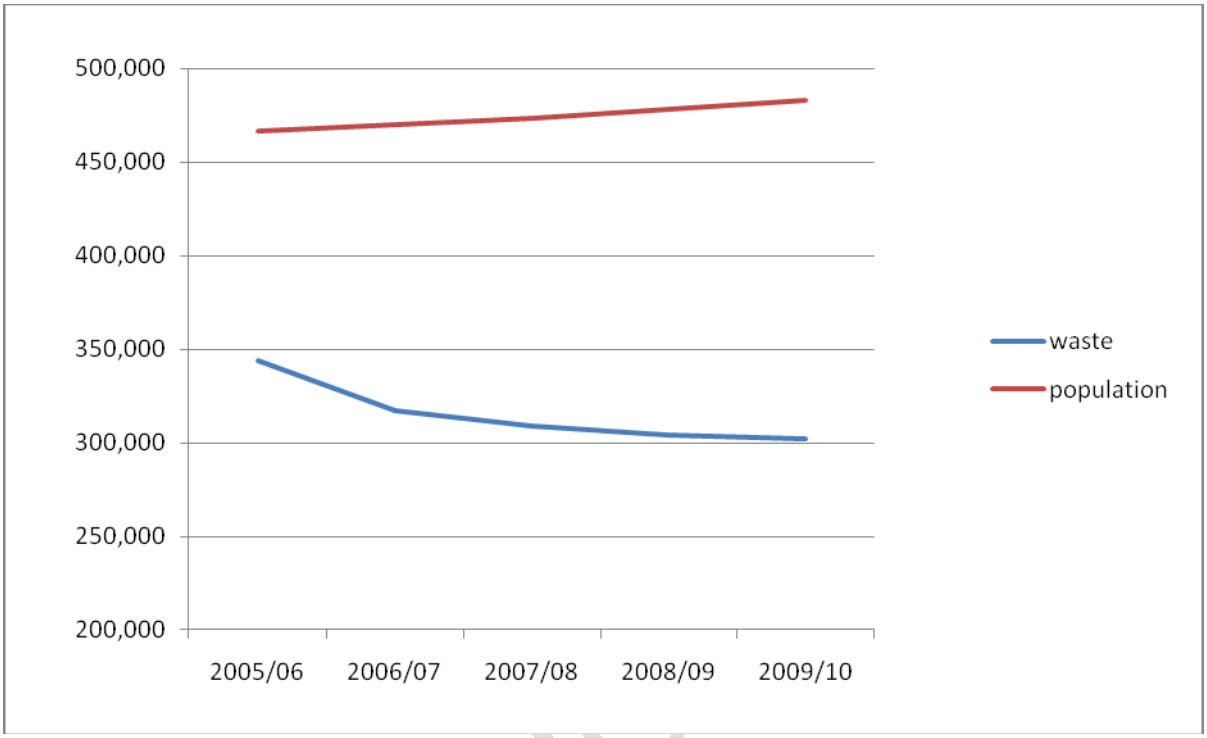


Figure 3.2-1 shows a comparison between waste arising and population. While population is steadily increasing waste tonnage has been gradually decreasing.

The current population of the Wellington region is 483,200. The amount of waste sent to landfill in 2009/10 is estimated as 302,500 tonnes. This is 626kg for each person in the region (this figure includes commercial waste to landfill but not cleanfill or one-off factors). Over the last 5 years the waste per capita trend shows a general decrease (see figure 5.7-1 in section 5 for more details).

Figure 3.2-2 Waste to landfill per capita and GDP Growth

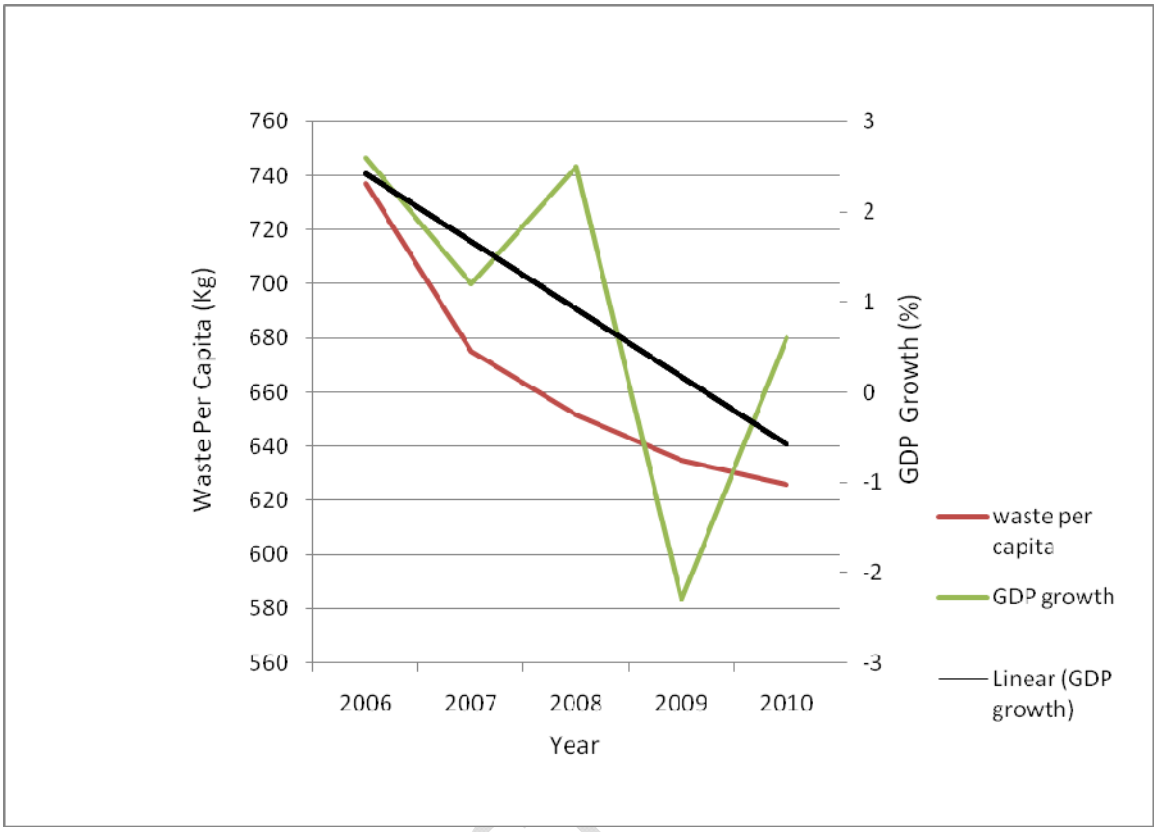


Figure 3.2-2 compares GDP growth with per capita waste to landfill for the Wellington region. The graph shows a degree of correlation between 2006-2010 when economic activity was relatively low and waste per capita reduced accordingly. This correlation is most apparent when a trend line for GDP is comparted with per capita waste to landfill. Anecdotal evidence from the Ministry for the Environment supports this link. This evidence is based on reports, received by the Ministry, of waste to landfill provided by landfill operators to meet waste levy reporting requirements. During the economic recession population did not deviate from the normal gradual rise, but waste tonnages dropped.

3.3 Baseline waste figures for monitoring progress

Due to possible collaboration or partnership arrangements and the trend for waste to move between the landfills of the region, a single combined baseline should be considered for the Wellington region to monitor progress, rather than an individualised baseline for each council. This has the additional benefit of bringing consistency to the region and allows for ease of monitoring against any stated objectives and expected outcomes.

There are accuracy errors and limitations associated with the waste to landfill data for the Wellington region. The key limitations of these data and methods for establishing a baseline are:

- the landfill and transfer station data do not indicate specifically the source of the waste in terms of the district it was generated in or collected from
- landfill data appears sensitive to fluctuations caused by general economic conditions, therefore waste tonnage over the period 2008-2009 may have been higher if it was not affected by the global recession (which has been estimated in other parts of the country as causing a 10-20% decrease in waste disposal)[3]
- the amount of contaminated soil ("potentially hazardous waste") to landfill or other special waste is highly variable and can be linked directly to major infrastructure or remediation projects. The occurrence of major projects creating large single sources of waste to landfill must be considered on a year to year basis, as this waste stream is not always easy to predict and provides few if any opportunities for source reduction or recovery.

Therefore these constraints must be considered when setting any 'baseline' figure and in monitoring progress toward any objectives. This issue is also noted in the context of forecasting demand for waste services as outlined in chapter 5 of this document.

In the future, the councils may seek to co-ordinate regional data capture such as surveying at transfer stations and landfills to determine the source and type of waste. A regionally consistent data set with SWAPs carried out during the same time periods will allow all councils to compare data and examine possibilities for regional co-operation. This will provide more detailed information on where waste is generated and allow for better targeting of future waste minimisation efforts. Further waste data could also be obtained through a regional waste licensing scheme. Improved clarity regarding standard waste data collection would improve data quality.

[3] As indicated by a number of councils data reviewed including the Hutt City and Upper Hutt City Councils, Whangarei District Council, Manukau City Council, and North Shore City Council for example whom all recorded lower waste tonnages in 2008.

3.4 Waste source

This section contains information about waste sources and composition. This draws on information from a number of reports produced for the region that detail source and composition of waste to landfill. Table 3.4-1 sets out the known geographic source of waste disposed at the region's landfills.

Table 3.4-1 Geographic source of waste - Wellington region landfills – 2006[4]

Landfill	Territorial Authority	Geographic source of waste
Wainuiomata Landfill	Hutt City Council	No survey done but assumed that 100% of waste originates from the Hutt Valley.
Silverstream Landfill	Hutt City Council	All of the cleanfill and domestic kerbside refuse disposed of at Silverstream Landfill originates in the Hutt Valley. A high proportion, over 84% by weight, of general waste and un-weighed vehicle waste also originates from the Hutt Valley.
Southern Landfill	Wellington City Council	All of the cover material/cleanfill and domestic kerbside refuse disposed of at Southern Landfill originates in Wellington City. Over 95% by weight, of general waste and 99% of un-weighed vehicle waste also originates from Wellington City.
Spicer Landfill	Porirua City Council	A large proportion (81%) of cover material and cleanfill originates in Wellington City. The remainder comes from Porirua. The domestic kerbside refuse originates from the Porirua area, and parts of adjacent Wellington City e.g. Tawa, Johnsonville. Two-thirds of general waste originates in Wellington, the remainder in Porirua. Nearly 90% of special wastes originate in Porirua, the remainder from Wellington City. Slightly more than half the waste from un-weighed vehicles comes from Wellington City and the rest from Porirua.
Otaihanga Landfill	Kapiti Coast District Council	All of the cover material/cleanfill and domestic kerbside refuse disposed of at Otaihanga landfill originates from the Kapiti Coast area. A very high proportion, over 97% by weight, of general waste and un-weighed vehicle waste also originates from the Kapiti Coast (it should be noted that this is based on a 2006 data report and Otaihanga has closed and now accepts a limited amount of waste including some cleanfill and offal.)

[4] Waste Not Consulting – Composition of Solid Waste at Southern Landfill, Wellington – June 2006

3.4.1 Composition data reliability

SWAPs in the region were carried out for Southern (2009), Silverstream (2007) and Otaihanga Landfills (2010). These data are included in Table 3.4-2.

Table 3.4-2 also outlines more detailed waste composition data available for the districts and discusses estimates for the combined composition of waste.

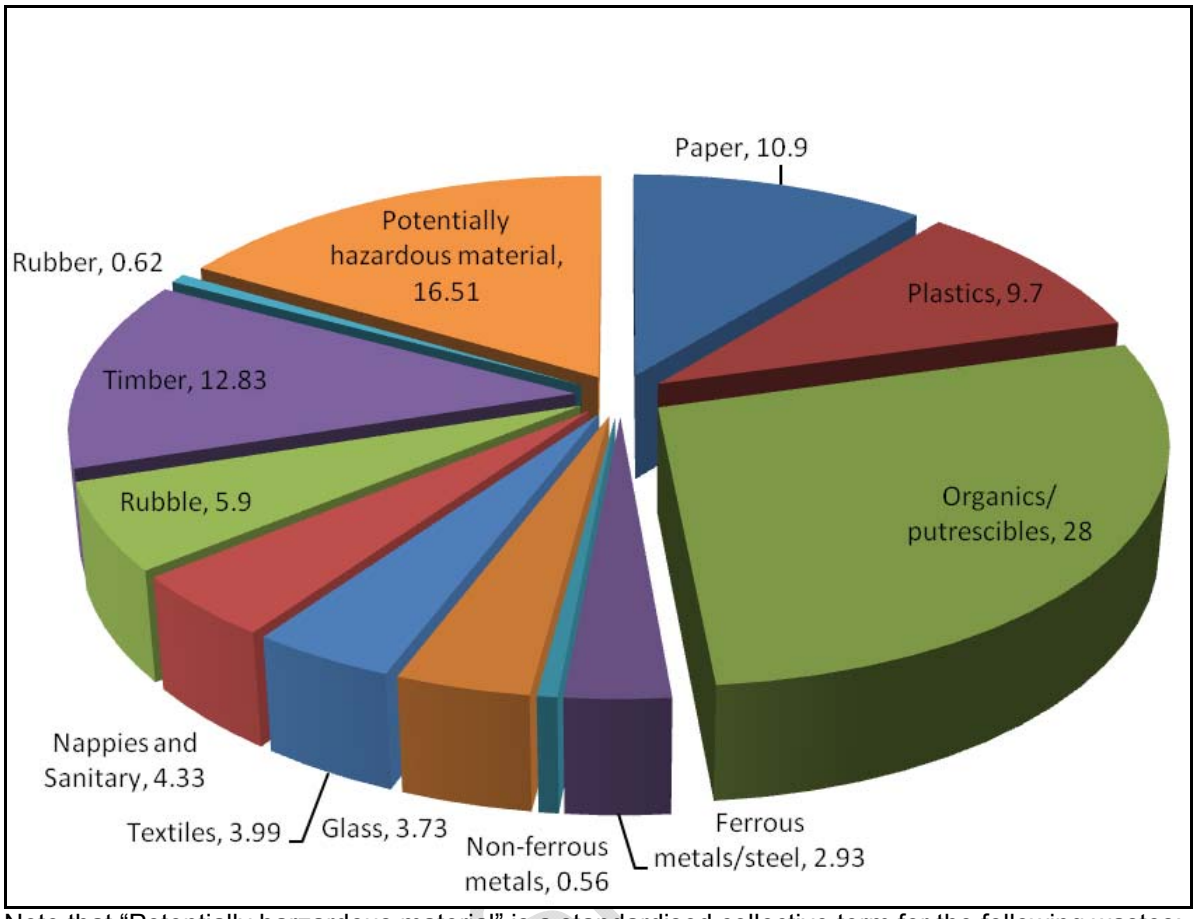
Table 3.4-2 SWAP analysis of landfills in Wellington region

	Southern Landfill Waste %	Silverstream Landfill Waste %	Kapiti Coast Waste to Landfill %	Wellington Region Waste %
Paper	12.2	7.5	13.0	10.9
Plastics	9.4	9.6	10.1	9.7
Organics/putrescibles	22.8	27.6	33.6	28.0
Ferrous metals/steel	2	3.8	3.0	2.93
Non-ferrous metals	0.4	0.5	0.8	0.57
Glass	3.3	3.3	4.6	3.74
Textiles	3	3.5	5.3	3.94
Nappies and Sanitary	4.1	3.2	5.3	4.2
Rubble	6.3	4.8	6.7	5.94
Timber	7.1	15.1	16.3	12.84
Rubber	0.2	1.3	0.5	0.67
Potentially hazardous material[5]	29.2	19.8	0.7	16.57
Totals	100	100	100	100

The information contained in the SWAPs for the Southern and Silverstream Landfills located in Wellington and Hutt Cities respectively and waste to landfill from Otaihanga Resource Recovery Facility and Otaki Transfer Station located in Kapiti Coast District has been analysed and the average composition of waste for the Wellington region calculated and shown in figure 3.4-1.

[5] Potentially hazardous material includes material with potentially toxic or ecotoxic properties or having properties requiring special disposal techniques. Includes sewage sludge, paint, medical waste, solvents, asbestos, oil.

Figure 3.4-1 Waste compostion to landfill in the Greater Wellington region



Note that "Potentially harzardous material" is a standardised collective term for the following wastes: Sewage sludge, paint, medical waste, solvents, asbestos and oil.

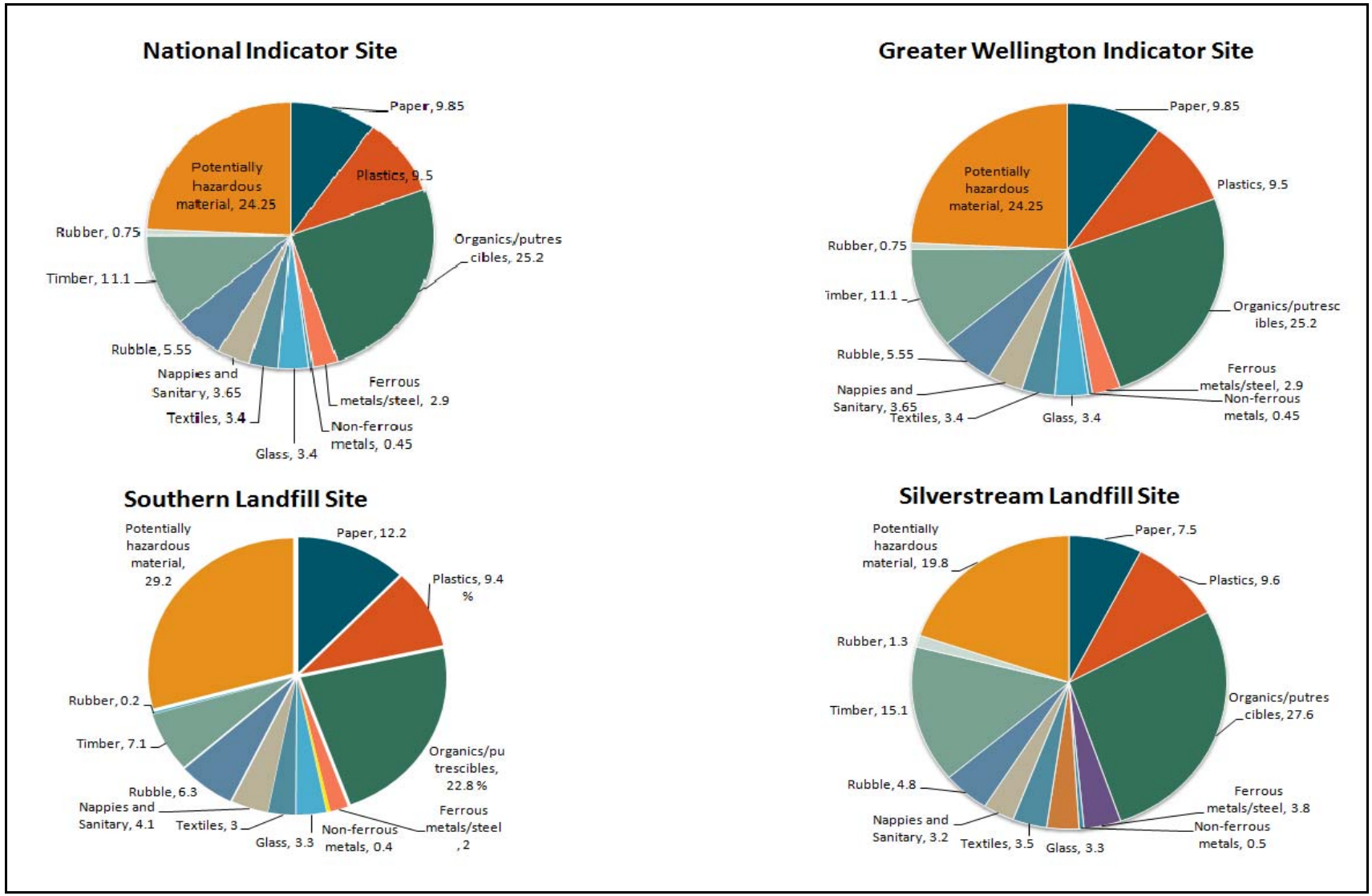
3.4.2 Comparison to National Indicator Sites (NIS)

A comparison against national indicator sites allows the eight councils' to be compared to a national benchmark.

This combined composition of waste provides an overview of the largest waste streams to be considered when scoping options for diversion, and the current impact of existing programmes and infrastructure.

The following figure 3-4-2 depicts a comparison of the waste composition received at the Southern and Silverstream Landfills, against both a national indicator site (top left) and a Greater Wellington indicator site (top right). The national indicator site is produced by the Ministry for the Environment to show general waste compositions nationally. Both Southern and Silverstream compositions (bottom left and bottom right respectively) are as a result of detailed SWAP analysis at the sites. The Greater Wellington Indicator Site is an amalgamation of these two, providing a waste composition overview for the region.

Figure 3.4-2 Waste to landfill – Wellington region waste composition comparison with National Indicator Sites



3.5 Diverted materials

Diverted materials are the term that applies to discarded materials that are recovered from the waste stream through recycling, composting or other such resource recovery activities. This section contains information about known sources of diverted materials generated and recycled or recovered in the Wellington region, such as information about kerbside recycling and green waste separation. Data from the councils' records are used and are considered to be a good record of volumes from particularly residential sources, as information on commercially managed diverted materials is not generally available.

This information provides an indication of the size of the council-controlled diverted materials stream. It demonstrates the direct impact the councils can make on diverting materials from landfill through their service levels and activities.

3.5.1 Recycling

The following tables and figures show council-recorded tonnage for recyclables collected at kerbside and drop-off facilities in the Wellington region. These recyclables consist of materials such as glass, aluminium, plastic (mainly types 1 and 2 although a number of councils collect 1-7), tin/steel, paper and cardboard primarily from household domestic sources (see table 3.5-1 and figure 3.5-1).

Table 3.5-1 Tonnage of recyclables collected at kerbside and drop-off facilities 2008-09

Council	Recyclables tonnage (T)
Kapiti Coast District	4,385
Porirua City	4,245
Upper Hutt City	2,000
Hutt City	6,790
Wellington City	12,589
Masterton District	3,837
Carterton District	300(est)
South Wairarapa District	300(est)
TOTAL TONNAGE	34,446

Figure 3.5-1 Comparison of councils' kerbside and drop-off collection tonnage

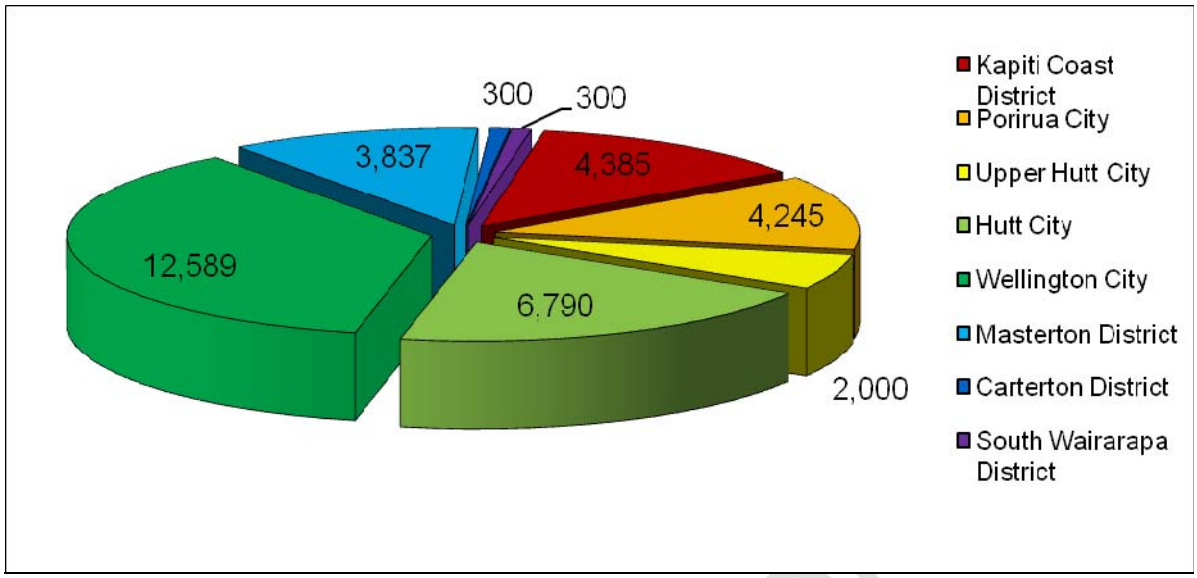
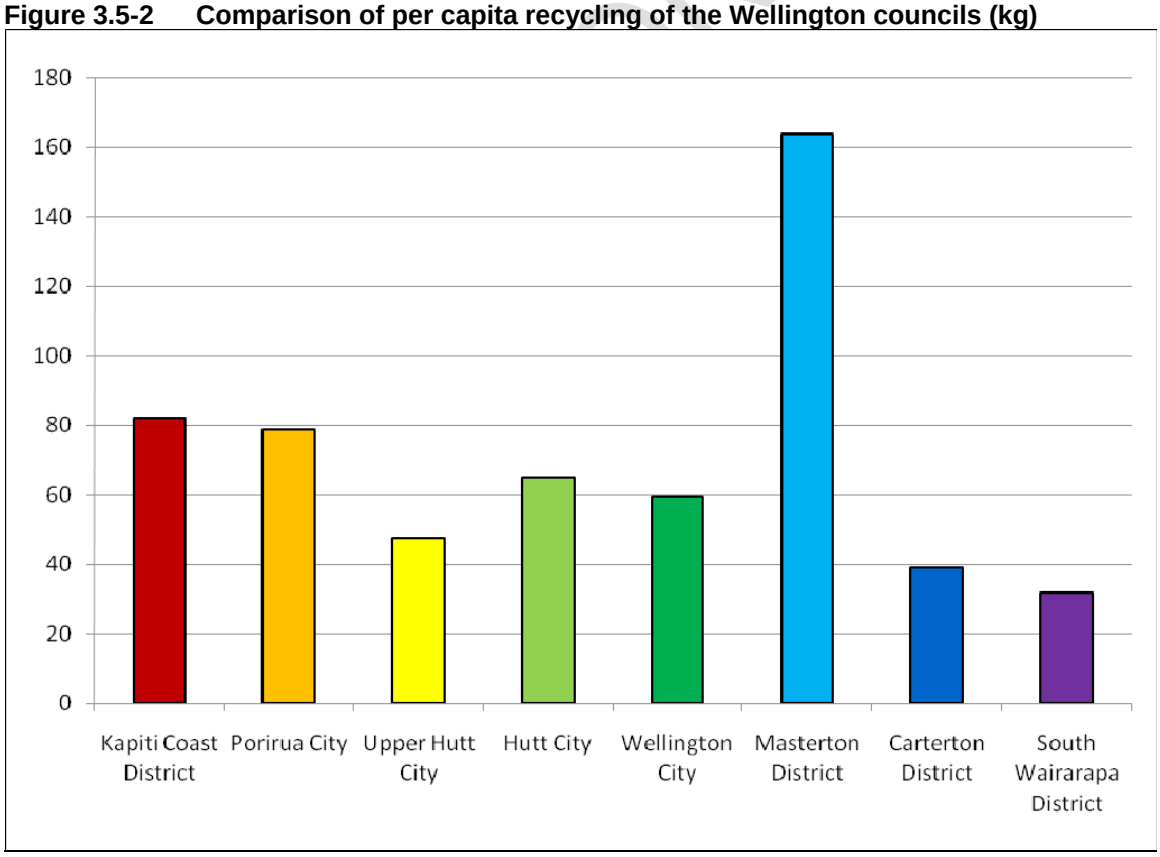


Figure 3.5-2 (below) shows the recycling rate per capita from across the region (the data includes recycling to drop-off facilities).

Figure 3.5-2 Comparison of per capita recycling of the Wellington councils (kg)



3.5.2 Organics recovery

The region takes part in a selected number of organic waste diversion schemes.

Wellington City Council promotes the 'Kai to Compost' scheme, which diverts around 1,000 tonnes per year of organic waste from landfill. This scheme provides businesses with 120 litre or 240 litre wheelie bins for the collection of food waste. The food waste is deposited at the council's compost facility, mixed with green waste and turned into compost that is sold for use in local gardens, orchards and vineyards. An additional 4,000 tonnes per year of greenwaste is also diverted from Southern landfill through composting.

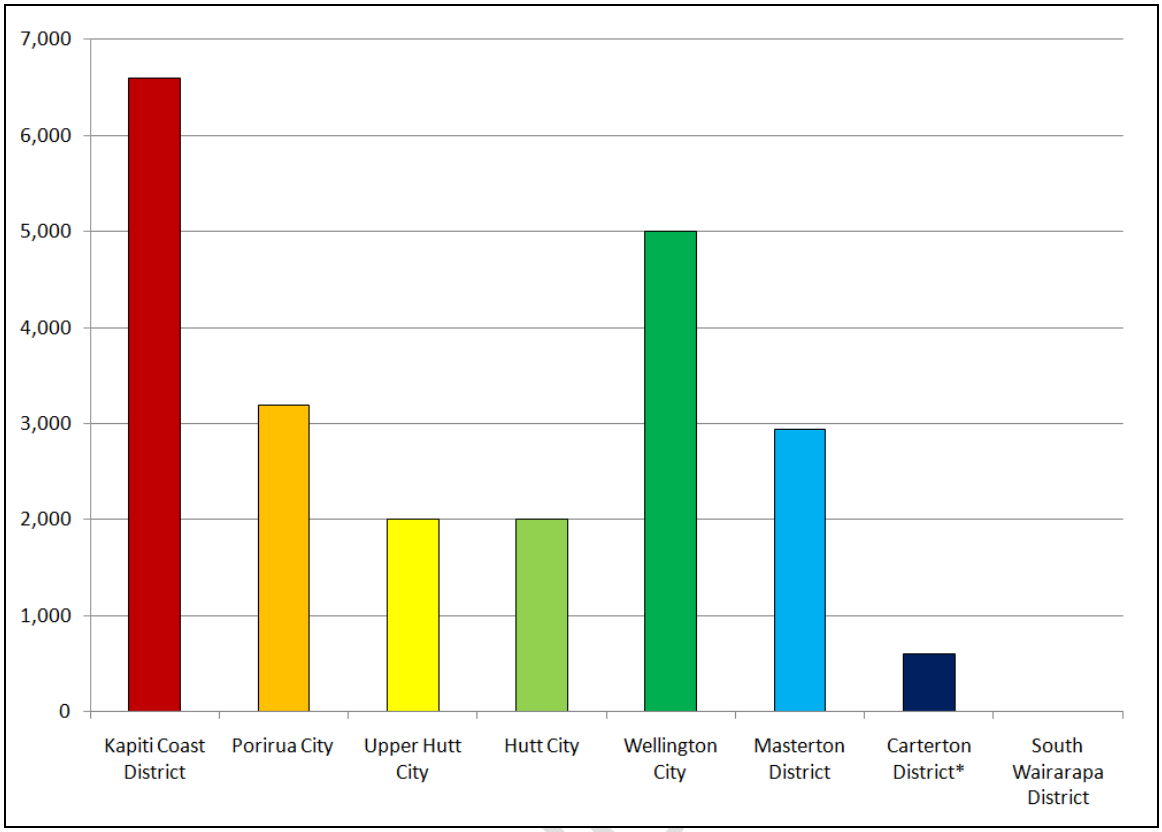
A number of the other councils also divert greenwaste for composting. Kapiti Coast collects greenwaste through its resource recovery centres and has engaged Composting NZ to mulch the collected material.

Although there is currently greenwaste separation at the Silverstream Landfill this is subsequently landfilled. However, some of the Hutt Valley greenwaste from residential and commercial sources is composted by a commercial composting facility at Seaview, while more is composted at a facility in Wellington City.

Masterton District has a greenwaste composting site at its Nursery Road Resource Recovery Centre. Porirua City transfers its collected greenwaste to Composting NZ located in Kapiti Coast District at the Otaihanga Landfill. Carterton District diverts 1200 m^3 of greenwaste per annum.

Information on organic waste diverted from landfill in 2009-10 is provided in figure 3.5-3.

Figure 3.5-3 Organic waste diversion 2009-10 (tonnes)



Note: Data was not available for South Wairarapa District. The absence of this information does not materially affect this waste assessment.

3.5.3 Other diverted material – commercial

There is likely to be a significant amount of recoverable material diverted from commercial sources that is managed by the waste industry and that is not captured in this waste assessment. The councils' combined efforts result in approximately 55,000 tonnes of diverted material each year, mainly from household domestic sources. A rough method of estimation is that commercial sources of waste are in the range of 50 to 70 percent of total waste to landfill. If similar ratios were true for diverted materials, it is likely that the commercial waste industry is managing in the range of an additional 50,000 to 70,000 tonnes of diverted material.

In initial investigations conducted by telephone discussion with a number of commercial recycling operators it is evident that the markets are fragmented with little consistency occurring between the council areas. It appears that additional focus on this sector and support is needed from the councils, such as acting in the role of facilitator between businesses.

It is also likely that any licensing option would yield improved diverted materials data collection in the future. It is noted that Kapiti Coast District has recently enacted a bylaw with operator licensing requirements requiring the provision of tonnage information to the council.

4 EXISTING WASTE SERVICES, FACILITIES AND REGULATIONS

A waste assessment must contain information indicating existing (and planned) waste and waste minimisation services and facilities. This chapter includes a summary of information regarding waste collection and disposal services provided by the councils and other organisations (e.g. commercial waste industry, community groups).

It also provides a summary of information regarding waste minimisation services and facilities. The inventory of services and facilities has considered the waste hierarchy categories (as defined by the WMA) of:

- **Reduction** refers to a lessening of waste generation, including by using products more efficiently or by redesigning products; and in relation to a product, through lessening waste generation in relation to that product
- **Reuse** is the further use of waste or diverted material in its existing form for the original or similar purpose of the materials or products that constitute the waste
- **Recycling** is the reprocessing of waste or diverted material to produce new materials
- **Recovery** is the extraction of materials or energy from waste or diverted material for further use or processing; this includes making waste or diverted material into compost
- **Treatment** is subjecting waste to any physical, biological, or chemical process to change its volume or character so that it may be disposed of with no or reduced adverse effect on the environment (excluding dilution)
- **Disposal** is the final (or more than short-term) deposit of waste into or onto land set apart for that purpose, or the incineration of waste.

In many cases the services or facilities described involve multiple processes across the waste hierarchy conducted simultaneously.

4.1 Limitations and completeness

This inventory of services available to the Wellington region is a combination of both council-owned, operated or managed services and facilities as well as those owned or operated by other organisations e.g. commercial entities or community groups. This inventory is not to be considered exhaustive, particularly with respect to the commercial sector/commercial waste industry, as these services are subject to change and information is not readily accessible.

For the purposes of this assessment, readily available information has been compiled. There is generally less information and detail regarding the commercial waste industry. This has not materially impacted on the completeness of this waste assessment, because the councils' ownership of the key waste facilities provides them with some information on the sources and composition of waste to landfill on which to base their decision-making and future strategy. Waste licensing would contribute to obtaining a more complete picture of waste within the region.

Understanding the existing (and planned) services provides the basis for the councils to determine the degree to which the needs of the region are presently being met and what might need to be provided to meet future demands. By conducting this waste assessment jointly, it also provides the councils with a clearer understanding of where there may be opportunities for working together to produce better outcomes.

This assessment is generally broken down by categories of service types.

In accordance with the WMA 2008 requirements, the councils believe the information obtained is appropriate when having regard to the:

- significance of the information
- the costs of, and difficulty in, obtaining the information
- the extent of the councils' resources
- the possibility that a council(s) in the region may be directed under the Health Act 1956 to provide the services referred to in that Act
- the impact on the completeness of the assessment particularly the forecast of future demands and options assessed.

The inventory begins with a discussion of the overall Wellington waste management and minimisation market. It then provides summaries of both the current services and facilities provided by the councils and those provided by the commercial waste industry.

4.2 The Wellington region waste market – an overview

The ownership of the waste market infrastructure (landfills, transfer stations, resource recovery centres) in the Wellington region is predominantly held by the councils and they have not indicated a desire to significantly alter this ownership. The region has four fully operational landfills in close proximity, one owned by Wellington City, one jointly owned by Porirua and Wellington cities and two by Hutt City, which together serve the distinct geographic waste catchment of the region. The Wairarapa councils transport domestic waste collected to Bonny Glen Landfill which is outside the Wellington region. Kapiti Coast District also disposes of its waste in the Manawatu-Wanganui region, currently at the Hokio Landfill in Horowhenua District. Kapiti Coast is a relatively self-contained waste catchment. A high proportion of the waste that is generated within the district is initially managed within the district (via the transfer facilities at Otaihanga and Otaki) and only a small amount of the waste managed within the district is generated outside the district.[6]

With the drop in worldwide commodity prices for recyclable materials over the past two years the councils and/or council contractors have experienced considerable impact. Contractors received dramatically reduced returns from the sales of recyclable materials. While the commodities market has recovered somewhat in 2009, this issue has demonstrated the volatility and risk associated with recycling services.

The solid waste policy and services currently provided by the councils individually can have a significant impact on the others. The councils are therefore working together to complete this

[6] Waste Not Consulting - *Survey of Solid Waste In Kapiti Coast District*, September 2010

joint waste assessment and considering the development of a regional WMMP to address this issue with the view to improving the consistency, efficiency and effectiveness of their waste services.

The following sections discuss the council-provided services and facilities as well as key aspects of the commercial (private) market.

4.3 Sanitary landfills

The Wellington region has five operating landfill operating within its boundaries, one of which is limited in its operations. It is also serviced by additional landfills outside the region. Table 4.3-1 shows the current landfill sites within the region, their capacity, acceptance criteria and resource consents. In the table all material placed in the landfill (including waste and cleanfill is shown, as this information is relevant to the expected usable life of the landfill).

Figure 4.3-1 shows the location of the councils' waste infrastructure.

Table 4.3-1 Wellington region – landfill data table 2009-2010 (including clean-fill)

Facility name and type	Owned by	General commercial and residential wastes	Hazardous waste drop off (residential only)	Green waste separated and composted	Other waste types	General waste charge $ per tonne/cubic metre (as at July 2010)	Cover material	Annual [7]* tonnage 2009/2010 (t)	Capacity	Resource consents expire (yr)
Silverstream Landfill	Hutt City Council	✓	✓	×	Sludge from Te Marua Wastewater Treatment Plant, and Seaview Wastewater Treatment Plant	$95.25/tonne	sawdust	121,294	50+ yrs so	**2045**
Spicer Landfill	Porirua City Council (78.5%) Wellington City Council (21.5%)	✓	✓	×	Sludge from Porirua Wastewater Treatment Plant	$91.25/tonne	cleanfill	110,689	3.2M m3 overall (current phase and next phases are 600,000 m3, and, final phase 2.76M m3)	**2030**
Wainuiomata Landfill	Hutt City Council	✓	✓	×		$95.25/tonne	minor amounts of sawdust	27,565	100,000m3	Expire 2010, (but application made for 4 further years (**2014**)
Southern Landfill	Wellington City Council	✓	✓	✓	Bio-solids from sewage	$93.25/tonne	excavated material from on site	94,847	Over 29 M m3 or 100+yrs	Stage 3 (9yrs) **2019**
Otaihanga Landfill	Kapiti Coast District Council	✓	×	✓	Sludge from Paraparaumu Wastewater Treatment Plant and offal	$22/m^3	cleanfill		limited	(main landfill is closed and now accepting bio-solids and offal)
						Wellington Region Total		**354,664**	**43.2 M m3**	

[7] All waste including cleanfill/construction and demolition waste to landfill

*Tonnage data does not include waste from "one off event" e.g. Waiwhetu Stream clean-up (Hutt City)

The close proximity of landfill sites in the region has been studied in Table 4.3-2 which highlights the distances between the landfills from a selected central point.

As all the landfills within the region are council-owned, it is unlikely that the private sector would be interested in operating any further facilities.

Figure 4.3-1 Map showing locations of major waste infrastructure

Table 4.3-2 Table of distances from a central point

Landfill location	Distance from Ngauranga Gorge (Central Point) (km)
Silverstream	22
Porirua	15
Southern	13
Wainuiomata	20
Carterton	80
Bonny Glen*	163
Hokio*[1]	79

* Waste from the Wairarapa councils is sent to Bonny Glen (commercially owned site)
*[1]Waste from Kapiti Coast District Council is transported to Bonny Glen and Hokio (Horowhenua District) Landfills

Each council's approach to waste management and minimisation can impact on the demand for waste services for the surrounding councils. The Wellington Waste Catchment Trial in 2006 identifies a single catchment area from Otaki in the North, to Wellington and Wainuiomata in the South, linking waste across the region. Waste flows are predominantly driven by proximity to landfill as waste moves from source to transfer station and/or to landfill. Distance is the predominant cost factor for rural areas, but progressively shifting towards a travel time factor for urban areas.

Metropolitan areas show more complicated flows with ownership of transfer stations and landfills, gate charges and contracts influencing final disposal of waste, with more options being available than in rural areas. All landfills in the Wellington Catchment are currently owned by the councils and council-collected waste is expected to continue to flow to these landfills for final disposal.

4.4 Transfer stations/resource recovery centres and haulage

Table 4.4-1 Transfer station infrastructure within the region and waste accepted

Transfer station	Owned by	General commercial & residential wastes	Hazardous waste accepted	Green waste separated and composted	Other waste types	General waste charge (as at June 2010)
Dalefield Road Transfer Station	**Carterton District**	✓	×	✓	▪ unused chemicals	$179/t
Sea View Recycle and Transfer Station	**Private ownership**	✓		✓	▪ recyclables	×
Otaihanga Recovery Centre	**Kapiti Coast District**	✓	Household only	✓	▪ demolition and construction ▪ fridges, tyres, car batteries ▪ LPG cylinders, car bodies ▪ paint exchange ▪ kerbside type recyclables	$126/t
Otaki Refuse Transfer Station	**Kapiti Coast District**	✓	×	✓	▪ tyres, fridges, car bodies ▪ kerbside type recyclables, greenwaste	$123.50/t
Waikanae Greenwaste and Recycling Centre	**Kapiti Coast District**	×	×	Transported to Otaihanga RFF for composting	▪ kerbside type recyclables, greenwaste	
Masterton Nursery Road Transfer Station	**Masterton District**	✓	✓	✓	▪ fridges, tyres, car batteries ▪ LPG cylinders, car bodies ▪ recyclables ▪ C and D materials	$160/t
Riversdale	**Masterton District**	✓		✓	▪ same as Nursery Road	$160/t
Castlepoint	**Masterton District**	✓		✓	▪ same as Nursery Road	$160/t
Lake Ferry Road, Martinborough	**South Wairarapa District**	✓		✓	▪ recyclables	

4.5 Cleanfills and "managed fill" disposal market

In the MfE's 2002 "A Guide to the Management of Cleanfills" 'cleanfill' *is defined as:*

> *"Material that when buried will have no adverse effect on people or the environment. Cleanfill material includes virgin natural materials such as clay, soil and rock, and other inert materials such as concrete or brick that are free of:*
>
> - *combustible, putrescible, degradable or leachable components*
> - *hazardous substances*
> - *products or materials derived from hazardous waste treatment, hazardous waste stabilisation or hazardous waste disposal practices*
> - *materials that may present a risk to human or animal health such as medical and veterinary waste, asbestos or radioactive substances*
> - *Liquid waste."*

The cost of entry into the cleanfill market is substantially lower than into the landfill market. Cleanfills require much lower levels of engineering investment to prevent discharges into the environment and have very low or negligible, compliance costs. Because of these differing cost structures, cleanfills charge markedly less for disposal than landfills, often in the order of 10% of landfills' advertised gate charges.

The Greater Wellington Regional Council regulates two cleanfills in the region. These are both in Owhiro Bay, Wellington and operated by C&D Landfill Ltd and T & T Landfills. T&T has an average fill rate of 90,000 m3 and has both capacity and resource consents until 2026. It has not been possible to get data for the construction and demolition waste site as enforcement action is currently underway between the operators and the Greater Wellington Regional Council.

Alternative cleanfill facilities are available in a number of locations throughout the wider Wellington region. Hutt City has four located within its district. These are Dry Creek Quarry, Benmore Crescent, Mangoroa Valley and Wainuiomata.

Many councils have little or no control over construction and demolition waste management and therefore measurement of this waste stream is difficult. It should be noted that this appears to be a national problem rather than once faced by the Wellington councils alone. MfE has indicated it is working on cleanfill regulations that may assist in data collection in the future.

There are a number of known cleanfill sites in the Wellington region including:

Table 4.5-1 Cleanfill sites Wellington region

Hutt City
Manor Park - Dry Creek Quarry
Manor Park - Benmore Crescent
Mangaroa Valley
Wainuiomata - Waiu Street
Kapiti Coast District
Otaihanga Resource Recovery Facility, (not a cleanfill site but cleanfill is accepted into the Otaihanga Landfill)
Porirua City
Three consented sites, including one at Judgeford
Wellington City
C&D Landfill Ltd in Careys Gulley, alongside the Southern Landfill
T&T Landfills Ltd in Happy Valley
Masterton
Cleanfill accepted as cover for the closed Nursery Road Landfill

4.6 Closed landfills

Most closed landfills in the Wellington region are now open space areas and 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 25 are owned by Wellington City.

4.7 Refuse collection

All the councils in the Wellington region contract out regular waste collection. Table 4-10-1 (later in this sector) provides more information on council-contracted services.

Commercial waste collection operators provide a variety of collection services to residential users in some areas, there are also additional operators offering skip and other refuse collection services. These private refuse collection services are extremely competitive in the urban areas. Commercial contractors currently focus on offering a “lowest cost mixed refuse” service and this may tend to discourage sorting and recycling in favour of convenience.

Commercial and industrial businesses often contract out their waste disposal to haulage companies who provide bins, skips or other arrangements. This waste is then transported to transfer stations, resource recovery centres or directly to landfill.

The following is a list of known operators believed to be providing waste collection-related services to the Wellington region (see table 4.7-2).

Table 4.7-1 List of known waste operators in the Wellington region

Name	Where they operate
A1 Mini Skips	Wellington, Petone ,Hutt Valley, Wainuiomata, Whitby, Porirua, Pukerua Bay
Absolute Exterior Ltd	Wellington, Hutt Valley, Porirua to Waikanae
Affordable Bin Hire	Wellington, Hutt Valley, Porirua
Als Litta Binz	Epuni, Petone, Avalon, Riverstone, Mt Marua, Emerald Hill, Birchville, Upper Hutt, Lower Hutt
Betta Bins	All Areas
Bin Hire Ltd	Wellington suburbs, Johnsonville, Tawa, Porirua, Whitby, Plimmerton, Lower Hutt, Petone, Upper Hutt
Bin Hire Trentham Ltd	Kapiti, Upper Hutt, Porirua, Kilbirnie, Miramar, Paraparaumu, Lower Hutt, Karori
Bookabin	Wellington, Kapiti Coast, Waikanae, Porirua, Upper Hutt, Lower Hutt, Tawa, Paraparaumu
Clean Green Bins	Wellington, Otaki (Kapiti Coast), Porirua, Upper Hutt, Lower Hutt, Waikanae (Kapiti Coast)
Daily Waste	Wellington region
Dawson's Waste Services Ltd	Porirua, Whitby, Tawa, Lower Hutt, Petone, Wellington, Wainuiomata, Upper Hutt
Eco Skips	Miramar, Kilbirnie, Newtown, Karori, Johnsonville Tawa, Porirua, Upper Hutt, Lower Hutt, Petone, Central Wellington
Envirowaste Services Ltd	Wellington region
Hutt Waste Removal	Hutt Valley
Low Cost Bins	Upper Hutt, Petone, Wainuiomata, Stokes Valley, Lower Hutt
Owyak Bin Hire	Wellington suburbs, Miramar, Kelburn, Petone, Lower Hutt, Porirua, Whitby, Tawa, Pukerua Bay
Skip E Bins	Paraparaumu
Transpacific AllBrite Limited	Wellington region
V.I.P. Home Services	Porirua, Stokes Valley, Whitby, Lower Hutt, Upper Hutt, Paraparaumu, Tawa, Karori, Eastbourne, Wainuiomata, Island Bay, Brooklyn, Johnsonville
Waste Management NZ (part of Transpacific Industries Group)	Wellington
Waste Services Ltd	Upper Hutt

Name	Where they operate
Woods Waste Disposal and Transfer Station	Wellington
Farmers Transport	Wairarapa
Wairarapa Wheelie Bins	Wairarapa
Earth Care Environmental	Wairarapa

4.8 Recovered and recycled materials services, facilities and markets

4.8.1 Service overview

There are a number of council services that cater for the recovered and recyclable materials market within the Wellington region. These include kerbside, domestic recyclables collection, provided by contractors on behalf of the councils, and recovery and recycling at transfer stations and some landfill sites. In addition the commercial sector has a number of similar services available to residential and business customers.

A number of the councils make provision for drop-off and public place recycling facilities. These include five community recycling stations in the Hutt City area at Alicetown, Naenae, Waterloo, and Wainuiomata. Public place recycling bins are also available in central Wellington and a bulk drop-off facility is available at the Southern Landfill. Kapiti Coast District has drop-off facilities at Paraparaumu and Waikanae. On completion (in April 2011) of the Masterton Recycling Centre at the Council's Nursery Road site, the Council will increase the range of materials that can be recovered.

Table 4.8-1 provides an overview of the council-provided kerbside recycling collections for the region.

Table 4.8-1 Councils kerbside recyclables collection summary

Territorial Authority Area	Recycling container	Paper	Plastics	Paper/ Cardboard	Glass	Super market bags	Cans	Comments
Kapiti Coast District	55 litre crate	✓	plastics 1-7	✓	✓	✓	✓	Urban Only
Porirua City	60 litre crate	✓	plastics 1-7	✓	✓	✓	✓	bags can be purchased
Upper Hutt City	clear bags	✓	plastics 1-7	✓	✓	·	✓	paper card, alternate weeks plastics exclude polystyrene
Hutt City	55 litre crate	✓	plastics 1-2	✓	✓	✓	✓	
Wellington City	140 litre bin	✓	plastics 1-2	✓	45 litre crate	×	✓	90 litre bags where bins unsuitable
Masterton District	2 x 55 litre crates	✓	plastics 1-7	✓	✓	✓	✓	Urban only. All items weekly
Carterton District		✓	plastics 1-2	✓	✓	✓	✓	different items week 1-5
South Wairarapa District		✓	plastics 1-2	✓	✓	✓	✓	different items week 1-5

4.8.2 Facilities

While the councils collect domestic/household recyclables, the commercial sector is generally left to cater for business, commercial and industrial recycling. As most recycling of this nature is carried out by the commercial sector, it is hard to obtain quality data with companies quoting commercial sensitivity as the reason for not supplying this information to the councils. It has been established, through conversations with some companies in the recycling industry, that some local markets do exist for collected materials such as some plastics.

A number of the landfill sites have active resource recovery facilities such as Spicer Landfill with Trash Palace and Poly Palace. Conversations with recyclers within the Wellington region have indicated that they would like the councils to support local recycling and diversion businesses, particularly as markets exist locally for some recycled products. The councils could investigate their role further into facilitating commercial waste and recycling markets.

4.8.3 Recovered materials markets

The recovered, or sometimes now referred to as the 'diverted' materials market, is much more fragmented than the waste market. Unlike the waste market, in which the important divisions are 'horizontal' (collection, bulking and disposal), the recycling industry is divided into distinct markets according to material types – paper/cardboard, glass, metal and plastics.

The major local processors of the different material types tend to have a dominant position in each marketplace. Unlike the waste market, the recovered materials' market is integrated with an international market.

The main commercial recycling organisations, including scrap metal dealers, in the region are listed in Table 4.8-2 below.

Table 4.8-2 Commercial recycling organisations

Name	Where they operate
Wellington Sorting and Baling	Seaview, Lower Hutt
Trash Palace/Poly Palace	Porirua
Waste Management (a division of Transpacific Industries Group (NZ) Ltd)	Wellington region
Transpacific Albright Ltd	Wellington region
Fullcircle Recycling	Wellington region
Seaview Recycle and Transfer Station Ltd	Seaview, Lower Hutt
Able Car and Metal Recyclers	Porirua
Ward Recycling and Bin Hire	Wellington region
Capital Recycling Centre	Wellington
Skip-E-Bins	Paraparaumu
General Metal Recycling Co	Wellington region
Legend Scrap Metals	Wellington
Macauley Metals	Hutt Valley
Wellington Scrap Metals Ltd	Wellington
Rubber Solutions Asia Pacific Ltd	Wellington region

4.8.4 Organic waste facilities and services

The WMA defines recovery generally as the extraction of materials or energy from waste or diverted material for further use or processing and this includes making waste or 'diverted material' such as greenwaste or putrescibles into compost.

Some councils in the region are actively engaged in green waste diversion. Wellington City Council operates composting facilities at its Southern landfill site, handling around 5,000 tonnes per year.

Green waste is accepted and composted at Masterton District Council's Recycling Centre at Nursery Road. Greenwaste is accepted and mulched at Carterton District Council's Dalefield Road Transfer Station.

Kapiti Coast District's contractor Composting NZ currently processes around 6,600 tonnes per annum of greenwaste at Otaihanga Landfill. Green waste (totalling 2,769 tonnes) is also sent

from Porirua City to the Kapiti Coast facilities for processing. Porirua is currently reviewing its current greenwaste management with a view to making it more sustainable.

Kapiti Coast District and the Wairarapa councils have indicated that they intend to review current greenwaste management in their districts as well. Each council is experiencing different issues around green waste management that require addressing. These issues include:

- transportation of the greenwaste to processing facilities
- transportation of the processed material out of the lower North Island to suitable markets.

Greenwaste collected at landfill and from council services in the Hutt Valley is currently landfilled. The decomposing material produces a methane gas which is collected and used to generate electricity. This is then fed into the national grid.

There are several commercial composting facilities located in the Wellington region. These include:

- Capital Compost which is locally owned and operated and produces potting mix and topsoil for the market
- Dimac Contractors Ltd at Seaview that operate Vertical Composting Units
- Composting NZ Ltd that processes greenwaste at Otaihanga, Kapiti Coast.

Commercial volumes of organic matter that do not end up at the landfill are predominantly received at these facilities.

Most of the bio-solids from the region's wastewater treatment facilities are currently landfilled. Kapiti Coast District places treated sludge onto the Otaihanga Landfill as a capping material. This is expected to continue for one more year. In the Hutt Valley, approximately 3,600 tonnes are pelletised as a result of the Hutt Valley wastewater treatment process. Hutt City's contractor is responsible for disposal/beneficial use of this material and is promoting application to land as a fertiliser or use of the material as a fuel source.

A partnership is underway with Grow Wellington's Centre of Excellence in Sustainable Energy, SpectioNZ, Wellington City, Kapiti Coast District and Porirua City, who are together supporting a pilot plant at the Wastewater Treatment Facility in Paraparaumu. The main objective of this project is to develop a disposal option for sewage sludge that does not involve landfilling. The three partnering councils dispose of 25,000 tonnes of bio-solids per year to landfill. Landfilling of sewage sludge, due to a consenting requirement, requires four times the sludge volume of other waste to mix with it to enable disposal to landfill. This means that the diversion of waste from landfill is potentially greater than just sludge.

The continued disposal of bio-solids to landfill is an issue for the councils for which they are seeking an alternative. Further research is required into options for alternative recovery/disposal including for example waste to energy solutions, monofilling. Initial research needs to include gathering of information about the calorific value of the bio-solids.

4.9 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 landfill or through the trade waste system. Some of these treatments result in trans-media effects, with liquid wastes being disposed of as solids after treatment. A very small proportion of hazardous wastes are 'intractable', and need 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. The following Table 4.9-1 contains known hazardous waste operators in the region.

Table 4.9-1 Hazardous waste operators

Name	Where they operate from
Chemwaste Industries (part of EnviroWaste Technical Services Ltd)	Seaview, Hutt City
Enviropaints Ltd	Otaki, Kapiti Coast
Transpacific Technical Services	Seaview, Hutt City
InterWaste Services	Sea View, Hutt City

Domestic quantities (up to 20kg or 20 litres) of hazardous waste may be dropped off at the Hazmobile when it is in service. 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 operators.

The Agrecovery Rural Recycling programme operates in the Wellington region with drop-off points at Martinborough, Masterton and Otaki. This programme provides New Zealand's primary sector with responsible and sustainable systems for the recovery of 'on farm' plastics and the disposal of unwanted chemicals. It currently provides three nationwide programmes:

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

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.

4.10 Council-controlled waste services and contracts

The following table 4.10-1, summaries the councils' current waste and resource recovery contractors.

Table 4.10-1 Councils' current waste and resource recovery contractors

Council	Refuse bag supply contractor	Refuse bag collection contractor	Kerbside recycling collection contractor	Landfill disposal contractor	Resource Recovery Centres
Kapiti Coast District	*Plastic* - High Tech Packaging *Paper* - Carter Holt Harvey	EnviroWaste Services Ltd	EnviroWaste Services Ltd collects the recycling on behalf of the partnership between Council and three commercial operators (EnviroWaste Services being one)	Transport to landfill Levin - MidWest Disposals Limited Otaihanga Landfill Management – Peters Development Group	Otaihanga RRF- MidWest Disposals Limited Otaki TS - Waste Management Waikanae RC – Peters Development Group Green waste composting – Composting NZ
Porirua City	Ecoplastics NZ	Transpacific Allbrite Limited	Transpacific Allbrite Limited (Urban) Owyak Waste Limited (Rural)	Transpacific Industries Group Limited	Trash Palace Poly Palace
Upper Hutt City	Elldex Packaging Group	Waste Management (Transpacific Industries Group Limited)	Transpacific Industries Group Limited	-	-
Hutt City	Hi Tech Packaging Ltd	Waste Management (Transpacific Industries Group Limited)	Transpacific Allbrite Limited	Transpacific Industries Group Limited for Silverstream Landfill Dimac Contractors Limited for Wainuiomata Landfill	-
Wellington City	Kiwi Plastic Company Limited	Owyak Waste Limited	EnviroWaste Services Limited	CitiOperations (a division of WCC)	CitiOperations
Masterton District	Elldex	Greenfingers	Greenfingers	Haulage to Bonny Glen - Greenfingers	Greenfingers
Carterton District	Eco plastics NZ	Greenfingers	Greenfingers	Haulage to Bonny Glen- Greenfingers	
South Wairarapa District			Transfield Services Group	Haulage to Bonny Glen - Greenfingers	

4.11 Waste minimisation education/behaviour change programmes

Another main type of initiative for waste reduction undertaken by the councils is in the area of waste minimisation education and promotion. The councils engage contractors to deliver education and behaviour change programmes.

There are currently several waste minimisation/behaviour change programmes and initiatives in place in the Wellington region. These initiatives, combined with collection and disposal services offered by the councils, aim to reduce waste to landfill in the region. These programmes generally promote all levels of 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 such as Mana Community Enterprises, Sustainability Trust, Greater Wellington Regional Council, Enviroschools Foundation, and Keep Porirua Beautiful.

Examples of the programmes include:

- Enviroschools and the Trash Palace education programme for schools, with additional support available for local schools for composting and recycling initiatives
- Te Maara Community garden and community compost facility. A community composting programme where community members are trained up to deliver waste minimisation workshops, focusing on composting
- The Masterton District Council has a the weekly collection of paper from schools in conjunction with the Paper4Trees programme
- Public event recycling at major community events such as Creekfest and Festival of the Elements
- Interactive information stalls at local events
- Modern cloth nappy hire service
- Partners in the annual Housing NZ Makeover Weeks
- Community waste audits
- Programmes for businesses such as E-mission, in partnership with other territorial authorities and central government agencies.

4.12 Council Regulation

In addition to key strategic waste infrastructure assets, the Councils also have responsibilities and powers as regulator and statutory obligations placed upon the councils by the WMA.

The councils operate in the role of regulator with respect to:

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

The WMA 2008 requires that the councils review their waste bylaws by July 2012. Waste related bylaws must not be inconsistent with a councils' waste management and minimisation plans. Table 4.12-1 summaries the current scope of solid waste bylaws throughout the region.

Table 4.12-1 Solid waste bylaws - Wellington region

Council	Date completed	Licensing	Ban on identified waste streams to landfills	Collection requirements	Landfill requirements
Kapiti Coast District	2010	✓	×	✓	✓
Porirua City	2009	×	×	✓	✓
Upper Hutt City	2005	×	×	✓	✓
Hutt City	2008	×	×	✓	×
Wellington City	2008	×	×	✓	×
Masterton District	2008	×	×	✓	✓
Carterton District	×	×	×	×	×
South Wairarapa District	×	×	×	×	×

All the councils undertake rates funded clean ups of illegal dumping. Porirua City Council has recently added a truck and two men to its city litter team in addition to the full time existing litter officer in the compliance team. This has reduced illegal dumping and almost eliminated repeat offences.

4.13 Extended producer responsibility and product stewardship

Extended Producer Responsibility (EPR) is essentially an approach to promote total life cycle environmental improvement of product systems by extending the responsibilities of the manufacturer of the product to various parts of the entire life cycle of the product including the take-back, recycling and final disposal of the product.

Product Stewardship can be managed as a voluntary scheme, or made mandatory with regulatory instruments. The efficacy of voluntary schemes, however, is questionable, especially where they are not backed by the threat of regulation.

The WMA provides for regulations to be developed in relation to the priority products that are identified by the Government. At the time of writing the Government has not formally nominated priority products, although a trial accreditation process has been undertaken for waste oil. The

Government has since signalled its preference for non-regulatory methods, such as the development of voluntary schemes only. It is uncertain at this time any further products will develop accredited schemes and what influence these schemes will have on reducing the generation and/or disposal of these wastes. Table 4.13-1 shows existing product stewardship schemes in New Zealand.

Table 4.13-1 Existing product stewardship schemes in New Zealand

Product stewardship scheme	Details
Agpac	Take-back used farm wrap
AgRecovery	Product stewardship programme for agrichemical containers, silage wrap and chemicals
Dell New Zealand Ltd	Take-back computer equipment
Enviropaints Limited	Take-back and resale of recycled paint
Exide Technologies	Take-back vehicle batteries
Fisher and Paykel Appliances Ltd	Take-back white-ware
Hewlett-Packard New Zealand	Take-back computer equipment from their corporate clients
IBM New Zealand	Take-back computer equipment from their corporate clients
New Zealand Packaging Accord	Addresses packaging waste
Recovery	A Trust set up to collect and destroy Ozone depleting refrigerants
Paintwise	Resene Paints take-back paint
Telecom New Zealand Ltd	Take-back cell phones and accessories (any type of cell phone)
Tyre Track	Tracking of end-of-life tyres
Used Oil	Used oil collection and disposal scheme
Vodafone New Zealand Ltd	Take-back cell phones and accessories (any type of cell phone).
Enviropaints Limited	Take-back and resale of recycled paint
Fisher and Paykel Appliances Ltd	Take-back whiteware
IBM New Zealand	Take-back any computer equipment.
Agpac	Take-back used farm wrap
AgRecovery	A product stewardship programme for agrichemical containers, silage wrap and chemicals
Dell New Zealand Ltd	Take-back any computer equipment.
Hewlett-Packard New Zealand	Take-back any computer equipment.

4.14 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/Porirua cities, Hutt and Upper Hutt cities (shareholders in gas system at landfill)
- facility usage – Hutt/Upper Hutt cities – agreement for usage of Silverstream Landfill, the councils in the Wairarapa use 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 this waste assessment, the Hutt Valley Councils have completed a waste assessment, the Wairarapa councils currently have a joint waste management plan
- innovation, trials – disposal options for sewage sludge - Wellington City, Porirua City and Kapiti Coast District
- Masterton and Carterton Districts have a joint waste and recycling contract and a waste haulage contract for all three Wairarapa Councils for the haulage and disposal of residual waste to the Bonny Glen Landfill.

5 FUTURE DEMAND

The Act requires that a waste assessment includes forecasts of demand for certain waste services. The following chapter identifies key demand forecasting assumptions, and how this can be expected to impact on future service provision. The forecasting of future demand can also help the councils to scope suitable options for managing the demand for some waste services and infrastructure, such as landfills.

The future demand in the Wellington region for waste management and minimisation services will be driven by a number of primary drivers including:

- demographic change e.g. population and/or household changes
- change in commercial and industrial activity/economic conditions
- impact of waste flows from other areas
- consumption patterns/product quality
- national policy, legislation and regulation
- impact of waste minimisation programmes, services and future initiatives (demand management strategies)
- community expectation.

Secondary drivers also impact on demand for waste services but are indirect in nature. Examples of such drivers are climate change that leads to increased/decreased grass growth and subsequently increased/decreased greenwaste. Due to uncertainty of their impact and difficulty in measuring, they will not be discussed in any detail. The rest of this chapter provides an overview of what are viewed as the most relevant primary future demand drivers for the Wellington region.

5.1 Demographics/population change

In order to predict and compare future growth in the region population statistics and future predictions have been taken from Statistics NZ figures for 2008. Business numbers are taken from the 2006 census.

The population of the Wellington region is 473,700. In recent years Wellington has had relatively high population growth, experiencing an increase of 3,500 people each year since 2001. At the same time there has been a strong trend towards central city living, particularly apartment living. Higher than expected growth has seen the latest estimate of the urban population in the four cities of the region reach 386,000 (30 June 2009).

Figure 5.1-1 illustrates the percentage of the region's population in each district. Figure 5.1-2 provides medium population growth predictions to 2031 for each district in the region. Figure 5.1-3 shows total population growth across the region.

Figure 5.1-1 Comparison of populations of districts within the Wellington region

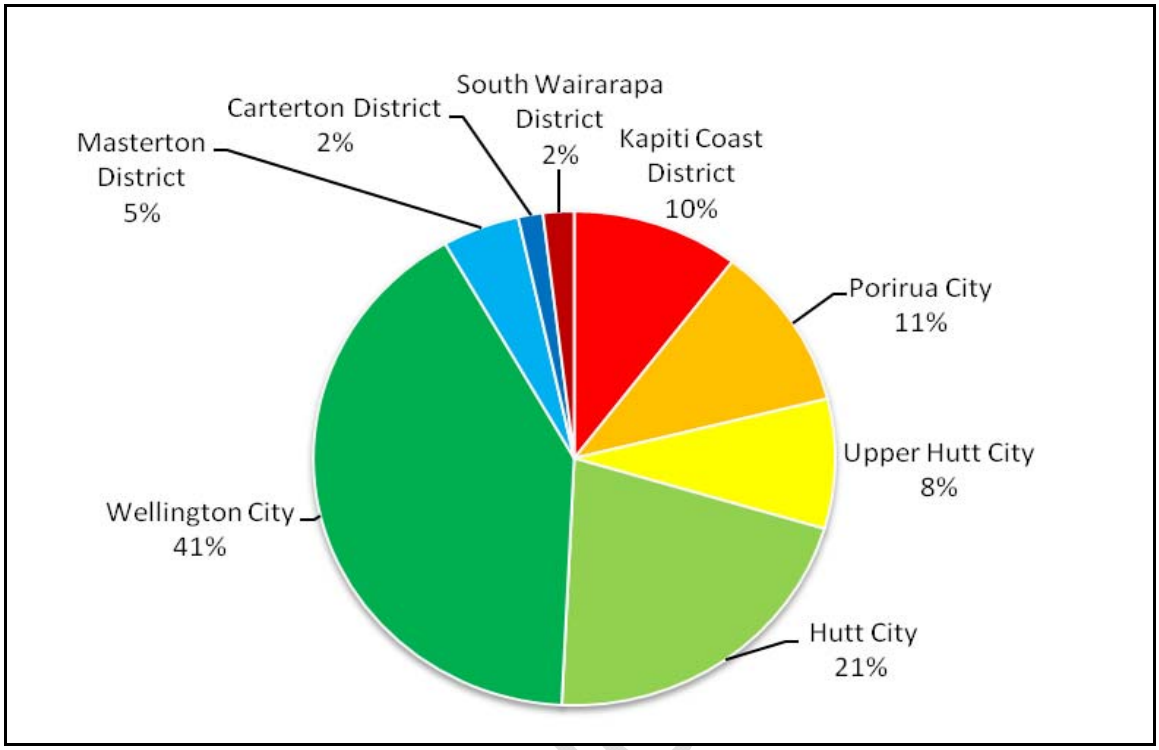


Figure 5.1-2 Predicted population of districts in the Wellington region

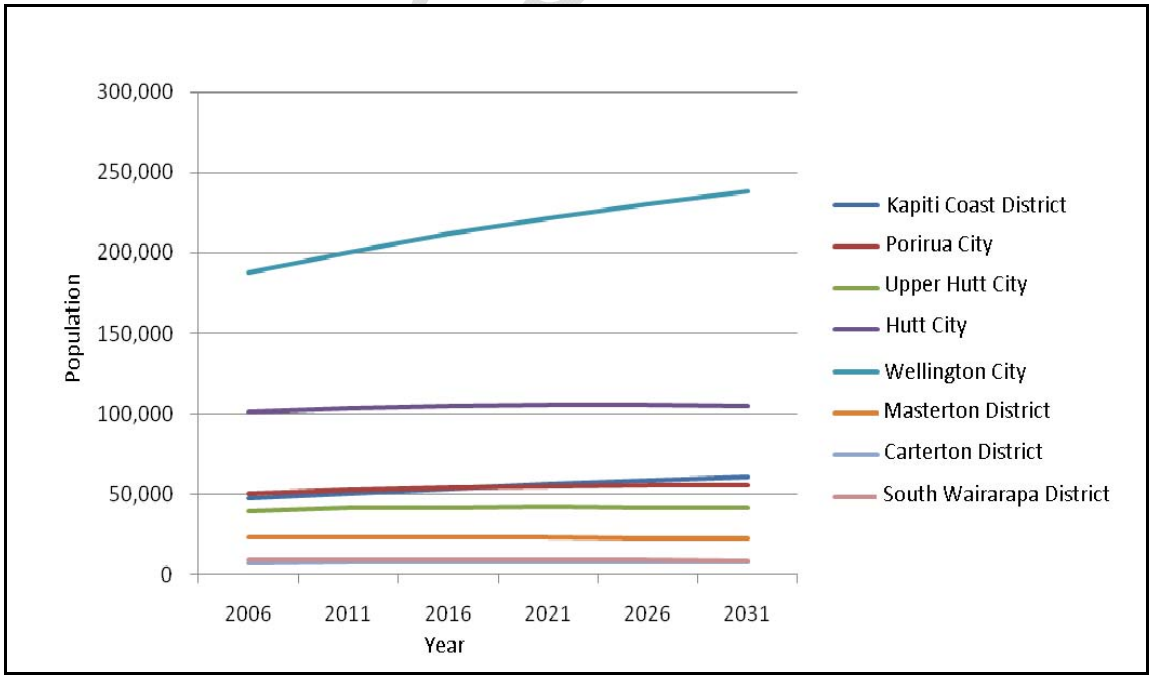
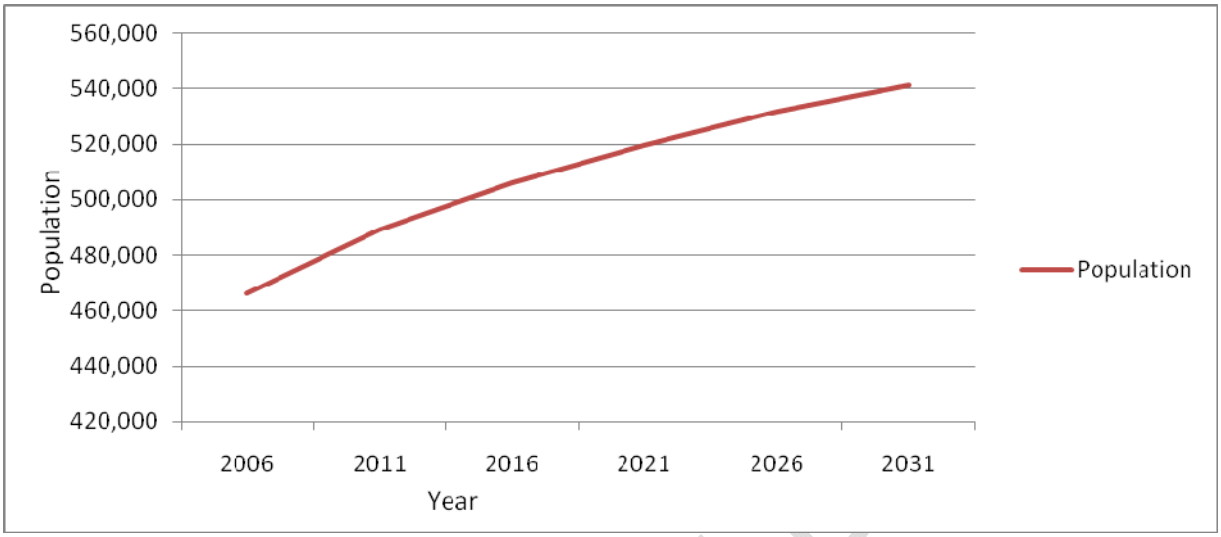


Figure 5.1-3 Predicted population[8] total Wellington Region



The medium population growth scenario of the Wellington region shows a steady increase over time in all Statistics NZ scenarios (high, medium and low models). While the general trend is for a growing population, in some areas (mainly the smaller disticits) it is predicted that the population will decrease slightly.

The Kapiti Coast District population is increasing faster than most places in New Zealand. Population projections exhibit large increases in Waikanae and Otaki, which are the district's growth areas. The estimated population of Kapiti Coast District was 48,900 as at 30 June 2009. Covering an area of 731 square kilometres, the district has a higher than average population density with 63.2 people per square kilometre compared with 14.9 people nationally. There are around 4,425 businesses in Kapiti Coast District.

Growth predictions for Hutt City show an increase in population, displaying a rising trend of 2.3 percent, since the 2001 Census. Its population ranks 10th in size out of the 73 districts in New Zealand having 2.4 percent of New Zealand's population. There were 7,104 businesses in Lower Hutt with a large proportion of manufacturing.

Based on the Statistics New Zealand projections, the population of Porirua City is predicted to increase by 5 to 13 percent during the period of the 2009-2019 LTCCP. This equates to a population range of 53,100 – 57,100 during the period, increasing to 53,400 – 60,300 by the year 2031. Porirua City is home to over 3,160 businesses.

Upper Hutt is growing under high and medium growth scenarios but exhibiting a decline in population under a low growth model. There were 2,625 businesses in Upper Hutt at the time of the last Census.

[8] Statistics New Zealand

National census projections show that Wellington City's population will grow to about 230,000 by 2026. At the same time, the average household size will continue to shrink to approximately 2.4 people per household by 2021. Wellington City has the highest number of businesses in the region with over 17,655.

Masterton's population is likely to remain steady with a possibility of a small decline; furthermore the demographics are likely to change with an increase in the elderly population over the age of 65. In 2006 there were 1,977 businesses in Masterton District. Similarly, Carterton has a population of approximately 7,500 with over 825 businesses in the district. The medium and high level growth scenarios for this district show a steady increase in the population whereas the low level growth scenario displays a decrease in population over time. In South Wairarapa District there were 1,167 businesses in 2006 with the district's population also showing a modest decline under low and medium growth scenarios.

5.2 Commercial and industrial economic activity

A key indicator of commercial and industrial activity is GDP. Across New Zealand, GDP has fluctuated over the last 10 year period dropping into a recessionary period in 2008-2009 but returning to positive growth towards the end of 2009. The global recession has had an expected result of reduced waste to landfill as production and consumption declined, and companies continue to reduce waste in an effort to become more productive. Over the long term, growth is expected to return to previous rates estimated at 3% per annum[9].

The recent recession is believed to have resulted in a measurable decline in waste to landfill in various parts of New Zealand as seen by a number of councils' waste to landfill figures.

As waste has traditionally been coupled to economic activity indicators such as GDP, it is anticipated that without continued change in how waste is managed (for example, on-going and increased diversion/resource recovery activity or changes to legislation) waste per capita is likely to increase, with larger increases apparent in areas of both business and population growth.

5.3 Waste from other areas

The policy, services and facilities of one district can dramatically impact on demand for services in neighbouring districts. It is not apparent that significant amounts of waste enter the Wellington region from outside its boundaries. In fact MfE has commissioned a report investigating waste catchment models. The Wellington region was deemed to be ideal for this because of the self-contained nature of the waste infrastructure and waste movements within the region.

[9] www.**treasury**.govt.**nz**/budget/**forecasts**

5.4 Consumer behaviour

Consumer behaviour is a key driver for household waste generation in particular. OECD research indicates that there are a number of factors that influence household waste generation including:

- family composition e.g. household numbers and children
- household income and size
- attitude toward the environment and recycling
- presence of volume-based charging systems for waste
- frequency of waste collection
- technological shifts/product supply changes
- increased product packaging
- presence of infrastructure and services to enable resource recovery[10].

These issues are the target of many New Zealand policies and programmes, both at a local and national level. Obviously, factors such as family size and household income will be beyond councils' influence. However there are positive correlations between attitude toward the environment and waste generation that can be influenced. Other important factors are the presence of volume-based charging systems e.g. user pays schemes and/or other economic disincentives such as waste levies. Another example of how these factors can be influenced is through the establishment of product stewardship schemes for priority products. There are a number of local 'community based social marketing' programmes that have arisen over the last decade, including several that have been implemented in the Wellington region as part of its waste minimisation education programmes.

The councils are likely to continue with existing initiatives to influence consumption behaviour and demand for waste services both at a local and national level, and improve on them over time. This is likely to put some downward pressure on demand for landfills, though at this stage it is difficult to quantify.

5.5 Legislation – product stewardship schemes, waste levy or other regulation

Legislation, particularly the WMA contains several mechanisms aimed at reducing waste to landfill, such as the waste levy and product stewardship provisions. There are also a variety of local regulatory measures that can affect demand for services. While some of these were discussed in Chapter 2, they are assessed further here with respect to their implications on future demand and as demand management strategies.

5.5.1 Waste levy and possible affects on future demand

Aside from the product stewardship provisions of the WMA 2008, the Act also contains waste levy provisions which, as discussed in chapter 2, will provide funding to promote waste

[10] From Towards Sustainable Household Consumption, OECD 2002.

minimisation initiatives. If increased over time, a levy would also provide a disincentive to landfill waste. For the purpose of forecasting demand, a flat levy rate of $10 per tonne has been assumed. Large increases in levy rates would be expected to reduce demand for landfill services and increase demand for recycling – though in the past the link between price increases and reduction in volumes has not been particularly strong. Nonetheless, price increases in future may also increase the need for enforcement to address illegal dumping.

5.5.2 Other national legislation and regulation

Another consideration is the potential for additional legislation and its impact, for example the recently enacted Emissions Trading Scheme, and /or the development of a national cleanfill standard as these could have a key impact on the types and quantity of waste disposed to landfill.

5.6 Waste minimisation programmes, services and future initiatives

Waste minimisation programmes and services can create a reduction in the demand for landfills and a corresponding increase in demand for resource recovery and waste minimisation services and infrastructure.

Depending on the type of programme and how its performance is measured, it may be difficult to attribute reduction of waste to landfill to some programmes. However, other potential services such as increased green waste diversion and composting or a kitchen food waste collection, would have a quantifiable reduction of waste to landfill. Projected waste tonnage, and consideration of various factors including waste minimisation activity, is discussed in section 5.8.

5.7 Projected waste volumes

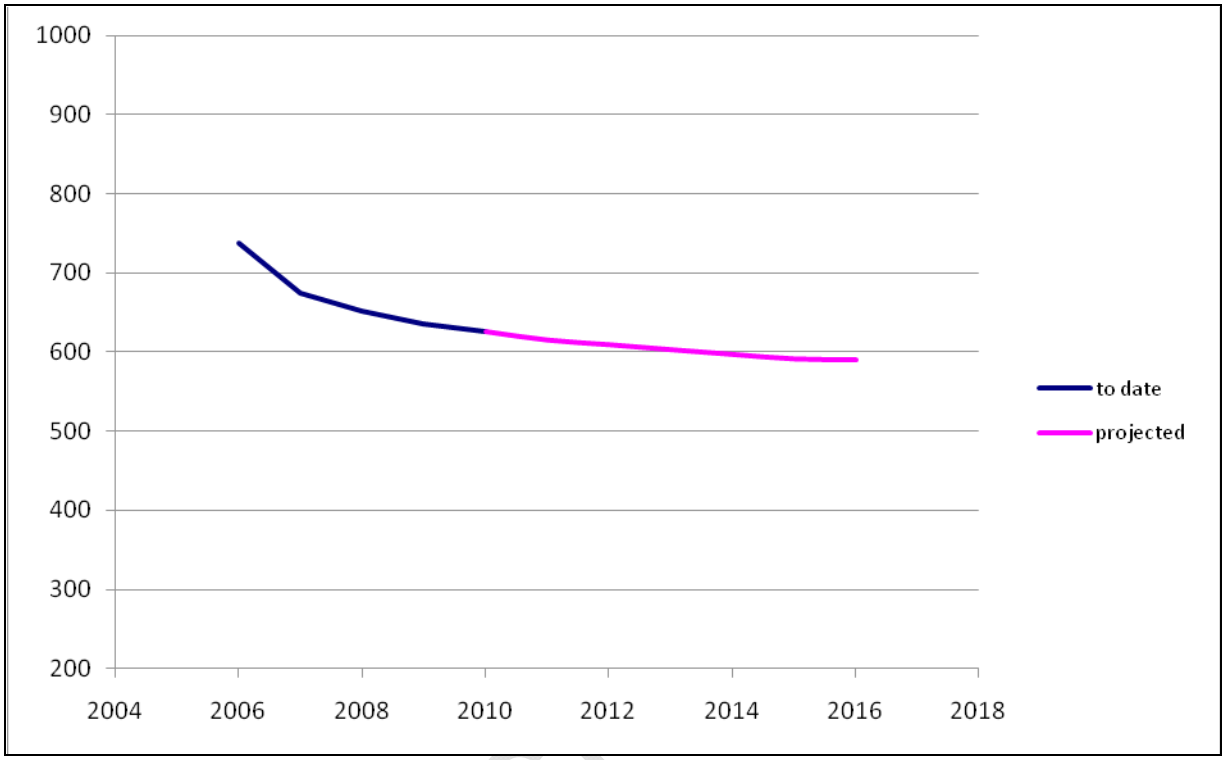
Giving consideration to the drivers noted above several projections can be made about waste generated within the Wellington region.

Population growth and current waste 'per capita' trends indicate waste disposed to landfill is decreasing slowly. Business and GDP figures indicate that the recent downturn will give way to a slow recovery, with a return to expected growth levels in the medium to long term.

It has been established that outside of the councils in the Wellington region, other districts contribute only a small amount of waste to the landfills within the Wellington region.

Changes in population and expected growth indicate that the Wellington region will experience small increasing growth in waste trends into the future unless current diversion programmes continue. If, as expected, existing waste reduction initiatives continue, then waste per capita should continue its recent trend of a small decline (see figure 5.7-1). If further action is taken to effect behavioural change in the community or new diversion techniques are introduced either at a local or national level then a reduced waste to landfill per capita trend may be accelerated.

Figure 5.7-1 Wellington regional waste to landfill (excludes clean-fill and one-off events): projected waste to landfill per capita (kg)

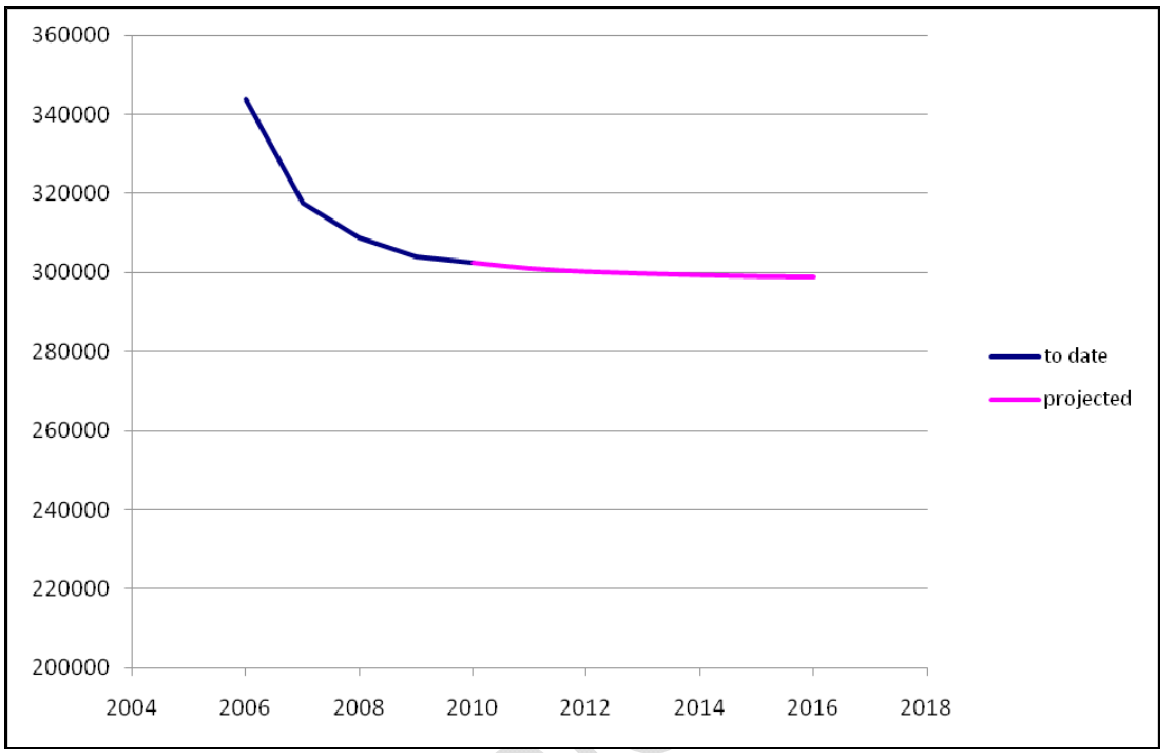


Future waste quantities can be anticipated using the data available to produce Wellington waste trends.

As a result of the recent world recession reduction in waste to landfill by 10-20% has been reported in some areas during 2008-10. Waste is seen to be linked to economic growth and population. Evidence from the waste assessment and data provided shows that waste appears to have been partially de-coupled from population growth in that it will continue a modest decline as figure 5.8-1 shows. Note that the rapid drop in waste to landfill at around 2007-08 is assumed to be a result of the economic downturn.

Figure 5.7-2 shows pojected waste to landfill not specifically accounting for GDP, as GDP and growth have been unpredictable due to challenging economic conditions. It could be presumed that an significant unexpected increase in GDP would be mirrored slightly in waste projections. However, the Wellingotn region has significant landfill capacity to meet present and future projected needs should waste increase.

Figure 5.7-2 Historical and projected waste to landfill (excludes clean-fill and one-off events) (tonnes)

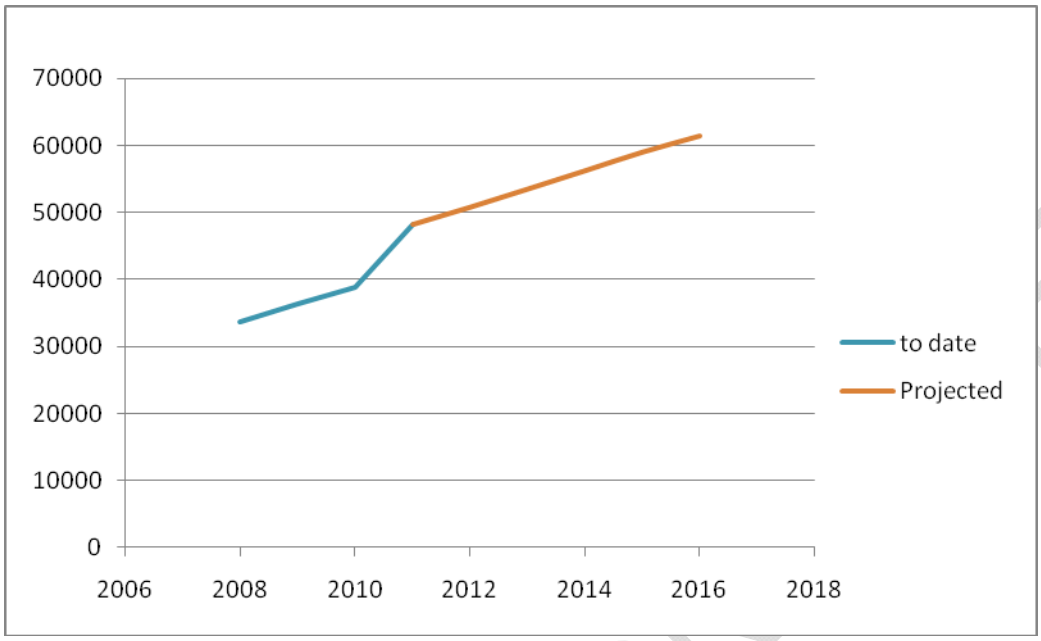


5.8 Projected diverted materials

Economic fluctuations also have an impact on the supply of and demand for diverted materials.

Resource recovery activities such as the recycling are reliant on both a source of discarded materials (e.g. kerbside recycling schemes) and a market demand for these materials. Figure 5.8-1 shows projected demand for council provided recycling services within the region. The projected increased for recycling services is the logical consequence of the projected reduction in waste to landfill.

Figure 5.8-1 Projected demand for council recycling services (tonnes)



Kerbside recycling operations provide a relatively steady supply of materials, although this supply is likely to be impacted by the economic conditions that affect consumption levels. Demand for these materials will be reflected in commodity prices.

If demand for these materials results in the commodity price dropping below the cost of collection and land filling, it is possible that materials that were once diverted to beneficial reuse or recycling may once again be landfilled, be stockpiled, require additional subsidy or in some cases be illegally dumped. This emphasises the importance of monitoring economic trends over time, particularly when considering the sustainability and economic viability of recycling and/or recovery operations.

It is generally expected that diverted materials will show a similar trend to waste projections and vary in accordance with the factors that influence waste generation, such as population, economic growth, consumption and production patterns.

Additionally, however, various factors will impact specifically on the market for diverted materials which will act to divert more or less material from landfill. Demand for and supply of substitute resources, product quality, overseas markets and transport costs, centralised processing centres as well as other community and waste minimisation programmes will all have an effect on the amount of waste that becomes diverted material.

With demand and supply determining the competitive market price, it is expected that as the price for diverted materials increases, supply will also increase and more material will be diverted from landfill.

Similar tends can be expected for recovery services by way of composting of organic waste.

5.9 Summary of future demand drivers

The future demand for solid waste services in the region will be driven by:

- growth in Greater Wellington: numbers of households and the population serviced
- growth in commercial and industrial activity within the region
- changing patterns in the generation of solid waste
- changing patterns in solid waste diversion and recycling
- solid waste diversion between disposal facilities both externally and internally within the region
- changes in technology
- Government policy.

6 FUTURE PLANNING FRAMEWORK

6.1 Where do we want to be?

The first five chapters of this waste assessment reviewed the current situation with respect to the waste management and minimisation industry and services in the Wellington region and have considered the potential for growth and other demand drivers for the next 10+ years.

The purpose of this analysis has been to assess future demand for various services and to determine the suitability of the current services when considering both public health protection and waste minimisation objectives.

This section considers the joint councils' potential vision, goals, objectives and expected outcomes for achieving waste management and minimisation and methods for meeting the forecast demand for services. These have been developed in a preliminary draft form only, for assisting in the consideration of options. They are subject to further consideration as part of the preparation of the Councils of the Wellington Region Waste Management and Minimisation Plan.

6.2 Vision and goals

"Reducing harm, improving efficiency" is the title slogan for the New Zealand Waste Strategy(2010) and represents the Government's vision for a society that values its environment and resources. The Strategy plays an overarching role in the comprehensive toolkit (legislation, international conventions, codes of practice, and voluntary initiatives) for managing and minimising waste in New Zealand.

For the purposes of this Wellington regional waste assessment the councils propose a vision of providing residents and ratepayers with highly effective, efficient and safe waste management and minimisation services in order to protect the environment from harm, and provide environmental, social, economic, and cultural benefits.

In addition the councils wish to consider the following goals:

- Achieving waste minimisation through reduction, reuse, recycling and recovery where it is efficient and effective to do so;
- Achieving effective and efficient waste management through highly cost effective council and/or privately provided waste management services;
- Minimising the harmful effects of waste wherever practicable;
- Providing economic benefit by using resources more efficiently;
- Protecting public health; and
- Gaining better information upon which to base future decisions regarding waste management and minimisation.

6.3 Objectives and priority waste streams

The NZWS 2010 contains two goals:

- reducing the harmful effects of waste, and
- improving the efficiency of resource use.

The Strategy suggests when planning waste management and minimisation activities, local government, business and the community should assess the potential for harm associated with wastes, and use the assessment to focus on areas of greatest concern. Councils should through their WMMPs, increase their focus on reducing the harmful effects of waste on the environment.

Priority waste streams for the Wellington region have been identified previously by waste officers as part of the development of their existing waste management plans and in the review of waste data undertaken for this waste assessment. This review has suggested the following waste streams be considered for priority waste minimisation action:

- organic waste
- recyclable packaging and paper
- construction and demolition waste
- special wastes.

Options for addressing these waste streams, along with options for other waste management functions, are outlined in the waste options assessment in Chapter 7.

6.4 Waste minimisation expected outcomes

At workshops held in 2010, waste officers from the councils of the region agreed that the following outcomes reflected the councils' waste management objectives for the region:

- reduced total volumes of waste disposed to landfill;
- increased volumes of waste diverted through reuse and recycling;
- increased recovery of materials and/or energy from waste;
- communities that are well informed about the effects of waste and the opportunities they have to reduce waste;
- highly efficient waste management and minimisation services – whether or not these are provided by Council;
- continual improvement in the environmental performance of waste disposal facilities;
- clean streets and public areas;
- no significant health risks created by waste; and
- consistent and coordinated approaches to regulating waste management services.

6.5 Considerations

There are a number of issues to consider when investigating the practicality of future options.. In addition an assessment is required of whether options are best undertaken on an individual council, sub-regional group of councils or a regional basis. An option started on a sub-regional basis, following assessment of its success, may later transition into a regional project.

There is a need to:

- plan waste management and minimisation in the long term for the region's interest and align to desired community outcomes
- consider the economic situation on the expected amount of waste or recovered materials when setting any new or revised goals, expected outcomes and planning for services
- consider the degree to which the councils are involved in providing for waste management and minimisation services and their specific role in promoting cost effective waste minimisation
- provide for funding in the councils' LTCCPs and subsequent Annual Plans and monitor progress through Annual Reports and in progress reporting to MfE on the implementation of the WMMP as required by the Act
- continue the councils' funding principle that, in respect of disposal activities, the user of the service generally pays the full costs of disposal
- consider the economic feasibility of new or improved services, to ensure rates and other costs are not increased unnecessarily
- consider joint use of a proportion of the allocated waste levy funds for regional waste minimisation initiatives that are identified in the councils' WMMP
- consider shared services for contracted services
- consider the timing of the expiry of existing contracts if proposing to have shared services in the future
- consider the benefits of providing region-wide behaviour change/education/ promotional programmes
- monitor waste, including its tonnage and composition, plus gather information that can be obtained regarding commercial and industrial sources of waste
- work collaboratively and effectively between the councils and/or the commercial waste sector to obtain economies of scale through sharing of facilities (e.g. landfills, resource recovery centres, refuse transfer stations), collection services, educational/promotional programmes and funding arrangements (e.g. application for and use of waste levy funds from the Waste Minimisation Fund)
- consider the climate change impacts of waste activities and services and seek to minimise these
- consider rationalising the transport logistics of waste and diverted material to ensure maximum efficiency and to reduce negative impacts
- consider implications arising from legislative provisions for product stewardship

- set realistic actions and goals that the councils intend to achieve
- consider the need for raising health and safety standards in the waste industry and consider a move away from manual handling to automated collection services where feasible
- consider funding in the councils' LTCCPs and subsequent Annual Plans to monitor progress through Annual Reports and report progress to the MfE on implementation of the WMMP, as now required by the Act.

7 OPTIONS ASSESSMENT

7.1 Overview

This chapter reviews the high-level options available to meet the forecast demand for waste management and minimisation services in the Wellington region.

The options assessment considers the key issues of how waste services and initiatives may be delivered and whether adequate services and infrastructure will be available to meet future demand.

The options assessment is not an exhaustive or detailed list of options or specific actions that can be implemented as part of the WMMP. Rather, it discusses broad options for in terms of the legal requirements for waste assessments under section 51 of the Act. Under this section Waste Assessments must include a forecast of future demands for collection, recycling, recovery, treatment, and disposal services within the district(s) (see section 5 of this report).

A waste assessment must then provide:

- a statement of options available to meet the forecast demands of the district with an assessment of the suitability of each option; and
- a statement of the territorial authority's intended role in meeting the forecast demands; and
- a statement of the territorial authority's proposals for meeting the forecast demands, including proposals for new or replacement infrastructure; and
- a statement about the extent to which the proposals will—
  - o ensure that public health is adequately protected:
  - o promote effective and efficient waste management and minimisation.

An assessment is not required to contain any assessment in relation to individual properties. Later in this section some options for specific actions are also discussed.

Preliminary objectives and expected outcomes for waste management and minimisation from chapter 6 have been considered when assessing the suitability of options.

7.2 Options for meeting future demand for collection services

This discussion deals with options for the collection of waste intended for disposal (landfill) and/or hazardous/special waste for treatment, and includes transfer stations. Options for the collection of waste for recycling or recovery are discussed later under 7.3 and 7.4.

In broad terms there are three practical options to meet future demand for collection services:

(i) Councils withdrawing from providing/contracting for collection services, leaving collection exclusively to the private sector

(ii) Councils and private sector providing a mix of collection services to various parts of parts of the market

(iii) Councils and the private sector providing a full range of collection services to all parts of the market.

Based on the geographic coverage and range of services offered and private sector capacity, it may be possible for the councils to withdraw altogether from collection services and for the private sector to meet the total future demand. However, in order to ensure all residents have access to collection services at a reasonable cost, this option may require the imposition of minimum service standards, minimum coverage, and even pricing agreements with private sector providers. While possible, such agreements can be challenging to negotiate and enforce. Any gaps in the collection services provided by the private sector may encourage illegal or unsafe disposal of waste, especially where small volumes are involved.

Option (iii) would see the Council competing directly with the private sector in an already competitive market. This would put ratepayers' capital at commercial risk in a business where the councils have no particular competitive advantage. Moreover, no significant gaps in collection services has been identified that would necessitate the councils from entering all aspects of the collection market.

Under option (ii) the councils can target services to residential users to ensure most residents have reasonable access to collection services at a reasonable cost. Through the purchase of refuse bags, residents with small or infrequent demand for collection service can purchase the service only when required, making it more affordable for some users. Councils may also provide transfer stations to collect waste for subsequent landfilling and a drop-off network for hazardous or other high-risk/harm wastes such as gas-bottles, used oil, and waste containing CFCs or heavy metals. Transfer stations can improve public safety (by avoiding the need for vehicles to visit the tip-face) and the overall efficiency and convenience of the waste collection network. Drop-off sites provide residential users with a convenient option to safety dispose of high-risk wastes which can subsequently be professionally treated. The private sector is unlikely to provide a network of drop-off sites due to the small volumes of waste involved. Councils also consider there is a general expectation in the wider community that councils will provide such a network of collection services. Under option (ii) the private sector would deliver the vast majority of collection services to commercial users, where there are no significant social or environmental imperatives for a Council provided service, and where the private sector currently performs to an acceptable standard.

The Councils propose pursuing option (ii). Each council would consider how best to provide services, either directly or through contracts with third party supplies. Councils would also set their own pricing regimes from time to time. To avoid market distortions and the risk of subsidizing waste production, pricing would generally be set to recover the full cost of collection services, though there may be some instances where wider social or environmental considerations support a different pricing regime. Under this option Councils' intended role would include a general oversight of the performance of private sector operators and potentially regulating aspects of operations to protect human health, the environment or other social or cultural outcomes. Councils' role would also include providing education and information to

businesses and wider community to encourage reduction, reuse and diversion of waste to reduce demand for collection services.

7.3 Options for meeting future demand for recycling services

This section deals with options for the collection, processing and marketing of recyclable materials (referred to collectively as recycling services).

In broad terms there are three practical options to meet future demand for recycling services:

(i) Councils withdrawing from providing/contracting for recycling services, leaving recycling exclusively to the private sector

(ii) Councils and private sector providing a mix of collection services to various parts of the market. Councils may target their activities to encourage additional or expanded recycling activities; particularly in situations where leaving services exclusively to the private sector is likely to lead to inefficient outcomes (that is materials being disposed of when recycling them would be in the overall interests of society) or a high degree of environmental harm.

(iii) Councils and the private sector providing a full range of collection services to all parts of the market.

Based on the geographic coverage and range of services offered and private sector capacity, it may be possible for the councils to withdraw altogether from recycling services and for the private sector to meet the total future demand (option i). However, this option is likely to lead to significant inefficiencies, since waste is likely to be disposed of when the best overall outcome for society would be for it to be recycled. This is because the full value to society of certain waste streams is often not recognised in the price for raw materials and therefore in the value of recycled materials. Relying solely on the private sector is therefore likely to lead to inefficient outcomes and poor resource use.

Option (iii) would see the Council competing directly with the private sector in an already competitive market. This would put ratepayers' capital at commercial risk in a business where the councils have no particular competitive advantage. Moreover, some recycling services already have adequate and potentially even excess capacity. This option is therefore likely to be inefficient since it would be wasteful of council resources.

Under option (ii) councils can target their services (which may be contracted to third parties to deliver) towards areas where sole reliance on market signals is unlikely to provide the best overall outcome for society. The need for targeted services will be council specific, and will depend on the price and capacity of the services offered by the private sector. It may also depend on existing operations of councils, such as landfill operations and/or transfer stations, which may allow effective and efficient co-location of recycling services.

All councils propose providing a level of recycling collection targeted at the residential sector. This is because the alternative to council provided recycling services in this sector is, in many cases, likely to be wasteful and inefficient disposal of raw materials to landfill. Council services

may include kerbside collection, recycling depots/drop-off sites, or some combination of the two. Services may need to be adjusted depending on changes in demand, costs and market prices for recycled services. Depending on local conditions and private sector services on offer, some councils may also wish to target their services toward non-residential users, where this would provide efficient and effective outcomes. Pricing of these services would be set by individual councils depending on their particular objectives and conditions. In general, however, recycling services would be priced in order to encourage recycling to the extent this provides efficient outcomes in the interests of wider society.

In addition to the provision of recycling services, such as kerbside collection, the councils intended role is to:

- Maintain a general oversight of the performance of private sector operators and potentially regulating aspects of operations to protect human health, the environment or other social or cultural outcomes.
- Provide education and information to businesses and wider community to encourage recycling.
- Consider opportunities to work with businesses to develop sustainable recycling enterprises.
- Consider opportunities to work with community groups to encourage recycling.

7.4 Options for meeting future demand for recovery services

This section deals with options for meeting future demand for recovery services. Recovery includes extraction of materials or energy from waste. It also includes composting of organic waste.

In terms of the extraction of materials[11] or energy from waste, no meaningful forecast can be provided for the future demand for these services. Councils options are to pursue materials/energy extraction or not - with or without participation of the private sector. The preferred option depends heavily on individual site characteristics and the economics of recovery operations. The councils intend to regularly assess whether material and/or energy recovery is/is still efficient and make investment decisions accordingly.

Demand for recovery services by way of composting can be assessed. In respect of composting councils have four practical options to meet future demand:

(i) Councils providing no recovery (composting) services, leaving all recovery to the private sector. All greenwaste dropped off at landfills would be disposed of to landfill.

[11] Note that in some cases harmful materials (such a heavy metals or CFCs) may be extracted from waste as part of a treatment process. Demand for these services is discussed under the section on meeting demand for treatment services.

(ii) Councils providing limited recovery (composting) services that, by and large, do not include collection services, with the private sector providing a range of services to various parts of the market.

(iii) Councils providing broad recovery (composting) services that include collection services, with the private sector providing a range of services to various parts of the market.

(iv) Councils and the private sector providing a full range of collection services to all parts of the market.

At present there is insufficient research and objective information to determine which of the above options is in the best overall interests of society and the environment. Moreover, the 'best' option is likely to depend on the individual site characteristics of the disposal site, such as the efficiency of any gas capture system, and the scope and method of waste management in a given district – for example composting may be more desirable where the alternative is to transport organic waste over long distances.

In some circumstances Councils intend to pursue comprehensive measures to remove organic waste from the landfill waste stream. Other councils intend to continue to divert greenwaste where this is financially self-sustaining. Some councils intend to provide highly efficient gas capture and energy generation systems in order to minimise harm from any organics that are disposed of to landfill.

In addition, the councils intended role is to:

- Investigate the business case and implications of extended recovery of organic waste
- Investigate further options to encourage recovery
- Investigate alternative options for the treatment and/or use of biosolids (sewage sludge)
- Provide education and information to businesses and wider community to encourage recovery.
- Consider opportunities to work with businesses to develop sustainable recovery enterprises.
- Consider opportunities to work with community groups to encourage recovery.

7.5 Options for meeting future demand for treatment services - hazardous materials treatment and/or disposal and other special waste

Commercially available hazardous waste facilities and services are considered to provide adequate treatment and disposal mechanisms in terms of meeting current and future demand for these services (particularly when combined with the drop-off network available for residential quantities of these types of waste). It is also noted that in the near future, national product stewardship schemes may be developed for some priority hazardous wastes, which have the

benefit of providing better treatment and/or disposal options or reducing these waste streams further. Therefore other options for hazardous waste management and minimisation services are not considered further, since these are considered unnecessary and are likely to be inefficient compared to the current services provided.

'Special wastes' include materials such as used oil, tyres, end of life vehicles, batteries, electronic goods. As with hazardous wastes they can cause a disproportionate level of harm if not properly managed. A number of these wastes are already managed by the councils through their hazardous waste drop-off services and through their other collection and product stewardship schemes in which they participate. Many of these products are strong candidates for product stewardship schemes and in some cases also fall under the category of hazardous waste. Some of these wastes are already the subject of voluntary industry initiatives, but these voluntary schemes generally do not have comprehensive coverage or target a full range of materials or sources. There are likely to be opportunities to enhance the capture and diversion of special wastes from landfill through mandatory and/or further voluntary product stewardship schemes. However, if national product stewardship schemes do not eventuate, which is likely as the current government has stated its preference to promote only voluntary programmes at this time, the burden of waste management and minimisation will remain with councils.

In some cases, options for addressing other waste streams, such as the introduction of an additional local waste levy, would have an impact on this waste stream as well. In addition the councils could lobby Government to introduce product stewardship schemes for special wastes. It is noted that collectively councils would a stronger voice if they lobbied for product stewardship as a region. Also a number of councils are working towards provision of Electronic waste options following the announcement by MfE of funds from the Waste minimisation fund to develop e-waste schemes.

In addition to the provision of a drop-off network for certain high-risk wastes and participating in selected product stewardship schemes, the councils intended role is to:

- Maintain a general oversight of the performance of private sector operators and potentially regulating aspects of operations to protect human health, the environment or other social or cultural outcomes.
- Provide education and information to businesses and wider community to encourage proper treatment of special or hazardous wastes.
- Consider opportunities to work with businesses to develop sustainable enterprises from the treatment of these wastes.
- Consider opportunities to work with community groups to encourage the proper treatment of these wastes.
- Further examine options for improved treatment of these waste.

7.6 Options for meeting future demand for disposal services

Sanitary landfills are a vital piece of infrastructure to protect public health and the environment. The analysis in the waste assessment shows that the Wellington region has enough capacity in the landfills operating within the region (assuming various stages of capital works are carried out) to meet the total current levels of waste to landfill for more than 100 years. Key landfills are Southern, Silverstream, and Spicer. All landfills have leachate management systems and gas capture and destruction systems.

Councils in the Wairarapa and Kapiti Coast District Council are also service by landfills outside the region. Again there is adequate capacity to meet their demands for the foreseeable future; though these councils may also consider utilizing landfills within the Wellington region as an alternative.

The Councils have the options of:

i. retaining their ownership of the current landfills in the region and keeping them all operating until the end of their economic life

ii. rationalizing landfill operations to concentrate on one or two sites, possibly with specialization of services

iii. divesting ownership in landfills and relying on the private sector to provide landfill services.

Each of these options is likely to meet future demand for landfill services for the foreseeable future. Rationalizing landfills (option ii) may reduce operating costs to councils and improve efficiency, though this may be somewhat offset by greater costs across the community from having to transport waste further. It may also reduce the ability of councils to co-locate a network of drop-off sites for special wastes, recycling depots, and organic recovery services with landfill operations.

Divesting ownership of landfills may have fiscal advantages for councils, though it would also mean forgoing future income streams. Potentially, councils may find it more difficult to integrate their waste management and minimisation actions (for example drop-off sites, recycling depots, recovery operations) n future if they no longer controlled landfills directly. Some additional regulation, such as licensing of operators, may also be needed.

Retaining landfills and operating them until the end of their economic life would also meet future demands for disposal services. It would integration of other waste management and minimisation activities with disposal services at disposal sites. The councils intend to pursue this option. Demand for disposal services can also be reduced through other waste minimisation proposals identified in this section.

In addition, it has been identified that there may be benefits to the region if the councils work together towards developing a regional policy document for their landfills that outlines acceptance criteria at each site. The intention is not to standardise acceptance criteria but to collate information about each landfill in a standard regional document.

It is noted that regional initiatives could be explored such as cost pricing to reflect true cost of waste, while minimizing risks of waste flight to cheaper sites. Other challenges include tensions

that landfills often bring with the necessity to operate as profitably as possible often being at odds with waste minimisation goals.

7.7 Other waste management and minimisation options and possible areas for future actions

7.7.1 Packaging

The Wellington region has made improvements in its recovery of packaging material (paper, plastic, glass, aluminium, tin) over the last decade, with all of the councils now having kerbside recycling schemes. While councils have taken a lead role in recovering packaging waste, actual reduction of packaging waste remains more of a challenge. There has been little quantifiable action by the packaging industry itself toward implementing a regime to reduce the production of packaging materials, as demonstrated by the recently-expired Packaging Accord. This may be because it is not in the commercial self-interest of the packaging industry to reduce packaging mass balance.

Several improvements may be possible for kerbside recycling, such as the broader introduction of commingled or 'mobile recycling bin' collection systems, which generally have a higher capacity and yield and are known to contribute to a safer working environment for collection staff. These systems, however, do require sophisticated processing technology that can be expensive to provide and is prone to operational difficulties that may cause a devaluation of certain materials that are to be sold on the commodities market.

Quality of the product is a critical issue and options to minimise contamination, both at the kerbside and also in the processing is key. The option to keep both glass and paper separated out from the other mixed recyclables like the Wellington City example could be extended.

The ability of two stream kerbside collection systems (commingled system supplemented with a separate collection for glass) to deliver consistently high levels of product quality means they are in a more advantageous position when selling into market and will generally command higher prices and maintain demand during downturns in the market.

There are also options for continuing, expanding and/or improving the behaviour change oriented programmes operating in the region that target consumer behaviour. In addition to kerbside services public place recycling also needs to be considered. Existing services should be maintained to build the profile of recycling.

Government has signalled that packaging waste is not considered a priority waste stream and it does not intend to create mandatory product stewardship schemes (such as container / packaging deposit schemes). For this reason, it is anticipated that demand for council-funded packaging collection and recycling schemes will continue to grow.

7.7.2 Construction and demolition waste

Construction and demolition waste is one of the single largest waste streams to landfill at approximately 18% of the total waste found in the SWAP analysis. A significant amount of C&D waste is disposed to cleanfills in the region. There is little detailed information for the Wellington

region on the specific types of C&D material going to landfill and cleanfill or its source, although materials such as timber (11.1 % in the SWAP), rubble (5.5 % in the SWAP), concrete and plasterboard are known to be common materials that have potential for reuse or recycling. Improvements in data collection such as coordinated SWAP analysis will facilitate improved planning and decision making in the future.

Currently there are a number of sites that already separate some C&D waste materials for diversion to cleanfill or for beneficial reuse. As the national targets focus on reduction of waste to landfill, there is less scope for further reduction unless markets for these materials are improved.

There is a need to create new markets or improved markets for some products such as plasterboard. There are also issues in relation to separation of treated versus untreated timber that impact on the viability of resource recovery operations. Some of these issues can be addressed either on individual C&D sites or dealt with at sorting facilities. There is also a trend toward promoting on-site waste separation and design for waste minimisation through programmes such as REBRI and GreenStar accreditation systems.

The key opportunity with respect to the minimisation of C&D waste is to increase promotion of these existing programmes, to work on developing local markets for products and to develop suitable sorting facilities as part of the existing transfer station network.

7.7.3 Regulation/ monitoring/ reporting/ planning

Planning and reporting are essential elements in waste management and minimisation planning. To ensure the best decisions are made it is vital to have up to date information. In order to make effective decisions at a regional level, it is important that data and research obtained by individual councils can be compared and analysed on a like for like basis. With this in mind obtaining regional SWAP data that is comparable in terms of categorisation but also the times/seasons when they are carried out will enable greater accuracy in benchmarking and comparison of sites. An improved data stream would enable effective monitoring and future planning. A complete picture will allow the councils to identify priority areas and evaluate success of sub-regional and individual council schemes.

SWAPs are only one way to obtain data, further options could include development of a joint regional solid waste bylaw or agreement on shared commonalities in solid waste bylaws which may include provision for licensing as a way to obtain further information from the waste industry. While bylaws need to be locally appropriate to individual council's circumstances and requirements a solid waste bylaw is essential to a successful WMMP and can support the aims, objectives and intent of the WMMP. As the WMMP will be a regional document then bylaws may need to have regional commonality. Indeed the WMA requires that a bylaw must not be inconsistent with a WMMP. The benefits of a licensing scheme include improved data capture from the private waste sector. A licensing scheme can be self financing as the WMA provides for administration and monitoring costs to be passed on to the users. On the other hand licensing may impose compliance costs on operators, so the costs and benefits of licensing need to be carefully considered.

The development of a regional bylaw for cleanfill and construction and demolition waste would provide valuable information into an area that has up until now been very difficult to obtain

information from apart from a minor amount of information gained from resource consent conditions.

7.7.4 Education/behaviour change

Waste education is a cornerstone in building the communities' knowledge, understanding, and skills in waste minimisation and recycling.

Education is critical in promoting positive changes in attitude and behaviour by assisting individuals to make conscious decisions to avoid waste. Intrinsic links exist between an informed and motivated community and the success of waste management initiatives outlined in the WMMP. In order to achieve the desired outcomes, educational programmes need to be coordinated with operational programmes, the councils' policy and government legislation, policy, guidance and regulations. Development of a waste education strategy would combine these areas into one document to assist in the governance of the region's waste education programmes and initiatives. Underneath a waste education strategy continuation of existing schemes such as promotion of home composting and reduction of food and green wastes would support the region's waste minimisation objectives. An effective marketing, education campaign using resources from across the region would allow the councils to share resources and make efficient use of expertise. These programmes could be enhanced through government funding. The councils should therefore consider continued lobbying of central government for continued funding for environmental education programmes.

8 STATEMENTS OF PROPOSAL

The councils propose developing a regional Waste Management and Minimisation Plan covering all the councils in the Wellington region. The regional plan is proposed to apply for six years.

The councils propose that they take an active role in both the provision of some services and in the general oversight of the performance of private sector operators where the private sector is providing services. The councils propose to maintain a network of waste collection sites (including transfer stations) and collection and recycling services targeted primarily at residential users. Commercial generators of waste have access to adequate services from the private sector. The councils also propose maintaining a network of sanitary disposal facilities in the region until those facilities reach the end of their useable/economic life.

The councils propose developing education and information services that will encourage the wider community to reduce, reuse, recycle, and responsibly dispose of waste. Finally, the councils propose engaging with business and community groups to effectively and efficiently manage and minimise waste. Special attention will be paid to waste streams that pose disproportionate risk to the environment and/or human health.

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 in 2011.

9 STATEMENT OF PUBLIC HEALTH PROTECTION

The wide range of waste services available in the Wellington region and provided either by the councils or by commercial waste industry (See chapter 4) will ensure that public health is adequately protected in the future. Wellington has access for at least 100 years or more to sanitary landfills that meet national legislative requirements.

Services for achieving waste minimisation will be improved on, and alternatives to landfill considered, in the longer term. These will be incorporated into the Councils of the Wellington Region Waste Management and Minimisation Plan.

There is adequate access to the councils and private sector provided refuse, hazardous waste and illegal dumping / litter collection services, although further service improvements and waste minimisation is achievable.

APPENDICES

Appendix A – Letter from Medical Officer of Health

To be inserted following receipt. The councils will insert this following the MOH review of the waste assessment.