6. REVIEW OF THE 2006 WASTE MANAGEMENT PLAN

General Manager responsible:	General Manager, City Environment Group, DDI 941-8608
Officer responsible:	Unit Manager, City Water and Waste
Author:	Zefanja Potgieter, Senior Resource Planner

PURPOSE OF REPORT

1. To review the Council's current waste management plan and recommend that a process to develop a new waste minimisation and management plan be commenced.

EXECUTIVE SUMMARY

2. In 2006 the Council adopted the current *Waste Management Plan for Solid and Hazardous Wastes*. The plan includes an overarching goal, with subsidiary vision, targets and an implementation plan. Some of the key milestones achieved since the 2006 plan was adopted are the introduction of the three wheelie bin kerbside collection system, which started in February 2009, followed by a new materials recovery facility for recyclable materials, and the new organics processing plant. An industry leading regional landfill at Kate Valley, co-owned by the Council, opened in June 2005 and is consented to operate for 35 years.

3. In 2008 the Waste Minimisation Act 2008 (the Act) came into force, which *inter alia* formally regulates waste management plans, officially renamed as waste management and minimisation plans - WMMP). The Act requires that all territorial authorities review their waste management plans by 1 July 2012, and prepare a new WMMP if needed. This report provides background information on the current services (in the form of a *waste assessment report*) and based on the changed circumstances since 2006, recommends that a new WMMP be prepared and finalised in the next financial year.

   The draft process for developing a new waste management and minimisation plan is as follows:

Staff prepare a draft plan, including initial consultation with key stakeholders	July to October 2012
The Council considers whether the draft plan is ready to go out for public consultation, and appoints a hearings panel	November/December 2012
Public consultation	February 2013
Hearing of submissions	March/April 2013
Council considers the draft plan and the submissions, and adopts a new plan	May/June 2013

4. The 2012 waste assessment report is attached as **Attachment 1**, and in summary states:

   'The purpose of the waste assessment is to enable the Council to review the appropriateness of its current waste management plan, and whether a new plan should be developed. In order to determine this, the waste assessment summarises the current situation regarding all solid waste related services, support services and facilities; looks forward to what the future demand is likely to be, and provides direction as to how the future demand will be met in an environmentally responsible and sustainable manner.

   A waste audit of residential kerbside collection services was done in November 2011 and the summary results are included. A second kerbside collection services audit and waste audit of transfer stations (Ecodepots) was done in April/May 2012, to be used when a new waste minimisation and management plan is developed in the new financial year.

   With the services already provided, as listed in this waste assessment report, the city provides a leading role in waste minimisation and management, and is well placed to continue doing so. Key infrastructure components are of a recent age, and designed to cope with increased future demand.

   Earthquake related damage to some related infrastructure did occur, e.g., the organics processing plant had some structural damage. Waste and recyclable collection services were one of the key Council services that did resume within a few days of the seismic disruptions.

6 Cont'd

The future demands of Christchurch City's projected population increase on the waste minimisation and management services will continue to be met. The 2006 waste management plan, as the overall strategy document for the next decade, is however now out of date and it is recommended that it be reviewed in the next financial year.'

FINANCIAL IMPLICATIONS

5. Costs relating to the preparation of a waste management and minimisation plan are provided for in the operating budget for 2012/13.

LEGAL CONSIDERATIONS

6. The Act requires that by 1 July 2012 the Council either resolves that the 2006 plan is still relevant and need not be reviewed, or that a review is required and proceeds to set that in motion.

   Section 51 of the Act sets out the requirements for a waste assessment, which shaped the structure and information provided in the assessment.

   Section 51 (4) of the Act requires that the waste assessment contains a statement whether *'the costs of, and difficulty in, obtaining information for the waste assessment, and the extent of the council's resources have impacted materially on the completeness of the assessment'*. The assessment confirms that costs and resources did not impact on the assessment.

CONSULTATION FULFILMENT

7. Public and stakeholder consultation is not required for this review of the 2006 plan; however it is part of the formal process of preparing a new waste management and minimisation plan.

SUMMARY

8. The *2006 Waste Management Plan for Solid and Hazardous Wastes* was instrumental in guiding the achievements of the key milestones which been achieved, but is now dated and a new waste management and minimisation plan should be prepared for consideration by the Council in 2013.

STAFF RECOMMENDATION

That the 2006 Waste Management Plan for Solid and Hazardous Wastes be reviewed, and that a Draft 2013 Waste Management and Minimisation Plan be prepared for consideration by the Council, as set out in the report.

Christchurch City Council
2012 Waste Assessment

Contents

1. Background

This waste assessment has been prepared in compliance with the requirements of the *Waste Minimisation Act 2008*. During the second half of 2012 preparations for a new waste minimisation and management plan will commence, to be finalised by mid-2013.

The 2010/2011 earthquakes have impacted on the nature and amounts of recoverable materials and waste streams, including the need to manage up to two million tonnes of demolition related materials and wastes, which will be sorted over the next five years for the recovery of materials.

The waste assessment is prepared against a backdrop of an existing comprehensive suite of Council controlled services, facilities and programmes as indicated in the list below. The Council therefore has a substantial platform in place to fulfil its functions relating to materials recovery, waste minimisation and the general management of solid wastes.

Current services, facilities and programmes:

- *The current 2006 Waste Management Plan including an Implementation Plan.*
- *Bylaws successful in regulating waste management, waste handling facilities and cleanfill sites.*
- *A domestic kerbside collection service providing wheelie bins for organic materials, recyclables, and residual waste.*
- *The Target Sustainability services programme facilitating materials recovery and better use of energy and water for businesses.*
- *A collection service for recyclables and residual waste from premises in the inner city area. .*
- *Three transfer stations in the city, one each at Birdlings Flat and Barry's Bay, and eleven community collection points in the rural area of the Peninsula.*
- *Co-ownership of a modern landfill operating to the highest international standards.*
- *The Burwood Resource Recovery Park to deal with the recovery of post-earthquake demolition materials.*
- *Extraction of landfill gas for both Burwood and Kate Valley landfills.*

- *Ongoing monitoring of closed landfills.*
- *A modern new enclosed materials recovery facility.*
- *A modern new enclosed organics processing plant.*
- *Waste education programmes for community and schools.*
- *Cooperation with other territorial authorities to advance regional waste minimisation programmes in Canterbury.*

The trends in tonnages for major components of the waste stream are indicated below.

WASTE COMPONENT	2003/4	2004/5	2005/6	2006/7	2007/08	2008/09	2009/10	2010/11)
Residual Waste	243,197	253,100	264,295	253,985	249,777	222,691	167,500	220,874
Recycling	20,885	24,044	26,821	37,844	37,005	43,489	54,041	52,262
Organics	31,120	33,440	33,000	31,147	28,929	34,842	56,438	57,015
Cleanfill	267,368	749,984	606,800	568,013	913,467	694,893	183,284	436,559

In overall terms it confirms that residual waste tonnages, i.e. waste sent to Kate Valley landfill for disposal are decreasing, and tonnages of materials diverted from landfill are increasing. Initiatives to build on and strengthen these trends will be addressed in the 2013 Waste Minimisation and Management Plan.

2. Summary

The purpose of the waste assessment is to enable the Council to review the appropriateness of its current waste management plan, and whether a new plan should be developed. In order to determine this, the waste assessment summarises the current situation regarding all solid waste related services, support services and facilities; looks forward to what the future demand is likely to be, and provides direction as to how the future demand will be met in an environmentally responsible and sustainable manner.

A waste audit of residential kerbside collection services was done in November 2011 and the summary results are included. A second kerbside collection services audit and waste audit of transfer stations (Ecodepots) was done in April/May 2012, to be used when a new waste minimisation and management plan is developed in the new financial year.

With the services already provided, as listed in this waste assessment report, the city provides a leading role in waste minimisation and management, and is well placed to continue doing so. Key infrastructure components are of a recent age, and designed to cope with increased future demand.

Earthquake related damage to some related infrastructure did occur, e.g. the organics processing plant had some structural damage. Waste and recyclable collection services were one of the key Council services that did resume within a few days of the seismic disruptions.

The future demands of Christchurch City's projected population increase on the

waste minimisation and management services will continue to be met. The 2006 waste management plan, as the overall strategy document for the next decade is however now out of date and it is recommended that it be reviewed in the next financial year.

3. Services provided by or on behalf of the Council

3.1 Kerbside Collection Services

The Christchurch City Council provides a kerbside wheelie bin collection service to the entire Christchurch City area including Lyttelton Harbour basin and Port Levy, as well as other selected areas on Banks Peninsula. The standard service includes:

240 litre recycling bin (collected fortnightly)
140 litre rubbish bag (collected fortnightly)
80 litre organics bin (collected weekly)

Residents may apply to have three 80 litre bins as a 'downsized' service.

Approximately 150,000 households are serviced by a wheelie bin collection.

The kerbside collection contractor is Transpacific Industries Ltd. The contract commenced on 31 January 2009 and will expire on 31 January 2024.

Areas on Banks Peninsula that are not serviced by a kerbside collection are provided with Community Collection Points. Eleven recycling and nine rubbish drop-off facilities are provided.

Residents and businesses may also opt to pay for additional capacity as follows:

- Additional 240 litre recycling bin at $34.00 per annum (as at 2011/12 financial year)

- Upsize the organics bin from the standard 80 litre bin to a 240 litre bins for $174.00 per annum (as at 2011/12 financial year).

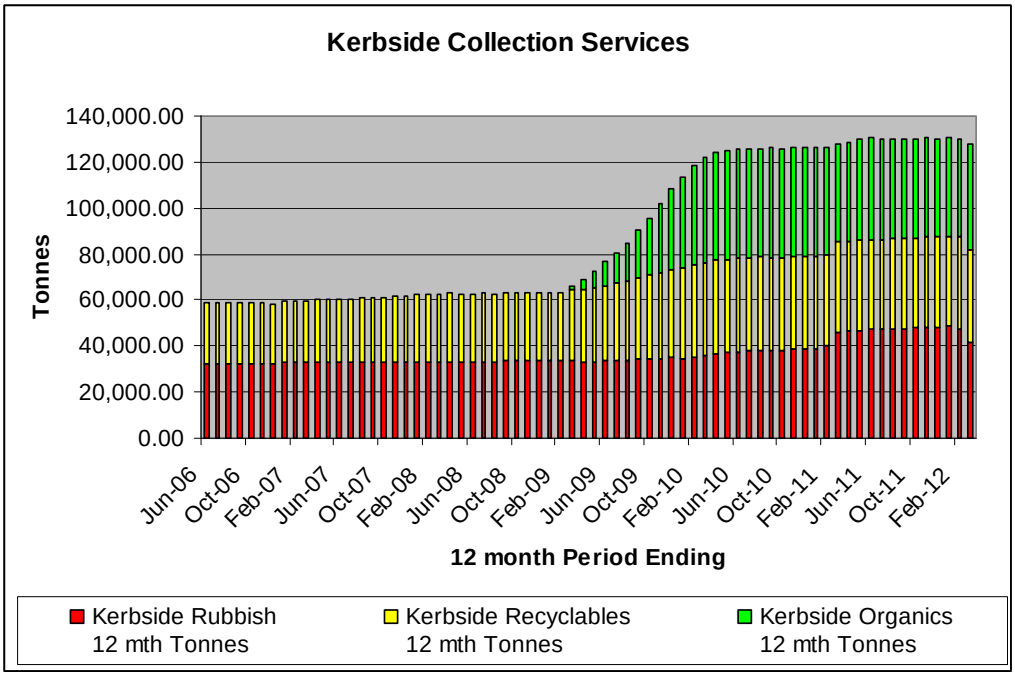
Additional rubbish bins are not offered as commercial operations are available to handle larger waste operations. Council policy is targeted at reducing waste to landfill.

3.1.1 Kerbside recycling

Approximately 42,000 tonnes of recyclables are collected at kerbside per annum. This material is taken to the Materials Recovery Facility (MRF) on Parkhouse Road for processing. The material is gifted to Council's contractor, EcoCentral. EcoCentral has the responsibility for finding markets for the end product.

The Council also offers an enhanced service for recycling. Residents may pay an annual charge and receive a second, 240 litre recycling bin.

The contract to run the MRF commenced on 31 January 2009 and will expire on 31 January 2024. There is a provision to consider a 2 year extension of the contract.



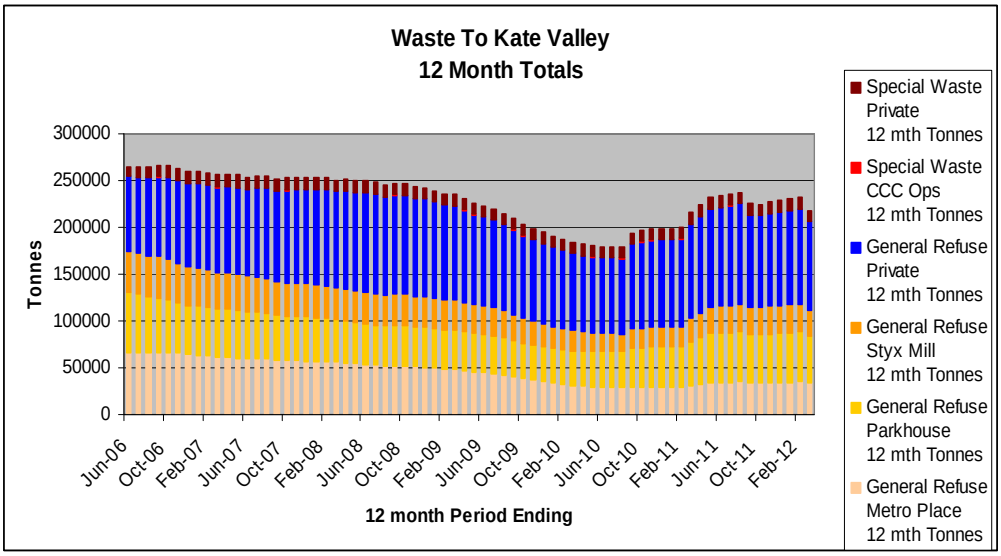
3.1.2 Kerbside rubbish

Approximately 40,000 tonnes of residual waste (rubbish) is collected at kerbside each year. This material is taken to one of three Council-owned transfer stations – Parkhouse EcoDrop (Sockburn), Metro EcoDrop (Bromley) and Styx Mill EcoDrop (Styx Mill). From the transfer stations material is transported to a regional landfill at Kate Valley in the Hurunui District. Christchurch City Council contracts EcoCentral to run the transfer stations on their behalf.

There is no option offered to residents for a bigger wheelie bin for residual waste.

The contract to manage the Transfer Stations on Council's behalf commenced on 1 July 2005 for a period of 10 years. There is one 10 year-term right of renewal.

There are two transfer stations on Banks Peninsula, one at Little River and one at Barry's Bay. These are managed by Transpacific Industries Ltd as part of the kerbside collection contract.

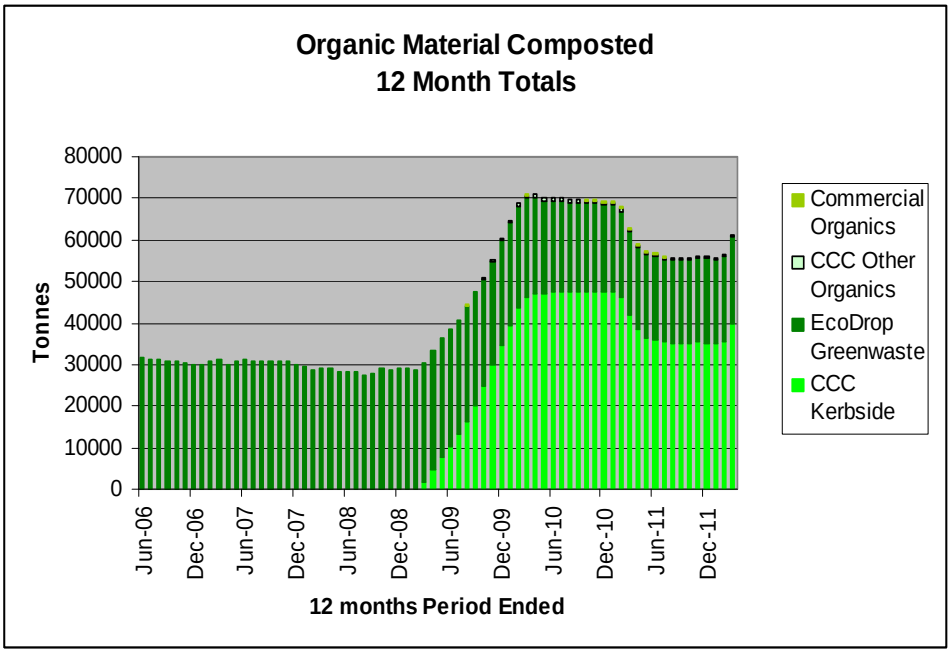


3.1.3 Kerbside Organics

Approximately 48,000 tonnes of organic material is collected at kerbside each year. This material is taken to the Organics Processing Plant in Bromley. A gate fee is paid to Council's contractor, Living Earth, to process the material. The material is composted in tunnels for 6-8 days and then put out on hardstand to mature. Living Earth are required to find markets for this material and are currently selling all the product they receive to the rural market.

The Council does provide an enhanced service for organics. Residents may pay an annual charge and the standard 80 litre bin will be replaced with a 240 litre bin, collected weekly.

The contract to run the Organics Processing Plant commenced on 31 January 2009 and will conclude on 31 January 2024. There is a provision to consider a 2 year extension to the contract.



The drop in tonnages indicated in the graph above relates to a reduction at kerbside of organics collected after the 22 February 2011 earthquake.

3.2 Transfer Stations – EcoDrops

There are three Council-owned transfer stations for the urban area – Parkhouse EcoDrop (Sockburn), Metro EcoDrop (Bromley) and Styx Mill EcoDrop (Styx Mill).

For the Banks Peninsula area there are two transfer stations, one at Little River and one at Barry's Bay, and eleven community collection points.

3.3 Recovery services

EcoCentral is a council controlled organisation and is contracted to provide an outlet for usable goods dropped off at transfer stations. This facility is known as the EcoShop.

EcoCentral accepts electronic waste at the transfer stations for a small handling fee. This material is then separated and sent to processors for recycling and recovery. Where possible these processors are New Zealand based.

3.4 Efficient use of business resources: Target Sustainability Services

The Activity Management Plan provision relating to commercial and industrial waste minimisation provides for the delivery of programmes, tools, events and services that assist businesses with their effient use of resources, including Target Sustainability Services.

The Target Sustainability Services programme provide free resource efficiency consultancy to Christchurch businesses to assist them to reduce waste and to be energy and water efficient.

Businesses that use the Target Sustainability services are provided with free support to help them become sustainable through reducing waste and being energy and water efficient. The type of support depends on the business and ranges from self help guides on the web site (www.targetsustainability.co.nz) through to tailored consultancy services.

There are different levels of Target Sustainability consultancy services available depending on the size of the business and the potential to reduce resource use. All consultancy is free, and is available to Christchurch businesses.

Where there is a business sector cluster and there is an opportunity to work with a number of similar business types both together and individually on resource efficiency, a Target Sustainability Sector Project is set up.

The Target Sustainability Services have actively worked with over 130 Christchurch business sites. Case studies of selected business members are published on the Target Sustainability website. Christchurch City has worked with Waimakariri, Hurunui, Selwyn, Ashburton, Timaru, Waimate and McKenzie District Councils to roll out Target Sustainability Services to businesses in their districts.

3.5 Raising waste awareness and community education: *Learning through Action*

The Christchurch City Council offers a range of environmental and city infrastructure programmes that are free to schools including learning about waste minimisation. The programme provides relevant and authentic learning experiences through hands-on activities.

The waste programmes are based at different sites in Christchurch and cater for students from new entrants to year 13. They are linked to the school curriculum and fit with the focus on sustainability. *Learning Through Action* is supported by the Ministry of Education as a Learning Experiences Outside The Classroom (LEOTC) provider.

Other free waste programmes currently being run include:

Casting Magic with Worms is a programme aimed at Year 0 – 4 for children to discover the important role worms can play in the waste management system. Students search the area for worms and create their own worm farm to take back to school.

A Waste of Time is a programme for Year 5-13 where school children gains an insight into the Reduce, Reuse, Recycle aspects of the waste management hierarchy. Highlighted by visits to the EcoSort, EcoDrop and the EcoShop.

Fertilising For the Future is a programme aimed at school children from Year 4 to 13 where they learn the science behind reducing and utilising organic waste as a resource by turning it into natural fertilisers.

The *Education and Promotions Team* is an in-house education and promotions team with representatives from Solid Waste, Marketing and Communications teams. The team works within the scope of a five year marketing and communications strategy, with an annual communications and marketing plan. The Plan identifies regular seasonal messaging as well as key operational issues and allocates budget and timeframes. It also works to achieve behaviour change through education and produces educational material in various languages. The team also looks after waste messaging on websites, and utilises different communication methods to reach a wide audience.

3.6 Avoiding landfilling though the beneficial use of wastewater biosolids and screenings

Christchurch City Council annually disposes of 5,470 tonnes of dried biosolids. Biosolids are a by-product of the wastewater treatment process, where sludge collected by the treatment process is anaerobically digested to reduce its organic matter (with the gas harvested and used to generate electricity to power the site) and dried to remove all water and sterilise the product to a class A standard. The final biosolids are transported to the Stockton Mine to help rehabilitate former mine sites, which means it does not have to be landfilled.

The disposal method chosen was one of the first fully publically consulted processes of its kind, where community workshops, facilitated by University of Canterbury, identified beneficial reuse as the preferred disposal method.

A relationship has been developed with Solid Energy to use the biosolids to assist with the rehabilitation of former mine areas at Stockton Mine. This has the benefit to Christchurch City Council of reducing the disposal cost by half of that of landfilling.

Screenings are collected at the first stage of wastewater treatment and usually comprise large inorganic detritus materials. Improvements in screening technologies at the Christchurch Wastewater Treatment Plant have allowed for a greater capture rate, thereby preventing their release into the environment. Currently some 1400 tonnes of screenings are disposed of in landfill and this has increased over previous years as improvements in technology have been installed.

3.7 Cleanfill sites

The only Christchurch City Council owned cleanfill facility is a site at Birdlings Flat which is used for the disposal of roading slip material from Banks Peninsula. Other cleanfill sites around Christchurch are owned and managed by private contractors, see par. 4.4 below.

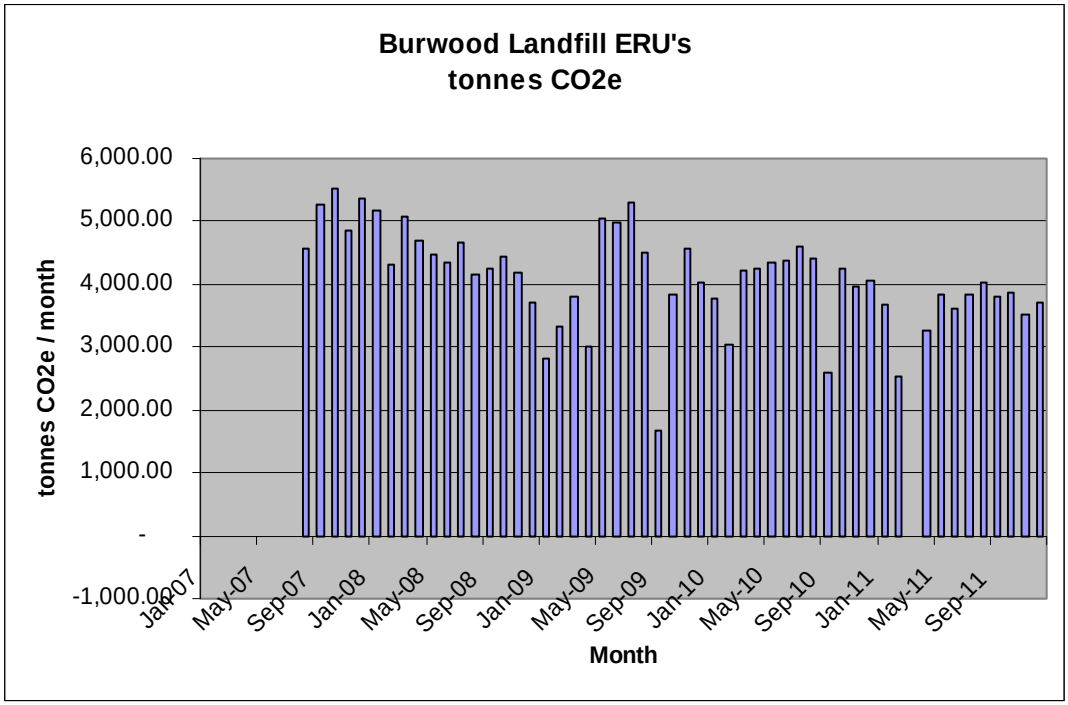
3.8 Closed Landfills (Excluding Burwood Landfill)

There are 57 known closed landfill sites which are located on Council land. A survey of these site identified nine which were considered to have the highest potential to cause adverse environmental effects and monitoring programmes were set up to check the environmental performance of the sites. These nine closed landfills are considered indicator sites to provide information on what may be occurring in other closed landfills across the city. They have discharge consents, and are subject to annual monitoring of ground water and are managed in an environmentally acceptable way that meets resource consent conditions.

A closed landfill management plan is being developed and will include a five yearly inspection and risk assessment carried out for each site based on The Ministry for the Environment *"Guide to the Management of closing and closed landfills in New Zealand – May 2001".*

3.9 Burwood (closed landfill): Gas extraction and use

Burwood landfill closed as a site for residual disposal of waste in June 2005 when Kate Valley landfill opened. As part of the closed landfill aftercare programme at Burwood a landfill gas extraction system was installed for odour control in 2003 and initially gas was flared. The Burwood Landfill Gas Utilisation Project, a scheme to utilise the gas for energy recovery at the QEII Recreation Facility was installed in 2007 with extracted gas to be used for heating the pools and also for electricity generation. In 2009 the gas utilisation scheme was extended to provide gas to the biosolids drying plant at the wastewater treatment plant and provide heating and power generation at the Civic Offices and Christchurch Art Gallery. The project is a Track 1 Joint Implementation Project under the Kyoto Protocol and an approved emission reduction project under the New Zealand Government Ministry for the Environment "Project to Reduce Emissions" (PRE) programme. Emission Reduction Units (ERU's), or carbon credits, have been earned under this project and sold on the open market.



Landfill gas composition is typically 50 to 60% methane and 40 to 50% carbon dioxide. Gas production peaks shortly after the waste is disposed of and once dumping stops there is a steady drop off in gas production. Key to the rate of fall off is the organic content of the waste and the moisture content of the waste. At Burwood the site is relatively dry so the production of usable gas is likely to continue for at least 10 years and possibly longer. There are currently 25 wells covering less than 50% of the usable gas production so there is potential to increase the gas extraction as necessary. At present the methane content of the gas is 55% compared to 60% when extraction commenced in 2003.

3.10 Earthquake Recovery

Burwood Resource Recovery Park

Following the February 2011 earthquake unprecedented quantities of demolition material have been generated. To deal with this the Burwood Resource Recovery Park (BRRP) was established in Bottle Lake Forest, initially under emergency provisions by the Civil Defence Controller, to receive earthquake waste for sorting and recycling. Quantities of waste received by BRRP to date have been less than originally anticipated and this, plus the low recoverable fraction of the material, has resulted in a decision to dispose the residual waste from the sorting process to be disposed of a new demolition waste cell at the adjacent Burwood landfill.

Construction of the sorting plant and new landfill cell is expected to be completed by the end of 2012.

The most significant issue has been silt and sand that resulted from liquefaction and was removed from roads and private properties. It is estimated that in excess of 500,000 tonnes of this material was transported to the landfill following the earthquakes.

To cope with an initial spike in refuse, 3,000 tonnes of mainly food waste was taken to Burwood landfill over the week after the September 2010 earthquake to relieve the pressure on the Kate Valley landfill and transportation system.

To assist with the clean up of rubble from streets and allow access to buildings a consent was also obtained in November 2010 to take up to 20,000 tonnes of demolition material to the landfill. Before the February 2011 earthquake, which altered the way demolition material was handled, 3,500 tonnes of material was sent to the landfill.

In addition to the silt and demolition material, waste from infrastructure repair and rebuild operations has been disposed of at the Burwood landfill. Wastewater systems suffered major damage in the earthquakes and to keep them operating and allow closed circuit television inspection of the pipes regular clearing of sand and silt from the sewers has been required and will continue to be required for several years. Suction trucks are being used for this work, and to prevent discharging large quantities of sand into the wastewater treatment plant, a facility has been established at the landfill where these vehicles can discharge into a settling pond where the sand settles out and the liquid is pumped back into the sewers.

The rebuilding of the underground infrastructure is producing significant quantities of hardfill, including pipes, concrete structures, roading and bedding material, where much of the material is contaminated by wastewater. A controlled area where this

material can be safely disposed of has also been set up at the landfill. Asbestos containing broken infrastructure however will be taken to Kate Valley landfill.

3.11 Residual Disposal

Kate Valley landfill is the landfill co-owned by the council. It replaced Burwood landfill in June 2005 and has been consented for 35 years.

3.12 Littering and Illegal dumping

Littering remains difficult to enforce. In areas outside the central city which is partly closed dumping is increasing, possibly due to movements between residences through earthquake related causes and resulting surplus household effects. If contractors can find evidence of the owners of the waste (i.e. envelopes etc from within dumped shopping bags) Council will either issue a warning or prosecute.

3.13 Tourism wastes

A Canterbury wide programme has been initiated by the *Canterbury Waste Joint Committee* (comprising Christchurch City Council and all the other Canterbury territorial authorities) to provide tourism providers and camper van rental companies with literature on the location of transfer stations and drop-off points for recyclables and wastes, both in the city and the wider region.

Provisions for liquid wastes from tourism activities will be included in the Council's proposed new wastewater strategy.

4.0 Services provided by non-contracted commercial and community service providers

4.1 Commercial and community based collectors

There are a variety of commercial collectors of residual waste, organic materials and recyclable materials, for domestic and for institutional/commercial and industrial users that contract directly with such providers.

A survey of such providers has been done in 2012 and will be included in the next waste minimisation and management plan, scheduled for completion by June 2013.

4.2 Transfer stations/Waste handling facilities

There are six private waste handling facilities in Christchurch licensed under the Waste Handling Facilities Bylaw 2005. The three biggest facilities are Canterbury Waste Services, Sydenham Recycling and Wheelie Waste, with all participating in the April/May 2012 waste audit.

There are various facilities within the Christchurch district that are licensed to dispose of Special Wastes. The most common types of Special Waste are medical waste and treated industrial waste. This waste stream makes up 6% of the total waste stream.

4.3 Contaminated and hazardous waste treatment and handlers

As required by the Ministry of Health, specific issues around clinical waste have been and will continue to be referred to it, as and when it arises.

There are ten operators who specialise in the pre-treatment and transport of special and potentially hazardous wastes to Kate Valley Landfill.

Asbestos handling procedures at transfer stations (EcoDepots) and Kate Valley landfill are in accordance with Ministry of Health standards. All damaged underground service pipes that contains any asbestos will be disposed of at Kate Valley landfill.

4.4 Commercial cleanfill sites

There are 16 commercially owned cleanfill sites in Christchurch all operating under the Cleanfill Licensing Bylaw 2008 which sets out which materials may be deposited at cleanfill sites. Licensed and consented sites are regularly monitored by Council and Ecan staff and remedial action if required.

Illegal disposal, when reported or observed, is investigated by the regional council and by the Council.

5. The 2011/2012 Waste Audits

During November 2011 and April/May 2012 waste audits were done of (1) waste and materials collected by residential kerbside collections, and (2) all council transfer stations plus the three major commercial transfer stations. The results of the transfer stations audits are not available for inclusion in this waste assessment however will be incorporated into the proposed new waste minimisation and management plan process.

A summary of the first part of the waste audit report follows:

> *In July 2010 Christchurch City Council commissioned Waste Not Consulting to undertake a programme of audits and surveys of solid waste streams. The programme will comprise:*
>
> - *Two eight-day sort-and-weigh audits of Council's kerbside domestic refuse collection (red-lidded wheelie bins) and kerbside organic waste collection (green-lidded wheelie bins).*
> - *Four one-week visual surveys of four refuse transfer stations.*
>
> *Following two postponements of the programme due to the earthquakes in September 2010 and February 2011, the first sort-and-weigh audit of red- and green-lidded wheelie bins was completed in November 2011. This interim report presents the results of the November 2011 audit and will be included in the report of the complete programme.*
>
> *On each of the eight days of the audit, a sample comprising the contents of 24 red-lidded refuse bins and 30 green-lidded organic bins was collected. The sample was collected using a random sampling technique from approximately six different streets each day.*
>
> *The sample was transported to Council's Metro Place EcoDrop for sorting. The refuse, in samples comprising the contents of three bins, was sorted into 24 separate categories and weighed. The material from the green-lidded wheelie bins was sorted, one bin at a time, into five categories and weighed. The results of the audit of kerbside organic waste bins are presented in the table below.*

Margins of error for 95% confidence level	***Percentage of total***	***Mean wt/bin***
Food waste	*19.3%*	*2.36 kg*
Compostable greenwaste	*72.3%*	*8.85 kg*
Non-compostable greenwaste	*1.6%*	*0.19 kg*
Timber, ash, and sawdust	*0.1%*	*0.01 kg*
Other contamination	*6.7%*	*0.82 kg*
Total	***100.0%***	***12.24 kg***

> *The contents of a total of 242 green-lidded wheelie bins organic waste bins were sorted and weighed. The contents of the average organic bin weighed 12.24 kg.*
>
> *Nearly three-quarters (72%) of the contents of organic waste bins was "Compostable greenwaste'. Approximately 12% of organic bins contained no compostable greenwaste. 'Food waste' was the second largest component, comprising 19% of the total. Approximately 26% of organic bins contained no food waste.*

'Other contamination' was the third largest component, comprising nearly 7% of the total. In terms of weight, the major component of materials classified as 'Other contamination' was soil. Approximately 8% of samples contained plastic bags.

The results of the audit of the composition of Council's red-lidded refuse wheelie bins are shown below.

Primary category	***Secondary category***	***Percentage of total***	***Mean wt/bin***
Paper	*Recyclable paper*	*8.9%*	*1.05 kg*
	Non-recyclable paper	*1.7%*	*0.20 kg*
	Subtotal	***10.6%***	***1.25 kg***
Plastics	*# 1-7 containers*	*3.3%*	*0.39 kg*
	EPS	*1.0%*	*0.12 kg*
	Plastic bags and film	*6.0%*	*0.70 kg*
	Multimaterial/other	*3.5%*	*0.41 kg*
	Subtotal	***13.8%***	***1.62 kg***
Organic	*Kitchen waste*	*25.0%*	*2.94 kg*
	Compostable greenwaste	*3.2%*	*0.37 kg*
	Non-compostable greenwaste	*0.9%*	*0.11 kg*
	Other	*4.6%*	*0.54 kg*
	Subtotal	***33.7%***	***3.96 kg***
Ferrous metals	*Steel cans*	*0.8%*	*0.10 kg*
	Multimaterial/ other	*1.3%*	*0.15 kg*
	Subtotal	***2.1%***	***0.25 kg***
Non-ferrous metals	*Aluminium cans*	*0.1%*	*0.02 kg*
	Multimaterial/ other	*1.8%*	*0.21 kg*
	Subtotal	***2.0%***	***0.23 kg***
Glass	*Glass bottles/jars*	*1.6%*	*0.19 kg*
	Multimaterial/ other	*1.3%*	*0.16 kg*
	Subtotal	***2.9%***	***0.35 kg***
Textiles	*Clothing & textile*	*2.9%*	*0.34 kg*
	Multimaterial/other	*2.5%*	*0.29 kg*
	Subtotal	***5.4%***	***0.63 kg***
Nappies & sanitary		***14.3%***	***1.69 kg***
Rubble, concrete, etc		***7.9%***	***0.93 kg***
Timber		***3.6%***	***0.43 kg***
Rubber		***0.3%***	***0.03 kg***
Potentially hazardous	*Household*	*2.7%*	*0.32 kg*
	Other	*0.5%*	*0.06 kg*
	Subtotal	***3.3%***	***0.39 kg***
TOTAL		***100.0%***	***11.75 kg***

A total of 192 red-lidded refuse bins were sorted and weighed. The contents of the average refuse bin weighed 11.75 kg. The heaviest refuse bin weighed 40 kg. Organics was the largest primary category of waste, comprising 34% of the total.

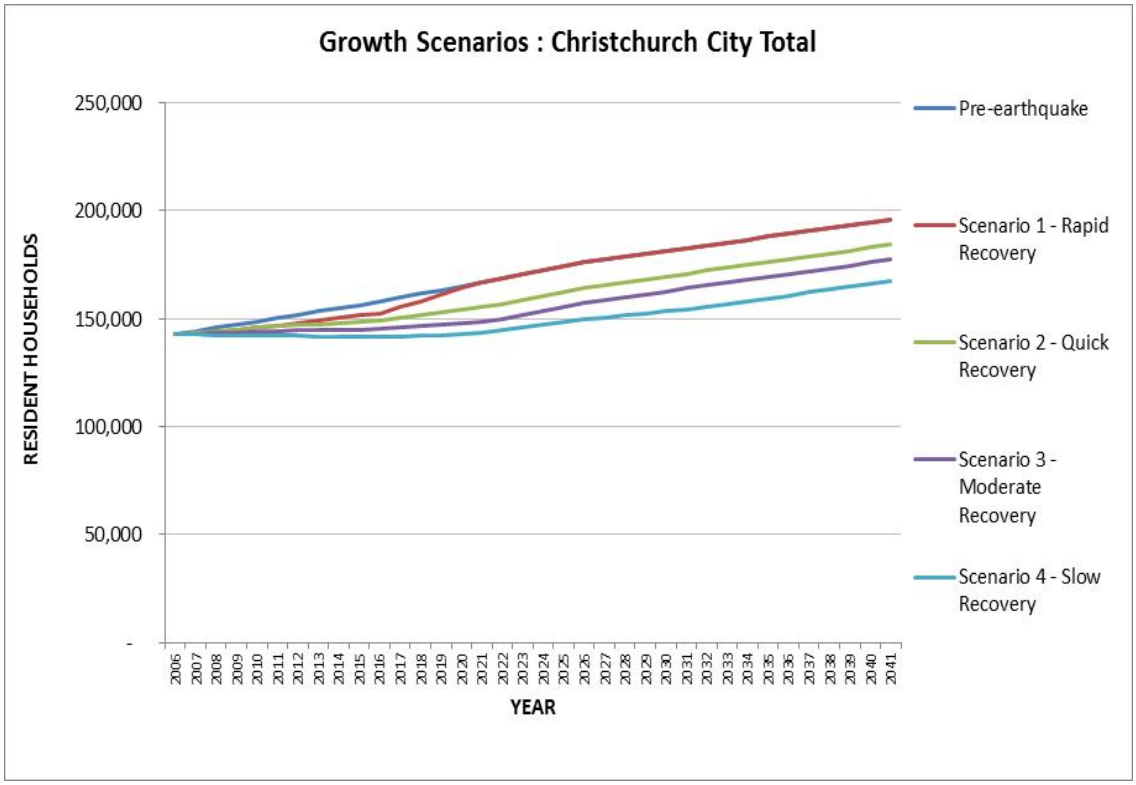
Nappies & sanitary waste, which includes nappies, tissues, paper towels, and feminine hygiene products, was the second largest category, comprising 14% of the total. Plastics was the third largest primary category, comprising 14% of the total, and paper the fourth, at 11%.

6. Forecast of future demand

Pivotal to a forecast of demands for waste services is the projected change in the city's population over time. The series of earthquakes since September 2010 has had an impact on the city's population and there is uncertainty around what the future population will be which resulted in the city generating different population growth scenarios.

Market Economics was contracted to develop a household scenario model that takes the pre-earthquake UDS (Urban Development Strategy) projections and adjusts them to take into account the impact of the earthquakes since September 2010.

Of the various options the *Quick Recovery* scenario has been recommended for use. This would see recovery to the pre-earthquake growth trend within 10 years. However, there would be initial population loss (-2.5% for Christchurch City, -2.3% for the UDS area), and slow growth until 2016, followed by stronger recovery in the 2016 - 21 period (though still less than the pre-earthquake outlook), and a return to the Medium-High growth annual trend after 2021.



Based on this work the following population data (converted from households) has been used for the 2012 waste assessment:

	2011 post quake	2021	2041
Population	365,076	374,156	426,959

7. Options available to meet the forecast demand for waste minimisation and management services and facilities

Additional capacity to meet future demand has been addressed in existing contracts for infrastructure based services including kerbside collection trucks, wheelie bins, transfer stations, the organics processing plant, the materials recovery facility and Kate Valley landfill.

Forecast demand will therefore be met by continuing to manage existing long-term contracts for infrastructure provision, as well as funding of support services for business and industry through Target Sustainability services, and raising awareness/education projects for the wider community.

8. Council's intended role and proposals for meeting forecast demand and ensuring public health

Capital funding for renewals and landfill aftercare are set out in the 2009 - 2019 LTCCP and will be revised for the 2013 - 2022 LTP.

No additional capital funding requirements are foreseen for the 2013 – 2022 LTP as all required infrastructure components for managing the waste minimisation and management services are already in place, and have sufficient capacity to ensure continued high levels of service over this period.

In terms of the Waste Minimisation Act 2008 a levy is imposed on all residual waste, and levy monies are forwarded to the Ministry for the Environment by the operators of Kate Valley landfill. In terms of the Act the Ministry returns a portion of the levies (based on the percentage of New Zealand population) to territorial authorities quarterly.

Council's Solid Waste budget is set based on the assumption that this funding will continue to support the recycling and organics initiatives that the Council implemented as a result of the 2006 Waste Management Plan. One third of the levy monies supports the recycling kerbside wheelie bin collection and processing and two thirds of the levy monies supports the organics kerbside wheelie bin collection and processing.

Public health and wellbeing: Council remains in regular contact with Ministry of Public Health's Community Public Health offices regarding any relevant issues and have consulted on the waste assessment as well.

The high standard of new infrastructure means that measures are already in place to ensure that public health is adequately protected.

The 2013 Waste Management and Minimisation Plan will set out goals, tasks and implementation projects to promote effective waste management and minimisation.

9. Compliance with Section 51(4) of the Waste Minimisation Act 2008

The costs of, and difficulty in, obtaining information for the waste assessment, and the extent of the council's resources, have not impacted materially on the completeness of this assessment.