

Composition of Solid Waste in Kāpiti Coast District

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Kāpiti Coast District Council

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1 Introduction

Territorial authorities in New Zealand have statutory responsibility for promoting effective and efficient waste management and waste reduction practices within their district. This responsibility is specified in section 42 of the Waste Minimisation Act 2008.

Kāpiti Coast District (Council), in line with its responsibilities under this legislation, has regularly commissioned audits of the composition of waste being disposed of to landfill from the District. In 2010 and 2013, these audits were undertaken by Waste Not Consulting Ltd using methodologies based on the Ministry for the Environment's Solid Waste Analysis Protocol 2002 (SWAP).

The data from these audits has allowed Council to monitor changes in the waste stream over time, identify new waste minimisation initiatives, and assess the effectiveness of existing initiatives. The results of the 2017 audits presented in this document will also provide baseline data for the targets in Council's new Waste Management and Minimisation Plan, developed jointly with other councils of the Wellington region and adopted by Council in August 2017.

To determine the composition of waste being disposed of to landfill from the District, the 2017 audits combined the results of two separate analyses of solid waste:

- a six-day visual survey that analysed the composition of residual waste being disposed of at the two refuse transfer stations in the District, in Otaihanga and Ōtaki.
- a five-day sort-and-weigh kerbside waste audit that gathered composition data on the waste collected by private waste operators' kerbside rubbish bag and wheelie bin collections.

The waste analyses took place concurrently in the week of 11 September 2017. This corresponds to the dates of the 2010 and 2013 analyses, so the results of the 2017 analyses are directly comparable with the results of the earlier research.

The methodologies for the sort-and-weigh audit and visual survey are presented in section 2. The survey methodologies are identical to those that were used by Waste Not Consulting for the 2010 and 2013 research for Kāpiti Coast District Council.

1.1 Waste management services in Kāpiti Coast District

1.1.1 Overview

There are currently no Class 1 landfills (land disposal sites that accept municipal solid waste) in Kāpiti Coast District. Residual waste from the District is consolidated at either the Otaihanga Resource Recovery Facility (RRF) or the Ōtaki Transfer Station and bulk-hauled to an out-of-district landfill chosen by the contracted operator of each facility. Residual waste from both transfer stations is currently being bulk-hauled to either Hokio Landfill in Levin or Bonny Glenn landfill.

Kāpiti Coast District Council owns both the Otaihanga and Ōtaki facilities. The Otaihanga RRF is leased by Mid-West Disposals Ltd and operated by Waste Management NZ Ltd. Ōtaki Transfer Station is operated by EnviroWaste Services Ltd. A drop-off facility in Waikanae for recyclables and greenwaste is also owned by Council and operated under an operational contract.

Shredded greenwaste from Otaihanga RRF, Ōtaki Transfer Station, and Waikanae is bulk-hauled to the Composting New Zealand site at Otaihanga for composting.

Kāpiti Coast District is, to a relatively high degree, a self-contained waste catchment. That is, a high proportion, but not all, of the waste that is generated within the District is disposed of within the District (at Otaihanga and Ōtaki refuse disposal facilities) and a small amount of the waste disposed of within the District is generated outside of the District. The closed landfill adjoining the Otaihanga RRF accepts restricted types of clean fill.

1.1.2 Waste services for the residential sector

In October 2013, Kāpiti Coast District Council phased out its kerbside rubbish bag and kerbside recycling collection services. From that time, all households need to either use a private collection service (using either bags or wheelie bins) or transport their waste to a transfer station for disposal.

Four licensed waste collectors in Kāpiti Coast District provide kerbside waste and recycling collections for their customers. All licensed waste collectors are required by bylaw to provide recycling services to their customers. Materials that are accepted by the kerbside recycling services are shown in Appendix 1.

The four collectors are EnviroWaste Services Ltd (trading as Clean Green), Waste Management NZ Ltd, Lucy's Bins, and Low Cost Bins Ltd.

All four private waste collectors provide kerbside collection services using wheelie bins. EnviroWaste Services Ltd also sells pre-paid rubbish bags for kerbside collections via local outlets.

Several private operators offer user-pays garden bag or bin collections. Greenwaste drop-off facilities are provided at Otaihanga, Ōtaki, and Waikanae facilities.

Residents can transport residual waste directly to the Otaihanga RRF and Ōtaki Transfer Station. Both facilities accept residual waste and have separate drop-off points for a wide

range of recyclable materials. The Waikanae facility accepts only recyclables and greenwaste. Residual waste, other than pre-paid rubbish bags, is not accepted at the Waikanae facility.

For one-off removal of large quantities of waste from residential properties, several of the private waste operators offer gantry bin services.

1.1.3 Waste services for the commercial sector

Waste generated by the commercial sector is either self-hauled to the transfer stations or collected by a private waste operator.

Several private waste operators offer waste and recycling services to the commercial sector. Waste collection services using pre-paid bags, wheelie bins, gantry skips, and front-loaders are available. Some commercial waste from Kāpiti Coast District may be disposed of outside of the District and some out-of-district waste may be disposed of at Otaihangā RRF or Ōtaki Transfer Station.

1.1.4 Otaihangā Resource Recovery Facility

The Otaihangā Resource Recovery Facility (RRF) is situated on Otaihangā Road, north of Paraparaumu. The facility is owned by Kāpiti Coast District Council, leased to MidWest Disposals Ltd, and operated by Waste Management NZ Ltd.

All vehicles entering the facility must stop at the weighbridge kiosk, where the kiosk operator assesses the load and directs the driver to the appropriate drop-off area. Bags and standard car loads are not weighed, but are charged at a flat rate. Vehicles with larger loads, trailers, and trucks are weighed over the double weighbridge when entering and then when leaving the facility and are charged by weight.

There is no separate greenwaste drop-off at ORRF but greenwaste can be taken directly to the adjacent Composting New Zealand site.

Disposal charges for all waste into Otaihangā RRF are set by MidWest Disposals. Council only sets the disposal charge for cleanfill to landfill. All charges are posted on the Council's website and are shown in Photo 1.1 on the next page. There is no disposal charge for vehicles disposing only of kerbside recyclable materials and paint.

There are separate resource recovery and waste disposal areas. There is a re-use shop and separate drop-off points for the disposal of:

- TVs and CRT screens
- Steel cans
- Whiteware
- Flattened cardboard
- Scrap metal
- Plastic food, drink and janitorial containers
- Paint
- Glass bottles and jars
- Aluminium cans
- Waste oil
- Tyres

MIDWEST DISPOSALS		
ŌTAIHANGA RESOURCE RECOVERY FACILITY		
& REFUSE TRANSFER STATION		
Effective - 01/07/17		
GENERAL WASTE		
Per Bag (bags up to 60 litres)	\$5.00	ALL GREEN WASTE To CNZ
Car Boot	\$19.00	
Full Car	\$27.00	
Station Wagons / 4WD's	\$41.00	
Trailers / Ute's/Vans	\$53.00	
E-Waste/TYs & Oil Motors	\$25.00	
WEIGHED TRAILERS/UTES/VANS AND TRUCKS		
General & Demolition Waste	\$177.20 per tonne	min \$53.00
Special Waste (Asbestos double wrapped in Polythene)	\$470.00 per tonne	(min \$50.00) <100kg)
Cleanfill: NO CHARGE IF PER-APPROVED BY NCDC	\$12.00 per tonne	\$8.00 minimum charge <300kg)
Special Waste (Scrap & Logs)	\$310.00 per tonne	(\$95.00 minimum charge)
Fridges / Freezers (covers degassing)	\$40.00 each	Other Whiteware: \$19.00 each
Expanded Polystyrene	\$4100.00 per tonne	
Waste Oil	\$1.00 per litre	
Tyres		Car Tyres: \$6.00 each - Truck & Tractor Tyres \$25.00 each
Weigh Only	\$12.00	Gross & Tare: \$18.50
Paint Exchange	Free	
CAR BATTERIES and LPG CYLINDERS to be notified to Kiosk Staff and placed in the appropriate drop off point		

Photo 1.1 - Disposal charges at Otaihanga Resource Recovery Facility

Vehicles with small loads of waste back up to the edge of the transfer pit to unload onto the tipping floor below. Commercial waste vehicles and other vehicles with large loads drive into the pit and unload directly onto the tipping floor. The tipping floor is cleared regularly with a loader and residual waste is loaded with an excavator into open truck/trailer units for transport to landfill.

Transfer station staff recover some of the metals that are disposed of onto the tipping floor and put these into scrap bin on the tipping floor. Re-usable items are set aside for staff from the re-use shop to remove.

1.1.5 Ōtaki Transfer Station

Ōtaki Transfer Station is located at 1 Riverside Road, Ōtaki. It is a small facility owned by Kāpiti Coast District Council and is operated under contract by EnviroWaste Services Ltd. A single weighbridge is located alongside the recycling drop-off area. All vehicles carrying waste must stop at the weighbridge kiosk, where the kiosk operator assesses the load and directs the driver to the appropriate drop-off area.

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

The gate charges for waste are set by EnviroWaste Services Ltd. Composting New Zealand sets the greenwaste charges. The charges are shown in Photo 1.2. Cleanfill and household

hazardous waste are not accepted at the Ōtaki Transfer Station. There is no disposal charge for vehicles carrying only kerbside recyclable materials and/or gas bottles. At the resource recovery area, there are currently separate drop-off points for the disposal of:

- Greenwaste
- Scrap metal
- Flattened cardboard
- Plastic food, drink, and janitorial containers
- Whiteware
- Glass bottles
- Aluminium cans
- Steel cans
- Paint
- Tyres
- Used oil
- TVs and CRT screens

<u>Greenwaste Charges</u>	
Bags (<60L)	\$3
Wool Sack	\$6
Car Boot (Boot only)	\$7
Full Car / Station Wagon	\$10
Medium Trailer (<10ft / 3m long)	\$16
Trucks	\$65 per tonne

 EnviroWaste <u>General Waste Charges</u>	
<u>General Waste Charges</u>	
Bags (including pre paid office bags) 60L	\$4.40
Full Car	\$24.40
Ute / Van	\$42.20
Trucks / Trailer	\$42.20 up to 350kg \$156.50 per tonne
Tyres Car	\$5.30 per tyre
Truck	\$12.70 per tyre
Tractor	\$12.70 per tyre
TVs / Monitors (recycling fee)	\$20.00 per item
Fridge / Freezers (degreasing fee)	\$28.20 per item
Waste Oil (recycling fee)	\$1.00 per litre
Budget Waste Rubbish Bag	\$5.30
Hazardous Waste	Not Accepted

Photo 1.2 - Disposal charges at Ōtaki Transfer Station

Residual waste disposed of in the transfer pit is top-loaded with an excavator into open truck/trailer units for transport to landfill.

1.2 Structure of report

The methodologies used for the visual survey and sort-and-weigh audit are detailed in sections 2.2 and 2.3, respectively. The results of the sort-and-weigh audit of kerbside waste are presented in section 3. The results of the visual surveys at Otaihangā RRF and Ōtaki Transfer Station are presented in sections 4.1 and 4.2, respectively. Section 5 provides an estimate of the composition of the overall waste flow being disposed of to landfill from Kāpiti Coast District. Section 6 includes further analysis of the results and compares several waste metrics in the District with those in other districts in New Zealand.

The structure of this report, and waste flows in Kāpiti Coast District, are shown in Figure 1.1.



Figure 1.1 - Waste flows in Kāpiti Coast District

2 Methodologies

2.1 Overview

The quantity and composition of waste disposed of to landfill from Kāpiti Coast District was determined by combining data from several separate sources:

- a six-day visual survey of residual waste (i.e. waste that is not recovered and is sent for landfill disposal) disposed of at the Otaihangā RRF and Ōtaki Transfer Station
- a five-day sort-and-weigh audit of the composition of kerbside waste from residential properties, including private operators' kerbside rubbish bags and three sizes of private waste operators' wheelie bins
- weighbridge records from both transfer stations.

The methodologies are outlined in detail in the sections that follow.

2.2 Kerbside waste audit

The kerbside waste audit methodology used by Waste Not Consulting was based on Procedure One of the Ministry for the Environment's Solid Waste Analysis Protocol (SWAP).

2.2.1 Sampling strategy

Over five weekdays from Monday 11 September to Friday 15 September 2017, a total of 75 rubbish bags and the contents of 75 x 80-litre wheelie bins, 70 x 120/140-litre wheelie bins, and 60 x 240-litre wheelie bins were collected from the kerbside from throughout Kāpiti Coast District. Only waste from residential properties was included in the samples.

The composition and quantity of kerbside waste from residential properties varies according to a number of factors, including the demographics of the householder, the nature of the housing stock, and the range of disposal and recycling services available. To obtain a representative sample of the kerbside waste collections, the sample was collected from as wide a geographic area as possible and included a range of housing types. The streets from which the sample was collected are detailed in section 3.1.

A single rubbish bag was taken from each dwelling selected for the bag sample, resulting in rubbish bags from 75 households being collected. Only dwellings to which a distinct quantity of rubbish bags could be attributed were chosen for the rubbish bag sample. Rubbish bags were not taken, for example, from beside shared driveways as they may have represented the waste output of several households.

When a rubbish bag was taken from a dwelling, the total number of bags set out by that dwelling was recorded. This has allowed the calculation of the average number of bags set out per household, which, when combined with an average bag weight, provides data on the average weight of waste set out per household. This does not necessarily equate to an average weekly household waste generation, as not all households set out waste each week.

The sample included the contents of 205 wheelie bins from three of the four waste collectors operating in the District. The contents of the wheelie bins were emptied into large plastic

bags for the sampling and the empty bins left on the kerbside. Waste was transported to Otaihangā RRF for sorting.

2.2.2 Audit execution

At the Otaihangā RRF the sample of kerbside rubbish bags was sorted in sampling units of five bags. The 80-litre and 120/140-litre wheelie bins samples were sorted in units of five wheelie bins. The sample of 240-litre wheelie bins was sorted in units of two wheelie bins.

Each of the bags in the sample units was weighed in, one bag at a time, and then opened. The contents of all the bags in the sample unit were spread on a sorting table, and the individual items sorted into the appropriate categories. When all of the items in the sample unit were sorted, the individual classifications were weighed out and the material disposed of.

The waste was sorted into the 22 secondary categories described in Appendix 2. These categories are based on the 12 primary categories recommended by the SWAP. The secondary classifications were chosen to identify the different types of recyclable materials present in the waste.

2.2.3 Staff training and OSH issues

The waste was sorted by a team of four, comprising three contract workers and a Waste Not sub-contractor. Prior to the start of the audit, all team members received the requisite training on the requirements of the audit process and on occupational health and safety procedures. As sensitive documents are occasionally present in residential waste, the importance of confidentiality was emphasised to all team members.



Photo 2.1 - Sorting kerbside waste and one day's sample of kerbside waste

2.3 Visual survey

The visual survey of residual waste at Otaihangā RRF and Ōtaki Transfer Station took place from 11-16 September 2017. The survey included both weekdays and a weekend day to capture weekly variations in the waste stream.

Visual surveying provides information on vehicle loads of waste entering a disposal facility in terms of composition of the waste load and the activity source (for example, landscaping, residential, and construction and demolition).

The composition of waste is based on the 12 primary categories (e.g. paper, plastics, etc.) recommended by the SWAP. Further secondary categories were chosen after consultation with Council. A description of the categories is provided in Appendix 2.

The activity sources of waste are those recommended by the National Waste Data Framework.

2.3.1 Analysing waste streams

For the purpose of analysing waste streams, Waste Not differentiates between kerbside waste collections, special waste, and general waste. Different methods are used for determining the composition of each waste stream.

Kerbside waste collections, in this context, are taken to include collections of rubbish bags and wheelie bins from both residential and commercial/industrial properties. The composition of kerbside collections is most accurately determined by sort-and-weigh auditing, rather than by visual surveying techniques.

Special wastes generated in Kāpiti Coast District are likely to include asbestos, biosolids, and wastewater treatment plant screenings. Special wastes from the District are taken directly to Bonny Glen landfill or other sites and were not included in the survey.

General waste is considered to be all wastes other than kerbside waste collections and special wastes. Visual surveying is used primarily for determining the composition of the general waste stream.

2.3.2 Visual assessment of waste composition

While each vehicle was being unloaded into the transfer pit or onto the tipping floor at Otaihangā RRF and Ōtaki Transfer Station, the surveyor assessed the relative weight of each constituent present in the load on the basis of volume and density. Absolute weights of individual materials were not estimated; rather, the proportion of weight represented by each material was estimated. These data were recorded as a proportion, by weight, for each constituent present in the load.

As not all smaller vehicle loads are weighed at either facility, estimates of the weight of each load were made as the vehicle was being unloaded.

For vehicle loads in which it was difficult to distinguish the individual constituents, a generic composition, based on previous surveys of that type of vehicle load, was used as a template for the composition then adjusted according to the materials that were visible.

Data was not recorded on vehicles disposing of any materials other than residual waste at either facility.

2.3.3 Activity sources

Waste Not has developed its own categories of activity source that are aimed at providing the information that is most useful to councils for monitoring waste streams and effectively targeting waste minimisation initiatives. These activity sources are now recommended by the National Waste Data Framework. The activity sources that were used for classifying waste loads at Otaihangā RRF and Ōtaki Transfer Station were:

1. **Construction and demolition (C&D)** - waste materials from the construction or demolition of a building
2. **Industrial/commercial/institutional (ICI)** - waste from industrial, commercial, and institutional sources
3. **Kerbside waste collection** - waste collected from residential and commercial premises by private and council kerbside waste collections
4. **Landscaping and earthworks** - waste from landscaping activity, garden maintenance, and site works, both domestic and commercial
5. **Residential** - all waste originating from residential premises other than that covered by one of the other, more specific classifications (includes drop-offs of bagged domestic waste)
6. **Special wastes** - (usually applies only to waste disposed of directly to landfill) a subjective classification that includes any substantial waste stream (such as biosolids, infrastructural cleanfill, or industrial wastes), that either requires special handling or significantly affects the overall composition of the waste stream and is markedly different from waste streams at other disposal facilities.
7. **Transfer station** - waste entering a facility from another transfer station.

The activity source of each load was assessed and recorded by the surveyor at the same time as the composition was being assessed and recorded. If a load contained materials from more than one activity source, a judgement was made as to which activity source predominated in the load.

2.3.4 Identification of vehicle types

As loads carried by different vehicle types are not affected in similar ways by waste reduction initiatives, vehicles carrying waste were classified according to the system described in Appendix 3.

3 Kerbside waste

3.1 Sampling schedule

The sort-and-weigh audit of kerbside waste took place from 11-15 September 2017. During this period, the contents of 75 rubbish bags and the contents of 75x80-litre wheelie bins, 70x120/140-litre wheelie bins, and 60x240-litre wheelie bins were sampled and sorted.

Samples were collected from throughout Kāpiti Coast District and the wheelie bin samples included refuse from three private waste operators' wheelie bins. The collection schedule is shown in Table 3.1 and includes the streets from which the sample was collected.

Table 3.1 - Kerbside waste collection schedule

Date	Street	Date	Street	Date	Street
11 Sept	Te Moana	12 Sept	Mamaku	14 Sept	Donovan
11 Sept	Walton	12 Sept	Ruapehu	14 Sept	Hollis
11 Sept	Rawene	12 Sept	Westridge	14 Sept	Manly
11 Sept	Wakefield	12 Sept	Warrimoo	14 Sept	Michael
11 Sept	Arlington	12 Sept	Realm	14 Sept	Gray
11 Sept	Windsor	13 Sept	Rimu	14 Sept	Beachwater
11 Sept	York	13 Sept	Kew Grove	14 Sept	Golf
11 Sept	Ngarara	13 Sept	Fiesta Grove	14 Sept	Percival
11 Sept	Ngaio	13 Sept	Hillcrest	14 Sept	Sunburst
11 Sept	Kaikomako	13 Sept	Matai	15 Sept	Sue
11 Sept	Kohekohe	13 Sept	Dell	15 Sept	Dunstan
11 Sept	Millvale	13 Sept	Tennis Court	15 Sept	Bertelsen
11 Sept	Kapanui	13 Sept	Manawa	15 Sept	Kirk
11 Sept	Park	13 Sept	Rata	15 Sept	Ngaio
11 Sept	Parata	13 Sept	Telford	15 Sept	Manuka
12 Sept	Kaimanawa	13 Sept	Princeton	15 Sept	Moana
12 Sept	Hardham	13 Sept	Raumati	15 Sept	Marine Parade
12 Sept	Moana	14 Sept	Arthur	15 Sept	Karaka
12 Sept	Aorangi	14 Sept	Whyte	15 Sept	Domain
12 Sept	Sunshine	14 Sept	Bahama	15 Sept	Mill
12 Sept	Linwood	14 Sept	Mahana	15 Sept	Atmore
12 Sept	Gallipoli	14 Sept	Te Kupe	15 Sept	Scott
12 Sept	Glen Loch	14 Sept	Mazengarb		
12 Sept	Ratanui	14 Sept	Percival		

3.2 Kerbside rubbish bags

3.2.1 Primary composition of kerbside rubbish bags - September 2017

The audit of kerbside rubbish bags included 75 bags weighing a total of 499 kg. The primary composition of domestic kerbside rubbish bags is presented in Table 3.2 below and Figure 3.1 on the following page. The secondary composition, which includes all 22 secondary categories, is presented in Appendix 4.

During the sample collection, when a rubbish bag was taken from a dwelling, the total number of bags set out by that dwelling was recorded. This data was used to calculate the average number of bags per household set out, which was 1.13 bags. This data is analysed further in section 3.2.3. The 'mean weight per household set out' shown in the table has been calculated by combining the average bag weight with the average number of bags set out per household.

The average set out weight of domestic kerbside waste is related to the frequency with which households set waste out for collection. As not all households set out kerbside waste for collection every week, the average household set out weight cannot be regarded as equivalent to an average weekly household waste generation.

Table 3.2 - Primary composition of kerbside rubbish bags - September 2017

Domestic kerbside rubbish bags 11-15 September 2017 (margins of error for 95% confidence level)	Proportion of total	Mean wt. per household set out	Mean wt. per rubbish bag
Paper	10.9% (±3.4%)	0.82 kg (±0.25 kg)	0.72 kg (±0.22 kg)
Plastics	14.4% (±2.1%)	1.09 kg (±0.16 kg)	0.96 kg (±0.14 kg)
Organics	47.5% (±6.4%)	3.58 kg (±0.48 kg)	3.16 kg (±0.43 kg)
Ferrous metals	1.8% (±0.9%)	0.13 kg (±0.07 kg)	0.12 kg (±0.06 kg)
Non-ferrous metals	0.8% (±0.3%)	0.06 kg (±0.02 kg)	0.05 kg (±0.02 kg)
Glass	2.1% (±1.3%)	0.16 kg (±0.10 kg)	0.14 kg (±0.09 kg)
Textiles	6.1% (±3.4%)	0.46 kg (±0.26 kg)	0.40 kg (±0.23 kg)
Sanitary paper	12.3% (±7.7%)	0.93 kg (±0.58 kg)	0.82 kg (±0.51 kg)
Rubble	1.9% (±0.9%)	0.14 kg (±0.07 kg)	0.12 kg (±0.06 kg)
Timber	0.5% (±0.5%)	0.03 kg (±0.04 kg)	0.03 kg (±0.03 kg)
Rubber	0.6% (±0.7%)	0.04 kg (±0.05 kg)	0.04 kg (±0.04 kg)
Potentially hazardous	1.4% (±0.9%)	0.10 kg (±0.06 kg)	0.09 kg (±0.06 kg)
TOTAL	100.0%	7.54 kg (±0.99 kg)	6.66 kg (±0.88 kg)

Organic material, primarily kitchen/food waste, was the largest single component of the kerbside rubbish bags, comprising 47.5% of the total. Plastics was the second largest component, 14.4%, and sanitary paper (which includes nappies, paper towels, and tissues), 12.3%, was the third largest component.

The average kerbside rubbish bag weighed 6.66 kg (± 0.88 kg at the 95% confidence level). The average household set out 1.13 bags, resulting in the average household set out weight being 7.54 kg (± 0.99 kg at the 95% confidence level). This average household set out weight is only applicable to those properties that set out rubbish bags, and does not include properties that did not set out any kerbside waste.

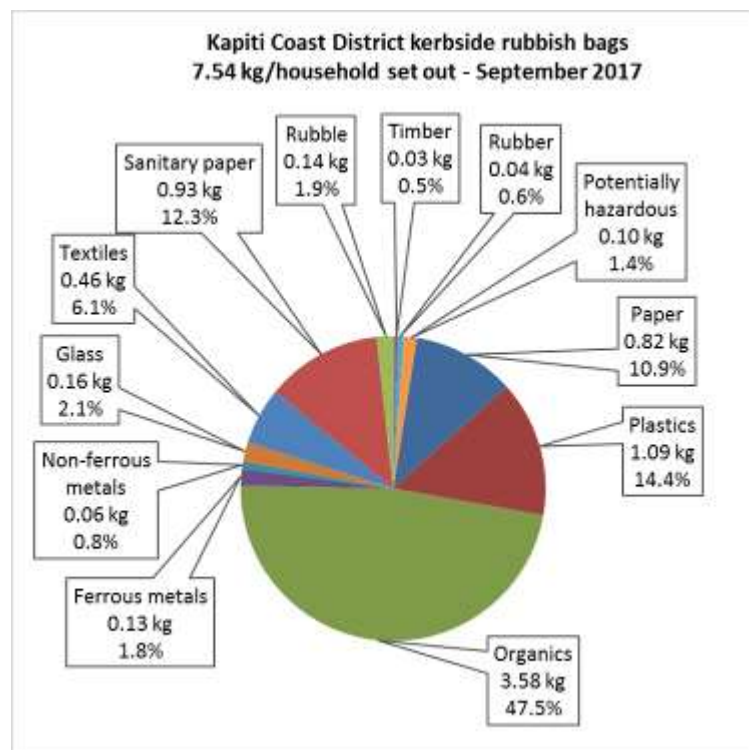


Figure 3.1 - Primary composition of kerbside rubbish bags - September 2017

3.2.2 Distribution of kerbside rubbish bags weights - September 2017

The average domestic kerbside rubbish bag weighed 6.66 kg (± 0.88 kg at the 95% confidence level). The distribution of the bag weights is shown in Figure 3.2 below.

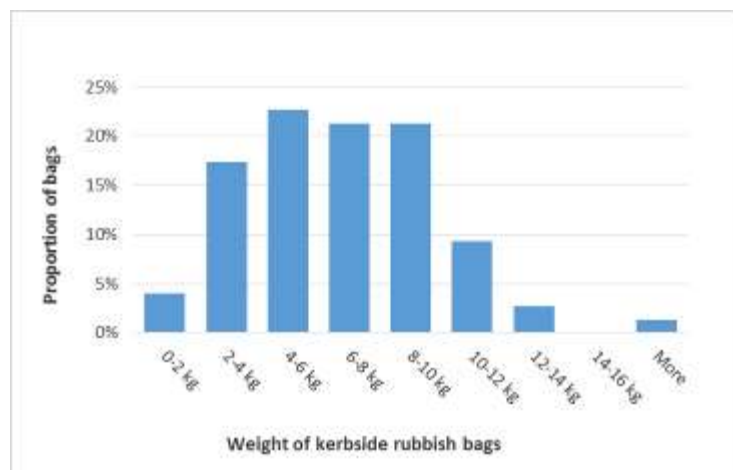


Figure 3.2 – Distribution of kerbside rubbish bag weights - September 2017

Sixty-one percent of all bags weighed between 2 and 8 kg. Thirteen percent of bags weighed over 10 kg.

3.2.3 Distribution of kerbside rubbish bags set outs - September 2017

Data on the number of kerbside rubbish bags set out by each household was recorded while the sample was being collected. The average household bag set out was 1.13 rubbish bags. Figure 3.3 below shows the distribution of the bag set outs.

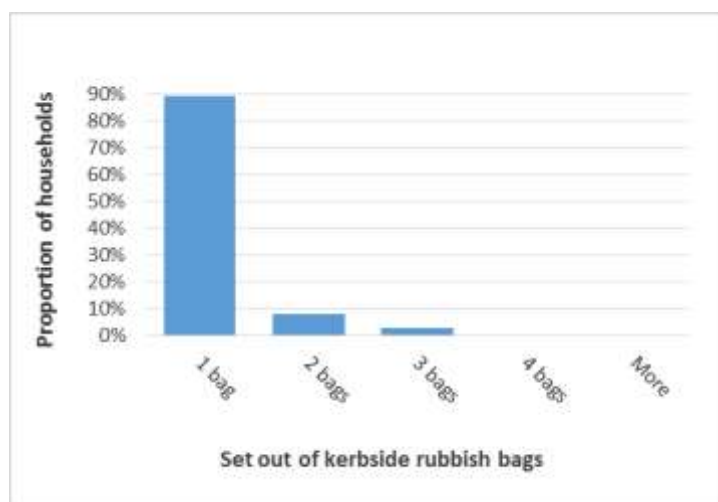


Figure 3.3 – Distribution of kerbside rubbish bag set out

Eighty-nine percent of all households using kerbside rubbish bags set out a single rubbish bag. Three percent of households set out more than two bags. No houses included in the sample set out more than three bags.

3.2.4 Diversion potential of kerbside rubbish bags - September 2017

Common means used for the diversion of domestic waste materials from landfill disposal are by providing systems for the collection or diversion of recyclable and compostable materials. Kāpiti Coast District Council requires all licensed kerbside waste collectors to provide a kerbside recycling service to customers and recyclable materials can also be dropped off at the Otaihangā RRF, Ōtaki transfer station, and Waikanae Green Waste and Recycling Centre.

For the diversion of organic materials, greenwaste can be disposed of separately at the Composting NZ site adjacent to Otaihangā RRF, Waikanae Green Waste and Recycling Centre, and at Ōtaki transfer station. Private greenwaste collections are also available. Both kitchen waste and greenwaste can be composted at home by residents.

Table 3.3 on the next page shows the proportions of kerbside rubbish bags that could have been diverted using these methods. The table also shows the weight of materials per average household set out and per rubbish bag that could have been diverted. The data on the individual materials has been taken from Appendix 4.

Table 3.3 – Diversion potential of kerbside rubbish bags - September 2017

Kerbside rubbish bags - Diversion potential - 11-15 September 2017	% of total	Kg per household set out	Kg per rubbish bag
Kerbside recyclable materials			
Paper - Recyclable	7.2%	0.55 kg	0.48 kg
Plastics - #1-7 containers	2.2%	0.16 kg	0.14 kg
Ferrous metals - Steel cans	1.0%	0.07 kg	0.07 kg
Non-ferrous metals - Aluminium cans	0.1%	0.01 kg	0.01 kg
Glass - Bottles/jars	1.0%	0.08 kg	0.07 kg
Subtotal	11.5%	0.87 kg	0.76 kg
Compostable materials			
Organics - Kitchen/food waste	37.2%	2.81 kg	2.48 kg
Organics - Greenwaste	3.9%	0.29 kg	0.26 kg
Subtotal	41.1%	3.10 kg	2.74 kg
TOTAL – Potentially divertable	52.6%	3.97 kg	3.50 kg

Approximately 11.5% of the materials in domestic kerbside rubbish bags could have been recycled through a kerbside recycling collection or at a transfer station. Paper comprised 63% of the recyclable materials.

A further 41.1% of the rubbish bags could have been composted. Ninety-one percent of the compostable materials was kitchen waste.

In total, 52.6%, of the kerbside rubbish bags could have been diverted from landfill disposal by either recycling or composting. This equates to 3.97 kg per average household set out.

Other materials, such as clothing and other metals, are also recoverable, but have not been included in this analysis.

3.3 80-litre wheelie bins

3.3.1 Primary composition of 80-litre wheelie bins

The audit of 80-litre wheelie bins included the contents of 75 bins weighing a total of 599 kg.

The primary composition of 80-litre wheelie bins in Kāpiti Coast District is presented in Table 3.6 below and Figure 3.6 on the following page. The secondary composition of 80-litre wheelie bins is presented in Appendix 5. As not all households set out a wheelie bin for collection every week, the mean bin weight cannot be regarded as equivalent to an average weekly household waste generation.

Table 3.4 – Primary composition of 80-litre wheelie bins - September 2017

80-litre wheelie bins 11-15 September 2017 (margins of error for 95% confidence level)	Proportion of total	Mean wt. per wheelie bin
Paper	8.2% (±2.7%)	0.65 kg (±0.21 kg)
Plastics	8.5% (±1.0%)	0.68 kg (±0.08 kg)
Organics	55.8% (±12.3%)	4.45 kg (±0.98 kg)
Ferrous metals	1.5% (±0.8%)	0.12 kg (±0.07 kg)
Non-ferrous metals	0.7% (±0.4%)	0.05 kg (±0.03 kg)
Glass	1.4% (±0.4%)	0.11 kg (±0.03 kg)
Textiles	2.6% (±1.8%)	0.21 kg (±0.15 kg)
Sanitary paper	9.3% (±3.8%)	0.74 kg (±0.30 kg)
Rubble	7.1% (±9.0%)	0.57 kg (±0.72 kg)
Timber	2.9% (±4.8%)	0.23 kg (±0.38 kg)
Rubber	0.0% (±0.0%)	0.00 kg (±0.00 kg)
Potentially hazardous	2.0% (±1.5%)	0.16 kg (±0.12 kg)
TOTAL	100.0%	7.98 kg (±1.24 kg)

The contents of the average 80-litre wheelie bin weighed 7.98 kg (±1.24 kg at the 95% confidence level). Organic material, 52% of which was greenwaste, was the largest single component of the 80-litre wheelie bins, comprising 55.8% of the total weight. Sanitary paper was the second largest component, 9.3%, and, plastics 8.5%, was the third largest component.

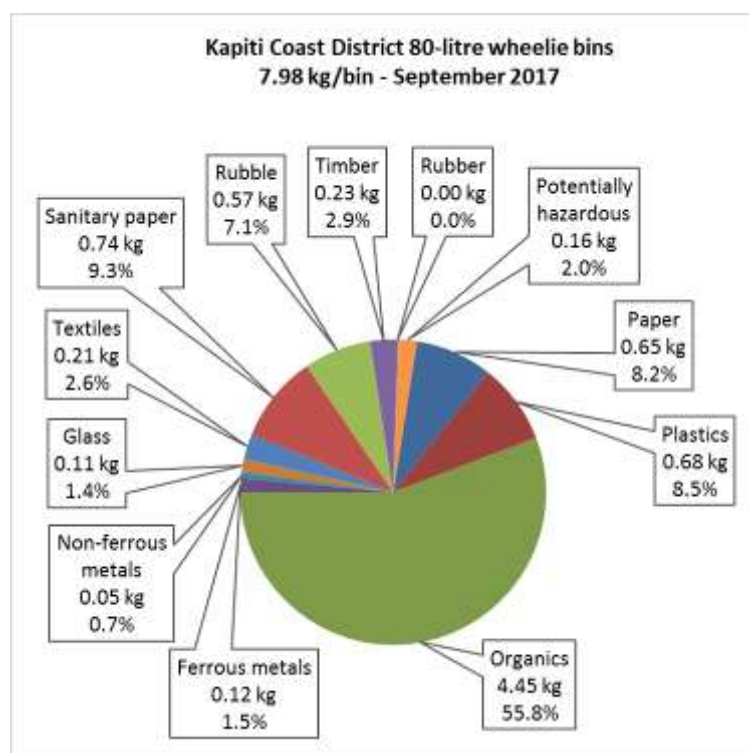


Figure 3.4 - Composition of 80-litre wheelie bins - September 2017

3.3.2 Distribution of 80-litre wheelie bins weights - September 2017

The average 80-litre wheelie bin weighed 7.98 kg (± 1.24 kg at the 95% confidence interval). The distribution of the bin weights is shown in Figure 3.7 below.

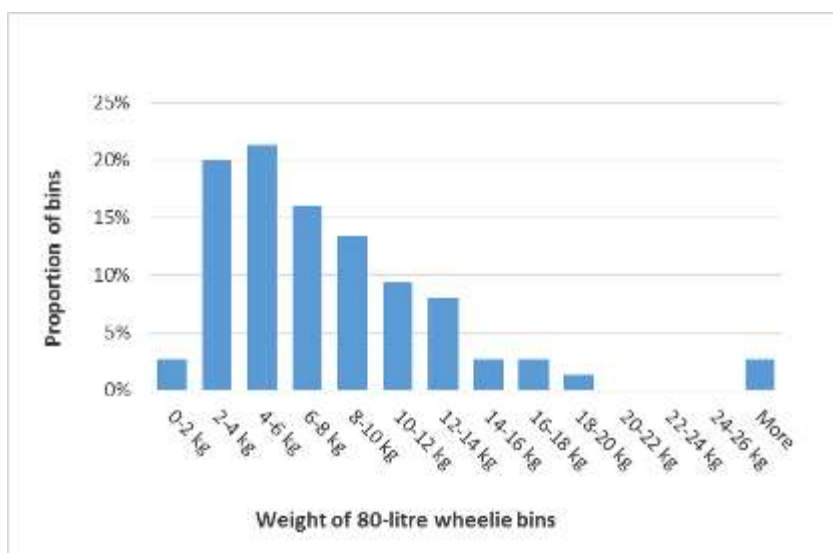


Figure 3.5 – Distribution of privately-collected 80-litre wheelie bin weights - July 2017

Seventy-one percent of 80-litre wheelie bins weighed between 2 and 10 kg. Two bins weighed more than 35kg. These heavy bins contained primarily greenwaste and soil.

3.3.3 Diversion potential of 80-litre wheelie bins - September 2017

Common means used for the diversion of domestic waste materials from landfill disposal are by providing systems for the collection or diversion of recyclable and compostable materials. Kāpiti Coast District Council requires all licensed kerbside waste collectors to provide a kerbside recycling service to customers and recyclable materials can also be dropped off at the Otaihanga RRF, Ōtaki transfer station, and Waikanae Green Waste and Recycling Centre.

For the diversion of organic materials, greenwaste can be disposed of separately at the Composting NZ site adjacent to Otaihanga RRF, Waikanae Green Waste and Recycling Centre, and at Ōtaki transfer station. Private greenwaste collections are also available. Both kitchen waste and greenwaste can be composted at home by residents.

Table 3.5 below shows the proportion of 80-litre wheelie bins that could have been diverted using these methods. The table also shows the weight of materials per average bin that could have been diverted. The data on the individual materials has been taken from Appendix 5.

Table 3.5 – Diversion potential of 80-litre wheelie bins - September 2017

80-litre wheelie bins - Diversion potential - September 2017	% of total	Kg per wheelie bin
Kerbside recyclable materials		
Paper - Recyclable	6.8%	0.54 kg
Plastics - #1-7 containers	1.7%	0.14 kg
Ferrous metals - Steel cans	0.6%	0.05 kg
Non-ferrous metals - Aluminium cans	0.1%	0.01 kg
Glass - Bottles/jars	0.9%	0.07 kg
Subtotal	10.1%	0.81 kg
Compostable materials		
Organics - Kitchen/food waste	25.0%	1.99 kg
Organics - Greenwaste	26.9%	2.15 kg
Subtotal	51.9%	4.14 kg
TOTAL – Potentially divertable	62.0%	4.95 kg

Approximately 10.1% of the materials in 80-litre wheelie bins could have been recycled through a kerbside recycling collection, at a recycling centre, or at a transfer station. Paper comprised 67% of the recyclable materials.

A further 51.9% of the contents of 80-litre bins could have been composted. In total, 62.0% of the contents of 80-litre wheelie bins could have been diverted from landfill disposal by either recycling or composting. This equates to 4.95 kg per average 80-litre wheelie bin.

Other materials, such as clothing and other metals, are also recoverable, but have not been included in these calculations.

3.4 120/140-litre wheelie bins

3.4.1 Primary composition of 120/140-litre wheelie bins

The audit of privately-collected 120/140-litre wheelie bins included the contents of 70 bins weighing a total of 773 kg.

The primary composition of 120/140-litre wheelie bins in Kāpiti Coast District is presented in Table 3.6 below and Figure 3.6 on the following page. The secondary composition of 120/140-litre wheelie bins is presented in Appendix 6. As not all households set out a wheelie bin for collection every week, the mean bin weight cannot be regarded as equivalent to an average weekly household waste generation.

Table 3.6 – Primary composition of 120/140-litre wheelie bins - September 2017

120/140-litre wheelie bins 11-15 September 2017 (margins of error for 95% confidence level)	Proportion of total	Mean wt. per wheelie bin
Paper	9.2% (±3.9%)	1.01 kg (±0.43 kg)
Plastics	8.5% (±1.4%)	0.93 kg (±0.15 kg)
Organics	56.1% (±12.5%)	6.19 kg (±1.38 kg)
Ferrous metals	2.4% (±1.4%)	0.27 kg (±0.16 kg)
Non-ferrous metals	0.9% (±0.5%)	0.10 kg (±0.05 kg)
Glass	7.4% (±4.9%)	0.82 kg (±0.54 kg)
Textiles	2.0% (±0.8%)	0.22 kg (±0.09 kg)
Sanitary paper	7.8% (±2.8%)	0.86 kg (±0.31 kg)
Rubble	3.4% (±2.4%)	0.37 kg (±0.27 kg)
Timber	1.2% (±1.2%)	0.14 kg (±0.13 kg)
Rubber	0.1% (±0.2%)	0.01 kg (±0.02 kg)
Potentially hazardous	1.0% (±0.5%)	0.11 kg (±0.06 kg)
TOTAL	100.0%	11.04 kg (±1.39 kg)

The average 120/140-litre wheelie bin weighed 11.04 kg (±1.39 kg at the 95% confidence level). Organic material, 47% of which was greenwaste, was the largest single component of the 120/140-litre wheelie bins, comprising 56.1% of the total weight. Paper was the second largest component, 9.2%, and plastics, 8.5%, was the third largest component.

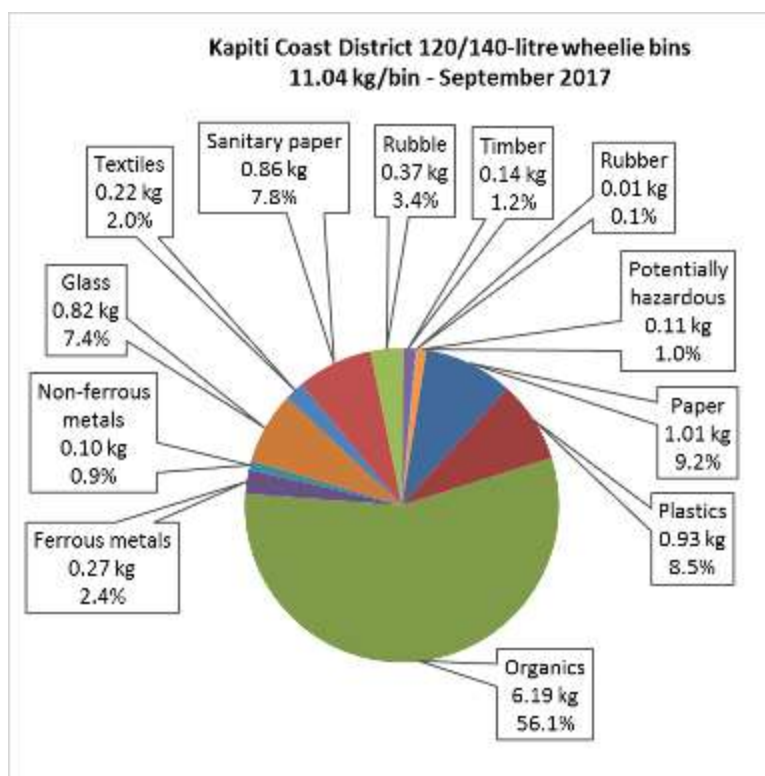


Figure 3.6 - Composition of 120/140-litre wheelie bins - September 2017

3.4.2 Distribution of 120/140-litre wheelie bins weights - September 2017

The average 120/140-litre wheelie bin weighed 11.04 kg (± 1.39 kg at the 95% confidence interval). The distribution of the bin weights is shown in Figure 3.7 below.

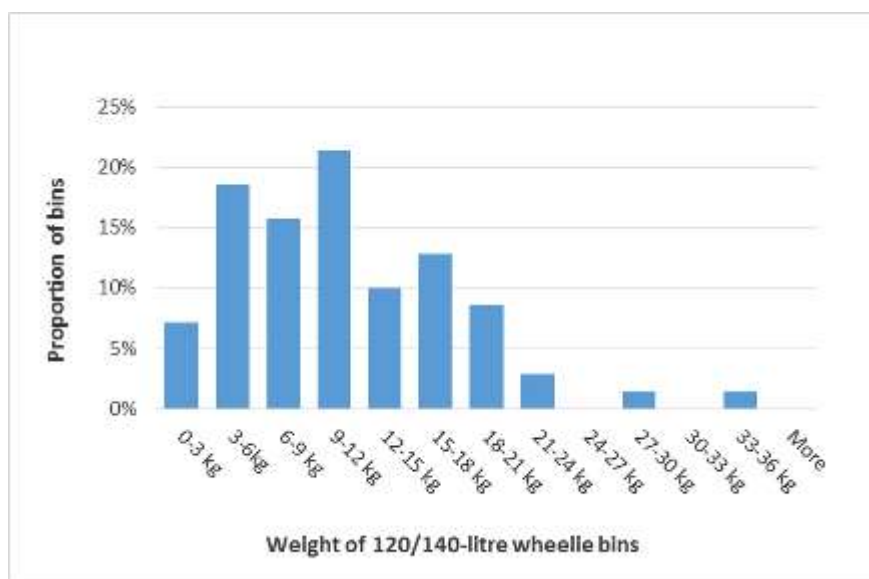


Figure 3.7 – Distribution of 120/140-litre wheelie bin weights - September 2017

Two-thirds of 120/140-litre wheelie bins weighed between 3 and 15 kg. The heaviest bin weighed 36 kg.

3.4.3 Diversion potential of 120/140-litre wheelie bins - September 2017

Common means used for the diversion of domestic waste materials from landfill disposal are by providing systems for the collection or diversion of recyclable and compostable materials. Kāpiti Coast District Council requires all licensed kerbside waste collectors to provide a kerbside recycling service to customers and recyclable materials can also be dropped off at the Otaihangā RRF, Ōtaki transfer station, and Waikanae Green Waste and Recycling Centre.

For the diversion of organic materials, greenwaste can be disposed of separately at the Composting NZ site adjacent to Otaihangā RRF, Waikanae Green Waste and Recycling Centre, and at Ōtaki transfer station. Private greenwaste collections are also available. Both kitchen waste and greenwaste can be composted at home by residents.

Table 3.7 below shows the proportion of 120/140-litre wheelie bins that could have been diverted using these methods. The table also shows the weight of materials per average bin that could have been diverted. The data on the individual materials has been taken from Appendix 6.

Table 3.7 – Diversion potential of 120/140-litre wheelie bins - September 2017

120/140-litre wheelie bins - Diversion potential - September 2017	% of total	Kg per wheelie bin
Kerbside recyclable materials		
Paper - Recyclable	7.2%	0.79 kg
Plastics - #1-7 containers	1.9%	0.21 kg
Ferrous metals - Steel cans	0.8%	0.09 kg
Non-ferrous metals - Aluminium cans	0.2%	0.02 kg
Glass - Bottles/jars	7.0%	0.77 kg
Subtotal	17.1%	1.88 kg
Compostable materials		
Organics - Kitchen/food waste	26.2%	2.89 kg
Organics - Greenwaste	26.1%	2.89 kg
Subtotal	52.3%	5.78 kg
TOTAL – Potentially divertable	69.4%	7.66 kg

Approximately 17.1% of the contents of 120/140-litre wheelie bins could have been recycled through a kerbside recycling collection, at a recycling centre, or at a transfer station. Paper and glass bottles/jars both comprised approximately 40% of the recyclable materials.

A further 52.3% of the contents of the bins could have been composted. In total, 69.4% of the contents of 120/140-litre wheelie bins could have been diverted from landfill disposal by either recycling or composting. This equates to 7.66 kg per average 120/140-litre wheelie bin. Other materials, such as clothing and other metals, are also recoverable, but have not been included in these calculations.

3.5 240-litre wheelie bins

3.5.1 Primary composition of 240-litre wheelie bins - September 2017

The audit of privately-collected 240-litre wheelie bins included the contents of 60 bins weighing a total of 1095 kg.

The primary composition of privately-collected 240-litre wheelie bins in Kāpiti Coast District is presented in Table 3.8 below and Figure 3.8 on the following page. The secondary composition of 240-litre wheelie bins is presented in Appendix 7.

As not all households set out a wheelie bin for collection every week, the mean bin weight cannot be regarded as equivalent to an average weekly household waste generation.

Table 3.8 – Primary composition of 240-litre wheelie bins - September 2017

240-litre wheelie bins 11-15 September 2017 (margins of error for 95% confidence level)	Proportion of total	Mean wt. per wheelie bin
Paper	7.0% (±3.5%)	1.28 kg (±0.64 kg)
Plastics	9.5% (±3.2%)	1.74 kg (±0.58 kg)
Organics	58.5% (±28.9%)	10.67 kg (±5.27 kg)
Ferrous metals	1.5% (±1.6%)	0.27 kg (±0.29 kg)
Non-ferrous metals	0.9% (±0.7%)	0.16 kg (±0.13 kg)
Glass	2.5% (±2.5%)	0.45 kg (±0.46 kg)
Textiles	3.7% (±4.3%)	0.68 kg (±0.79 kg)
Sanitary paper	9.2% (±10.6%)	1.68 kg (±1.93 kg)
Rubble	4.2% (±9.3%)	0.77 kg (±1.70 kg)
Timber	1.5% (±2.2%)	0.27 kg (±0.40 kg)
Rubber	0.2% (±0.3%)	0.03 kg (±0.06 kg)
Potentially hazardous	1.3% (±2.1%)	0.24 kg (±0.38 kg)
TOTAL	100.0%	18.25 kg (±5.68 kg)

The contents of the average 240-litre wheelie bin weighed 18.25 kg (±5.68 kg at the 95% confidence level). Organic material, 52% of which was greenwaste, was the largest primary component of the 240-litre wheelie bins, comprising 58.5% of the total, or 10.67 kg per bin. Plastics was the second largest component, 9.5%, and sanitary paper, 9.2%, was the third largest component.

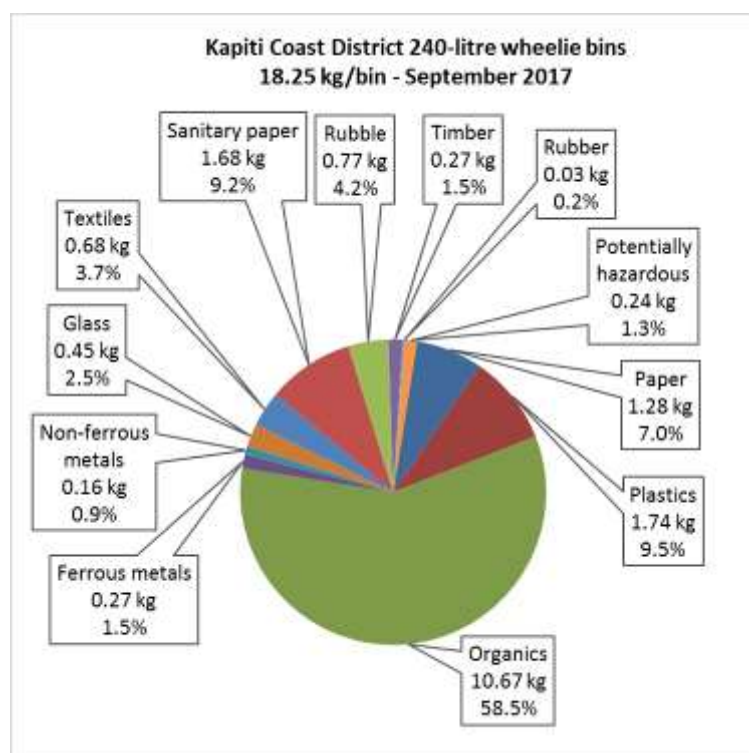


Figure 3.8 - Primary composition of 240-litre wheelie bins - September 2017

3.5.2 Distribution of 240-litre wheelie bins weights - September 2017

The contents of an average 240-litre wheelie bin weighed 18.25 kg (± 5.68 kg at the 95% confidence level). The distribution of the bin weights is shown in Figure 3.9 below.

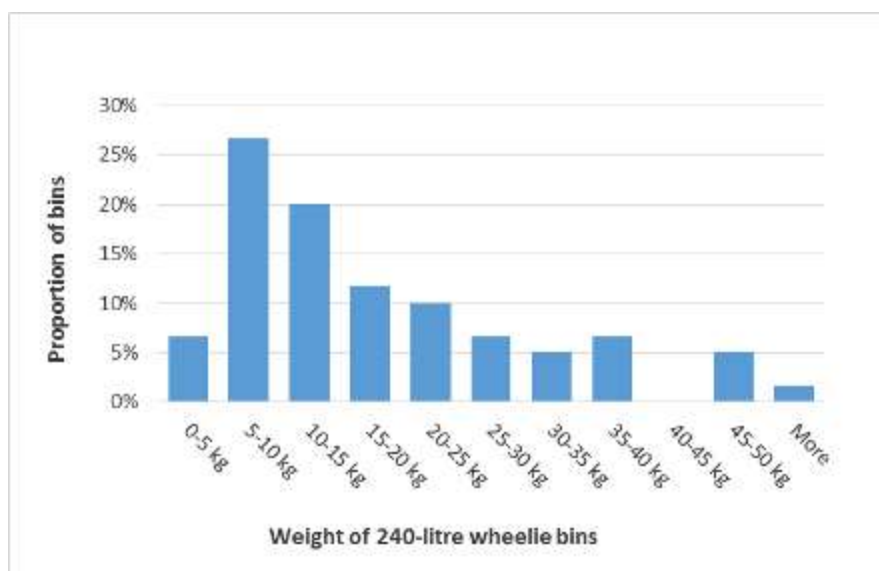


Figure 3.9 – Distribution of 240-litre wheelie bin weights - September 2017

Sixty-eight percent of all 240-litre wheelie bins weighed between 5 and 25 kg. Eighteen percent weighed more than 30 kg. The heaviest wheelie bin in the sample weighed 53 kg.

3.5.3 Diversion potential of 240-litre wheelie bins - September 2017

Common means used for the diversion of domestic waste materials from landfill disposal are by providing systems for the collection or diversion of recyclable and compostable materials. Kāpiti Coast District Council requires all licensed kerbside waste collectors to provide a kerbside recycling service to customers and recyclable materials can also be dropped off at the Otaihangā RRF, Ōtaki transfer station, and Waikanae Green Waste and Recycling Centre.

For the diversion of organic materials, greenwaste can be disposed of separately at the Composting NZ site adjacent to Otaihangā RRF, Waikanae Green Waste and Recycling Centre, and at Ōtaki transfer station. Private greenwaste collections are also available. Both kitchen waste and greenwaste can be composted at home by residents.

Table 3.9 below shows the proportion of 240-litre wheelie bins that could have been diverted using these methods. The table also shows the weight of materials per bin that could have been diverted. The data on the individual materials has been taken from Appendix 7.

Table 3.9 – Diversion potential of 240-litre wheelie bins - September 2017

240-litre wheelie bins - Diversion potential - September 2017	% of total	Kg per wheelie bin
Kerbside recyclable materials		
Paper - Recyclable	5.5%	1.01 kg
Plastics - #1-7	2.0%	0.37 kg
Ferrous metals - Steel cans	0.6%	0.11 kg
Non-ferrous metals - Aluminium cans	0.4%	0.08 kg
Glass - Bottles/jars	2.2%	0.40 kg
Subtotal	10.8%	1.96 kg
Compostable materials		
Organics - Kitchen/food waste	25.6%	4.67 kg
Organics - Greenwaste	30.3%	5.53 kg
Subtotal	55.9%	10.20 kg
TOTAL – Potentially divertable	66.6%	12.16 kg

Approximately 10.8% of the materials in 240-litre wheelie bins (or 1.96 kg per bin) could have been recycled through a kerbside recycling collection or at a transfer station. Paper comprised 51% of the recyclable materials.

A further 55.9% of the contents of the bins could have been composted. In total, 66.6% of the 240-litre wheelie bins could have been diverted from landfill disposal by either recycling or composting. This equates to 12.16 kg per average 240-litre wheelie bin.

Other materials, such as clothing and other metals, are also recoverable, but have not been included in these calculations.

3.6 Combined kerbside waste

In this section, the composition data from the kerbside waste sort-and-weigh audits described in sections 3.2, 3.3, 3.5, and 3.5 is used to estimate the composition of the combined kerbside waste stream disposed of to landfill from Kāpiti Coast District.

To aggregate the compositions of kerbside rubbish bags and the three sizes of wheelie bins, it is necessary to apply the relative numbers of users of each service to the relevant household set out weight data. To determine the relative numbers of users of the different services, the Council requested that the private waste operators provide the relevant data. This data was provided but, as it is considered commercially-sensitive, will not be published in this report.

3.6.1 Primary composition of combined kerbside waste - September 2017

The primary composition of the combined kerbside waste stream disposed of to landfill from Kāpiti Coast District is presented in Table 3.10 below and Figure 3.10 on the next page. The secondary composition is presented in Appendix 8.

In Table 3.10, the estimated composition of the combined waste stream has been converted to an average weekly tonnage using the tonnage figure for kerbside waste in Table 5.2. Based on data provide by Council, during the survey period approximately 22% of kerbside waste originated outside Kāpiti Coast District.

Table 3.10 – Primary composition of combined kerbside waste - September 2017

Combined kerbside waste - Rubbish bags and wheelie bins combined September 2017	Proportion of total	Tonnes per week
Paper	8.3%	24 T/week
Plastics	10.1%	30 T/week
Organics	55.7%	164 T/week
Ferrous metals	1.7%	5 T/week
Non-ferrous metals	0.9%	3 T/week
Glass	3.4%	10 T/week
Textiles	3.7%	11 T/week
Sanitary paper	9.4%	28 T/week
Rubble	3.8%	11 T/week
Timber	1.4%	4 T/week
Rubber	0.2%	1 T/week
Potentially hazardous	1.3%	4 T/week
TOTAL	100.0%	294 T/week

Organic material, 44% of which was greenwaste, was the largest primary component of the combined kerbside waste stream, comprising 55.7% of the total. Plastics, 10.1%, was the second largest component and, sanitary paper, which includes nappies, tissues, and paper towels, 9.4%, was the third largest component.

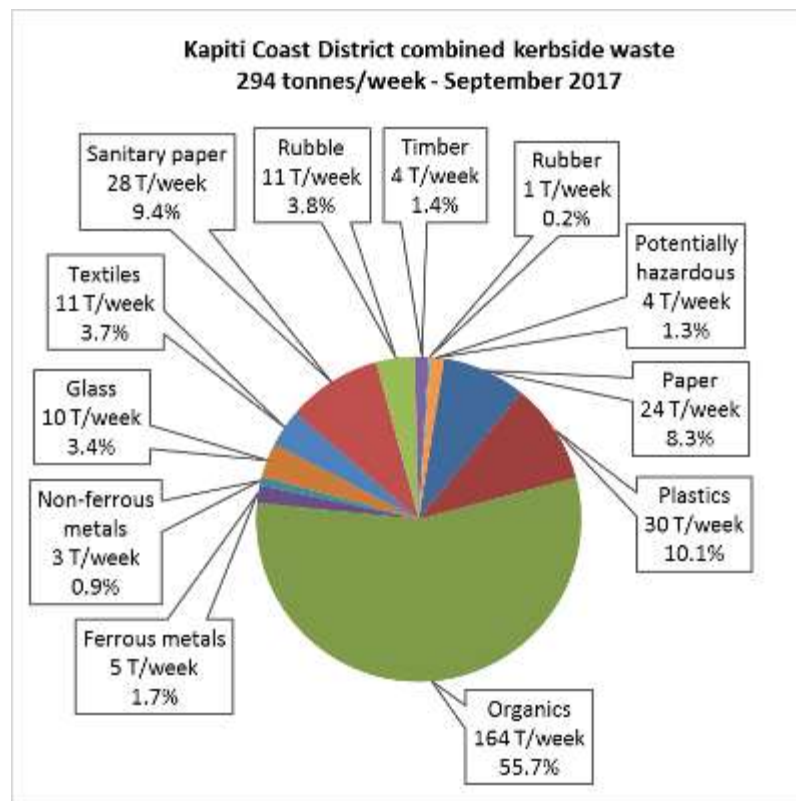


Figure 3.10 - Primary composition of combined kerbside waste

3.6.2 Diversion potential of combined kerbside waste - September 2017

Common means used for the diversion of domestic waste materials from landfill disposal are by providing systems for the collection or diversion of recyclable and compostable materials. Kāpiti Coast District Council requires all licensed kerbside waste collectors to provide a kerbside recycling service to customers and recyclable materials can also be dropped off at the Otaihangā RRF, Ōtaki transfer station, and Waikanae Green Waste and Recycling Centre.

For the diversion of organic materials, greenwaste can be disposed of separately at the Composting NZ site adjacent to Otaihangā RRF, Waikanae Green Waste and Recycling Centre, and at Ōtaki transfer station. Private greenwaste collections are also available. Both kitchen waste and greenwaste can be composted at home by residents.

Table 3.11 on the next page shows the proportion of the combined kerbside waste stream that could have been diverted using these methods. The table also shows the tonnes per week of each material that could have been diverted. The data on the individual materials has been taken from Appendix 8.

Table 3.11 – Diversion potential of combined kerbside waste stream

Combined kerbside waste Diversion potential - September 2017	% of total	Tonnes per week
Kerbside recyclable materials		
Paper - Recyclable	6.3%	19 T/week
Plastics - #1-7	2.0%	6 T/week
Ferrous metals - Steel cans	0.7%	2 T/week
Non-ferrous metals - Aluminium cans	0.3%	1 T/week
Glass - Bottles/jars	3.0%	9 T/week
Subtotal	12.3%	36 T/week
Compostable materials		
Organics - Kitchen/food waste	27.8%	82 T/week
Organics - Greenwaste	24.3%	72 T/week
Subtotal	52.1%	153 T/week
TOTAL – Potentially divertable	64.4%	190 T/week

Approximately 12.3% of the combined kerbside waste stream (or 36 T/week) could have been recycled through a kerbside recycling collection or at a drop-off facility. Paper comprised 51% of the recyclable materials.

A further 52.1%, or 153 T/week, could have been composted. Kitchen/food waste comprised 53% of compostable materials. Seasonal variations in waste composition need to be taken into account when assessing the components in organic waste. September is in a season of relatively low vegetative growth. The quantity of greenwaste in kerbside waste could be greater in a different season, particularly later in spring.

In total, 64.4% of kerbside waste (or 190 T/week) could have been diverted from landfill disposal by either recycling or composting.

Other materials, such as clothing and other metals, are also recoverable, but have not been included in these calculations.

4 Refuse transfer station waste

The visual surveys of vehicle loads of waste being disposed of at Kāpiti Coast refuse transfer stations took place according to the schedule in the following table.

Table 4.1 - Visual survey schedule Kāpiti Coast refuse transfer stations

Survey schedule	8:00 - 9:00 hrs	9:00 - 13:00 hrs	13:00 - 17:00 hrs
Monday 11 September	Otaihanga	Otaihanga	Otaihanga
Tuesday 12 September	Otaihanga	Otaihanga	Ōtaki
Wednesday 13 September	Otaihanga	Ōtaki	Ōtaki
Thursday 14 September	Otaihanga	Otaihanga	Otaihanga
Friday 15 September	Otaihanga	Ōtaki	Ōtaki
Saturday 16 September	Ōtaki	Ōtaki	Otaihanga

4.1 Otaihanga Resource Recovery Facility

During the six-day visual survey at Otaihanga Resource Recovery Facility (Otaihanga RRF), data was collected on 223 vehicles, 199 of which were disposing of general waste. The other 24 vehicles were disposing of kerbside waste collections.

The data from the visual survey was used to determine the composition of general waste (i.e. excluding kerbside waste) disposed of at the facility. The composition of the kerbside waste was determined with the sort-and-weigh audits.

During the visual surveys, all compactor vehicles, which were primarily disposing of kerbside waste collections, were identified and registration details recorded. Using the Otaihanga RRF weighbridge records, the average tonnage of kerbside waste collections per week was calculated for each survey. This total was deducted from the total tonnage disposed of to landfill to determine the tonnage of 'general' waste disposed of at the transfer station.

The average weekly tonnage of waste to landfill from Otaihanga RRF during the survey period has been calculated by averaging the weekly tonnages during the four-week period 20 August - 16 September 2017. During this period, an average of 407 tonnes of waste per week were disposed of to landfill from Otaihanga RRF. Of this total, 198 tonnes were kerbside waste and 209 tonnes were general waste.

4.1.1 Otaihanga RRF - Overall waste stream - by activity source of waste loads

An analysis of the numbers and activity sources of waste loads that were surveyed is given in Table 4.2 on the next page. The analysis includes both the four activity sources of waste that make up the general waste stream (C&D, ICI, landscaping, and residential) and the one activity source of waste disposed of at the facility that is not classified as general waste (kerbside waste). The final column in the table shows the average weight per week originating from each type of waste during the period 20 August - 16 September 2017.

Table 4.2 - Activity sources of Otaihanga RRF waste loads

Otaihanga RRF Activity sources of waste loads - 20 August - 16 September 2017	% of loads surveyed	% of total weight	Average tonnes/week
Construction & demolition	27%	21%	84 T/week
Industrial/commercial/institutional	13%	20%	83 T/week
Landscaping & earthworks	4%	4%	15 T/week
Residential	45%	7%	27 T/week
Subtotal - general waste	89%	51%	209 T/week
Kerbside waste collections	11%	49%	198 T/week
TOTAL	100%	100%	407 T/week

Kerbside waste comprised 11% of vehicle loads surveyed, but represented 49% of all waste, by weight. Construction and demolition waste comprised 21% of the total waste, by weight, industrial/commercial/institutional (ICI) waste 20%, and landscaping and earthworks, 4%. Residential loads comprised 45% all loads, but only represented 7% of the total weight.

4.1.2 Otaihanga RRF - Primary composition of general and overall waste streams

The primary compositions of the general waste stream, which excludes kerbside waste, and the overall waste stream, which includes kerbside waste, disposed of at Otaihanga RRF are presented in Table 4.3 below and Figure 4.1 and Figure 4.2 on the following page. The secondary compositions, which include all 25 categories, are shown in Table 4.4. Indicative annual tonnages, based on the tonnage data in section 6.3.2, are presented in Appendix 11.

Table 4.3 - Primary composition of Otaihanga RRF waste

Otaihanga RRF Primary composition - 20 Aug. - 16 Sept. 2017	General waste (excludes kerbside waste)		Overall waste (includes kerbside waste)	
	% of total	Tonnes per week	% of total	Tonnes per week
Paper	8.2%	17 T/week	8.2%	34 T/week
Plastics	9.3%	19 T/week	9.7%	39 T/week
Organics	10.8%	23 T/week	32.7%	133 T/week
Ferrous metals	2.7%	6 T/week	2.2%	9 T/week
Non-ferrous metals	1.0%	2 T/week	0.9%	4 T/week
Glass	2.1%	4 T/week	2.8%	11 T/week
Textiles	9.1%	19 T/week	6.4%	26 T/week
Sanitary paper	1.9%	4 T/week	5.6%	23 T/week
Rubble	23.7%	50 T/week	14.0%	57 T/week
Timber	28.6%	60 T/week	15.3%	62 T/week
Rubber	1.7%	4 T/week	1.0%	4 T/week
Potentially hazardous	0.9%	2 T/week	1.1%	4 T/week
TOTAL	100.0%	209 T/week	100.0%	407 T/week

Timber was the largest component of the general waste stream, comprising 28.6% of the total weight. Organics was the largest component of the overall waste stream, comprising 32.7%. Rubble was the second largest component of general waste, comprising 23.7%, while timber, 15.3%, was the second largest component of the overall waste stream, by weight.

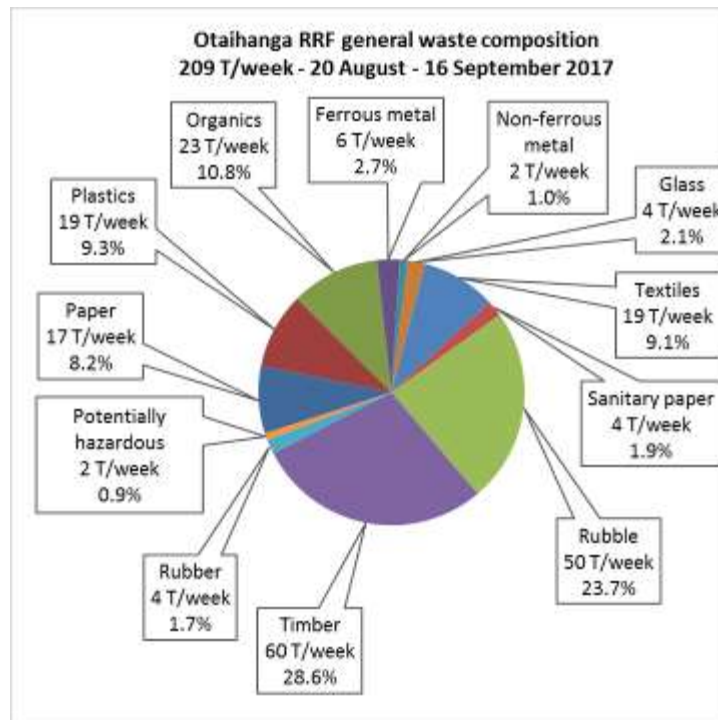


Figure 4.1 - Primary composition of Otaihanga RRF general waste

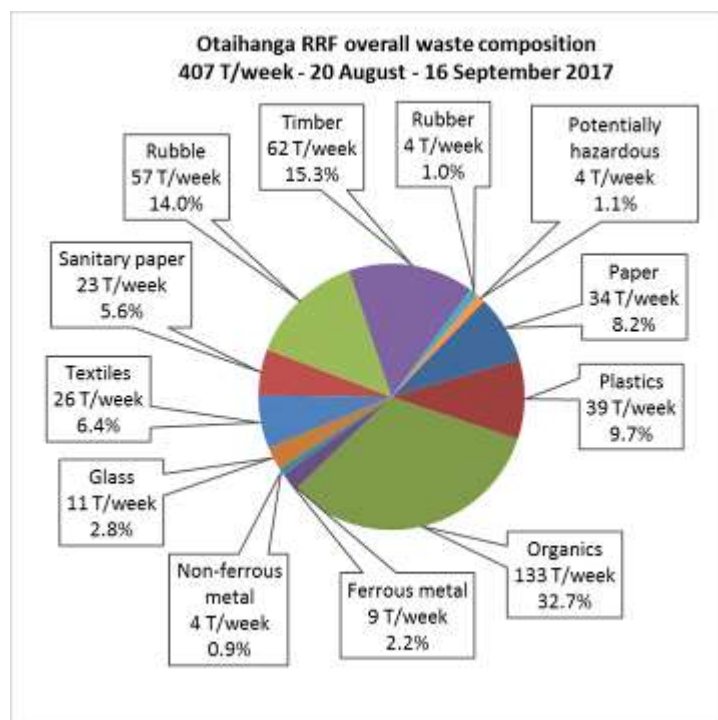


Figure 4.2 - Primary composition of Otaihanga RRF overall waste

4.1.3 Otaihangā RRF - Secondary compositions of general and overall waste

Table 4.4 - Secondary compositions of Otaihangā RRF general and overall waste

Otaihangā RRF General and overall waste streams - Secondary composition 20 August - 16 September 2017		General waste (excludes kerbside waste)		Overall waste (includes kerbside waste)	
		% of total	Tonnes per week	% of total	Tonnes per week
Paper	Recyclable	2.7%	6 T/week	4.2%	17 T/week
	Cardboard	4.9%	10 T/week	2.8%	12 T/week
	Non-recyclable	0.5%	1 T/week	1.2%	5 T/week
	Subtotal	8.2%	17 T/week	8.2%	34 T/week
Plastics	Recyclable	0.4%	1 T/week	1.2%	5 T/week
	Non-recyclable	8.9%	19 T/week	8.5%	35 T/week
	Subtotal	9.3%	19 T/week	9.7%	39 T/week
Organics	Kitchen waste	3.2%	7 T/week	15.1%	62 T/week
	Compostable greenwaste	4.7%	10 T/week	13.1%	53 T/week
	Non-compostable greenwaste	2.3%	5 T/week	2.4%	10 T/week
	Organics other	0.7%	1 T/week	2.1%	9 T/week
	Subtotal	10.8%	23 T/week	32.7%	133 T/week
Ferrous metals	Primarily ferrous	1.1%	2 T/week	0.9%	4 T/week
	Steel other	1.6%	3 T/week	1.3%	5 T/week
	Subtotal	2.7%	6 T/week	2.2%	9 T/week
Non-ferrous metals		1.0%	2 T/week	0.9%	4 T/week
Glass	Recyclable	0.7%	1 T/week	1.8%	7 T/week
	Glass other	1.5%	3 T/week	1.0%	4 T/week
	Subtotal	2.1%	4 T/week	2.8%	11 T/week
Textiles	Clothing/textiles	2.4%	5 T/week	2.1%	9 T/week
	Multimaterial/other	6.7%	14 T/week	4.3%	18 T/week
	Subtotal	9.1%	19 T/week	6.4%	26 T/week
Sanitary paper		1.9%	4 T/week	5.6%	23 T/week
Rubble	Cleanfill	10.6%	22 T/week	6.4%	26 T/week
	New plasterboard	2.5%	5 T/week	1.3%	5 T/week
	Other	10.6%	22 T/week	6.4%	26 T/week
	Subtotal	23.7%	50 T/week	14.0%	57 T/week
Timber	Reusable	1.3%	3 T/week	0.6%	3 T/week
	Unpainted & untreated	3.1%	7 T/week	1.6%	7 T/week
	Non-recoverable	24.2%	51 T/week	13.1%	53 T/week
	Subtotal	28.6%	60 T/week	15.3%	62 T/week
Rubber		1.7%	4 T/week	1.0%	4 T/week
Potentially hazardous		0.9%	2 T/week	1.1%	4 T/week
TOTAL		100.0%	209 T/week	100.0%	407 T/week

4.1.4 Otaihanga RRF - Primary composition of general waste - by activity source of waste load

The primary compositions of the four activity sources that make up the general waste stream at Otaihanga RRF are shown in Table 4.5.

Secondary compositions are given in Appendix 9, in terms of both percentages and tonnes per week.

Table 4.5 -Otaihanga RRF general waste - by activity source

Otaihanga RRF - General waste - By activity source 20 Aug. - 16 Sept. 2017	C&D	ICI	Landscaping	Residential
Paper	3.2%	14.2%	0.4%	9.6%
Plastics	5.0%	15.5%	2.0%	7.6%
Organics	0.7%	11.0%	69.2%	8.1%
Ferrous metals	0.6%	3.6%	0.1%	8.0%
Non-ferrous metals	0.1%	2.1%	0.0%	0.8%
Glass	0.3%	4.4%	0.0%	1.9%
Textiles	2.3%	13.9%	0.1%	20.5%
Sanitary paper	0.0%	4.5%	0.5%	0.9%
Rubble	47.9%	5.3%	10.3%	12.8%
Timber	39.9%	19.2%	17.3%	28.8%
Rubber	0.0%	4.2%	0.0%	0.7%
Potentially hazardous	0.0%	2.1%	0.0%	0.2%
TOTAL	100.0%	100.0%	100.0%	100.0%
Tonnes per week	84 T/week	83 T/week	15 T/week	27 T/week

C&D waste was composed primarily of rubble (47.9%) and timber (39.9%), which combined represent 87.7%, by weight, of C&D waste. ICI waste was more heterogeneous, with timber (19.2%) being the largest component. Landscaping waste was 69.2% organic material, primarily greenwaste. Residential waste was also heterogeneous, with timber (28.8%) being the largest component. Timber was present in residential primarily as furniture and C&D waste.

4.1.5 Otaihanga RRF - Overall waste stream - by vehicle type

Table 4.6 on the next page shows the percentage of loads transported by each of the six vehicle types disposing of waste at Otaihanga RRF, the percentage of total weight carried by each vehicle type, and the tonnes per week.

The tonnes per week for compactors, front loaders, and gantry trucks have been taken directly from the weighbridge records, using registration numbers recorded during the survey. The tonnes per week for cars, other trucks, and trailers are based on the survey results, using a total combined weight for those vehicle types taken from the weighbridge records.

Note that the tonnage for compactors includes litter from the Council cleaning contract as well as kerbside waste.

Table 4.6 - Otaihanga RRF overall waste - by vehicle type

Otaihanga RRF - Overall waste - By vehicle type 20 Aug. - 16 Sept. 2017	% of loads surveyed	% of weight	Tonnes/week
Car-sized loads	34%	2%	7 T/week
Compactors	12%	50%	203 T/week
Front loader	1%	11%	45 T/week
Gantry	10%	10%	43 T/week
Other truck	4%	8%	34 T/week
Trailer-sized loads	39%	19%	76 T/week
TOTAL	100.0%	100.0%	407 T/week

While 34% of all loads were car-sized, these loads represented only 2% of the total weight of waste. Thirty-nine percent of the loads surveyed were trailer-sized loads, and these loads represented 19% of the total weight. Compactors transported 50% of the total weight, but represented only 12% of the loads surveyed.

4.1.6 Otaihanga RRF - Primary composition of general waste - by vehicle type

The primary compositions of the five vehicle types transporting general waste (compactors are excluded) are shown in Table 4.7. Secondary compositions are given in Appendix 10.

Table 4.7 - Otaihanga RRF general waste - by vehicle type

Otaihanga RRF - General waste - By vehicle type 20 Aug. - 16 Sept. 2017	Cars	Front loaders	Gantry trucks	Other trucks	Trailers
Paper	10.4%	17.2%	4.1%	0.0%	6.1%
Plastics	15.6%	18.3%	6.2%	1.4%	5.5%
Organics	19.6%	12.4%	7.9%	23.9%	4.8%
Ferrous metals	5.5%	3.4%	2.7%	1.8%	2.1%
Non-ferrous metals	1.0%	1.1%	0.2%	4.1%	0.3%
Glass	1.0%	4.0%	0.2%	4.1%	1.2%
Textiles	11.0%	10.3%	9.4%	5.1%	9.0%
Sanitary paper	3.8%	5.7%	0.1%	0.0%	0.4%
Rubble	7.1%	5.7%	33.4%	37.0%	28.6%
Timber	24.1%	13.2%	35.4%	22.5%	41.8%
Rubber	0.6%	5.7%	0.2%	0.0%	0.1%
Potentially hazardous	0.5%	2.9%	0.0%	0.0%	0.1%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%
Tonnes per week	7 T/week	45 T/week	43 T/week	34 T/week	76 T/week

4.1.7 Otaihanga RRF - Diversion potential

Of the 25 material classifications used in the visual survey, nine are commonly recycled or recovered in New Zealand. A further four materials are compostable. There are currently diversion options available in Kāpiti Coast District for most of these 13 materials. Based on these 13 materials, Table 4.8 shows the proportion of the general and overall waste streams disposed of at Otaihanga RRF that could potentially be diverted from landfill disposal. The percentages and tonnages have been taken from Table 4.4.

Table 4.8 - Diversion potential of Otaihanga RRF general and overall waste streams

Otaihanga RRF waste Diversion potential 20 Aug. - 16 Sept. 2017	General waste (excludes kerbside waste)		Overall waste (includes kerbside waste)	
	% of total	T/week	% of total	T/week
Recyclable and recoverable materials				
Paper - Recyclable	2.7%	6 T/week	4.2%	17 T/week
Paper - Cardboard	4.9%	10 T/week	2.8%	12 T/week
Plastic - Recyclable	0.4%	1 T/week	1.2%	5 T/week
Ferrous metals	2.7%	6 T/week	2.2%	9 T/week
Non-ferrous metals	1.0%	2 T/week	0.9%	4 T/week
Glass - Recyclable	0.7%	1 T/week	1.8%	7 T/week
Textiles - Clothing	2.4%	5 T/week	2.1%	9 T/week
Rubble - Cleanfill	10.6%	22 T/week	6.4%	26 T/week
Timber - Reusable	1.3%	3 T/week	0.6%	3 T/week
Subtotal	26.7%	56 T/week	22.3%	91 T/week
Compostable materials				
Organics - Kitchen waste	3.2%	7 T/week	15.1%	62 T/week
Organics - Compostable greenwaste	4.7%	10 T/week	13.1%	53 T/week
Rubble - New plasterboard	2.5%	5 T/week	1.3%	5 T/week
Timber - Untreated/unpainted	3.1%	7 T/week	1.6%	7 T/week
Subtotal	13.5%	28 T/week	31.1%	127 T/week
TOTAL - Potentially divertable	40.1%	84 T/week	53.4%	217 T/week

Recyclable and recoverable materials comprised 26.7% of the general waste stream at Otaihanga RRF and 22.3% of the overall waste stream. Compostable materials comprised 13.5 % of the general waste stream at Otaihanga RRF and 31.1% of the overall waste stream. Overall, approximately 40.1% of the general waste stream at Otaihanga RRF and 53.4% of the overall waste stream could have been diverted from landfill disposal.

The largest single divertable component was kitchen waste, which comprised 15.1% of the overall waste stream, or 62 tonnes per week. Nearly 90% of the kitchen waste was in kerbside waste collections. The second largest divertable component was compostable greenwaste. Over 80% of the 53 tonnes per week of compostable greenwaste was in kerbside waste collections.

4.2 Ōtaki Transfer Station

During the six-day visual survey at Ōtaki Transfer Station, data was collected on 92 vehicles, 80 of which were disposing of general waste. The other 12 vehicles were disposing of kerbside waste collections.

The data from the visual survey was used to determine the composition of general waste (i.e. excluding kerbside waste) disposed of at the facility. The composition of the kerbside waste was determined with the sort-and-weigh audits.

During the visual surveys, all compactor vehicles, which were all disposing of kerbside waste collections, were identified and registration details recorded. Using the Ōtaki Transfer Station weighbridge records, the average tonnage of kerbside waste collections per week was calculated for each survey. This total was deducted from the total tonnage disposed of to landfill to determine the tonnage of 'general' waste disposed of at the transfer station.

The average weekly tonnage of waste to landfill from Ōtaki Transfer Station during the survey period has been calculated by averaging the weekly tonnages during the four-week period 20 August - 16 September 2017. During this period, an average of 154 tonnes of waste per week were disposed of to landfill from Ōtaki Transfer Station. Of this total, 96 tonnes were kerbside waste and 58 tonnes were general waste.

4.2.1 Ōtaki Transfer Station - Overall waste stream - by activity source of waste loads

An analysis of the numbers and types of waste loads that were surveyed is given in Table 4.9 below. The analysis includes both the four types of waste that make up the general waste stream (C&D, ICI, landscaping, and residential) and the one type of waste disposed of at Ōtaki Transfer Station that is not classified as general waste (kerbside waste). The final column in the table shows the average weight per week originating from each type of waste during the period 20 August - 16 September 2017.

Table 4.9 - Activity sources of Ōtaki Transfer Station waste loads

Ōtaki Transfer Station Activity sources of waste loads - 20 August - 16 September 2017	% of loads surveyed	% of total weight	Average tonnes/week
Construction & demolition	9%	9%	14 T/week
Industrial/commercial/institutional	9%	23%	35 T/week
Landscaping & earthworks	2%	0.1%	0.1 T/week
Residential	67%	5%	8 T/week
Subtotal - general waste	87%	37%	58 T/week
Kerbside waste collections	13%	63%	96 T/week
TOTAL	100%	100%	154 T/week

Kerbside waste comprised 13% of vehicle loads surveyed, but represented 63% of all waste, by weight. Construction and demolition waste comprised 9% of the total waste, by weight, and industrial/commercial/institutional (ICI) waste 23%. Residential loads comprised 67% of all loads, but only represented 5% of the total weight.

4.2.2 Ōtaki Transfer Station - Primary composition of general and overall waste streams

The primary compositions of the general waste stream, which excludes kerbside waste, and the overall waste stream, which includes kerbside waste, disposed of at Ōtaki Transfer Station are presented in Table 4.10 below and Figure 4.3 and Figure 4.4 on the following page. The secondary compositions, which include all 25 categories, are shown in Table 4.11. Indicative annual tonnages, based on the tonnage data in section 6.3.2, are presented in Appendix 14.

Table 4.10 - Primary composition of Ōtaki Transfer Station waste

Ōtaki Transfer Station Primary composition - 20 Aug. - 16 Sept. 2017	General waste (excludes kerbside waste)		Overall waste (includes kerbside waste)	
	% of total	Tonnes per week	% of total	Tonnes per week
Paper	8.4%	5 T/week	8.3%	13 T/week
Plastics	22.1%	13 T/week	14.6%	22 T/week
Organics	9.9%	6 T/week	38.6%	59 T/week
Ferrous metals	3.5%	2 T/week	2.4%	4 T/week
Non-ferrous metals	0.8%	0 T/week	0.8%	1 T/week
Glass	1.8%	1 T/week	2.8%	4 T/week
Textiles	7.8%	5 T/week	5.2%	8 T/week
Sanitary paper	3.3%	2 T/week	7.1%	11 T/week
Rubble	14.2%	8 T/week	7.7%	12 T/week
Timber	25.3%	15 T/week	10.3%	16 T/week
Rubber	1.7%	1 T/week	0.8%	1 T/week
Potentially hazardous	1.1%	1 T/week	1.2%	2 T/week
TOTAL	100.0%	58 T/week	100.0%	154 T/week

Timber was the largest component of the general waste stream, comprising 25.3% of the total weight. Organics was the largest component of the overall waste stream, comprising 38.6% of the total weight. Plastics was the second largest component of general waste, comprising 22.1%. Plastics, 14.6%, was also the second largest component of the overall waste stream, by weight.

Nearly half of the timber in the general waste stream was in construction and demolition waste and 40% was in ICI waste. Virtually all of the plastics in the general waste stream were in industrial/commercial/institutional waste. Major sources of plastic waste included recycling processors, packaging manufacturers, and the horticultural industry.

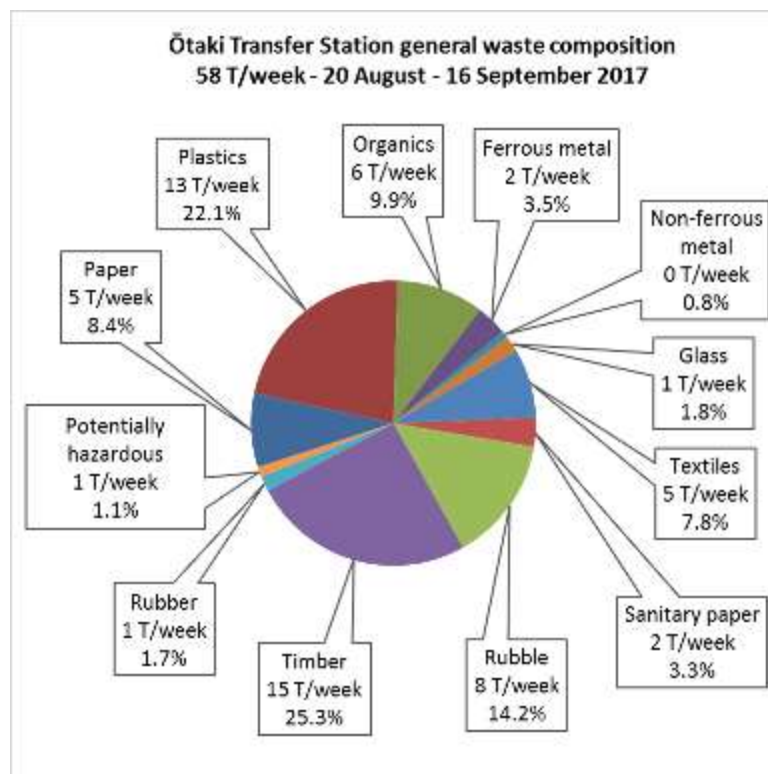


Figure 4.3 - Primary composition of Ōtaki Transfer Station general waste

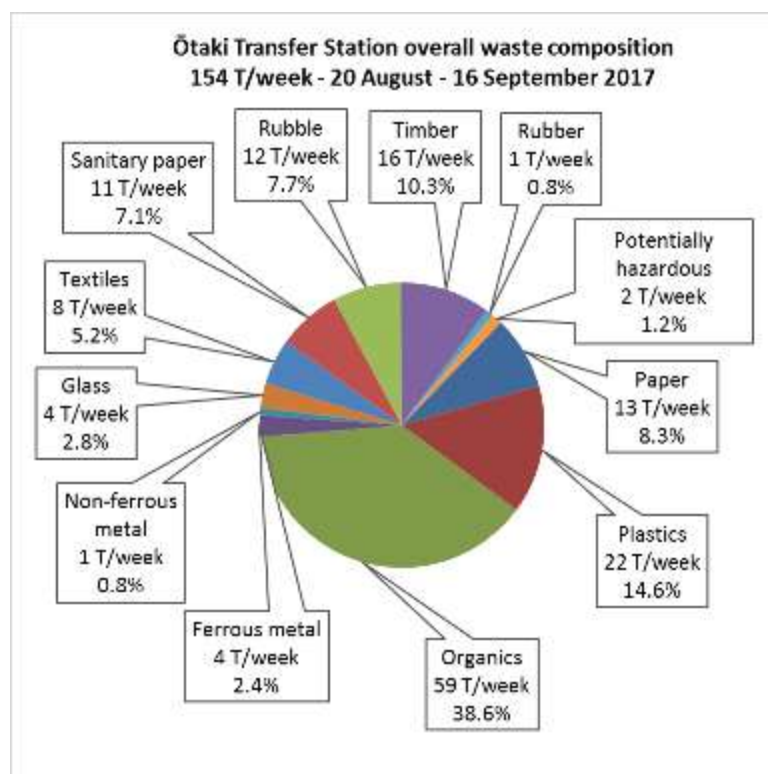


Figure 4.4 - Primary composition of Ōtaki Transfer Station overall waste

4.2.3 Ōtaki Transfer Station - Secondary compositions of general and overall waste

Table 4.11 - Secondary compositions of Ōtaki Transfer Station general and overall waste

Ōtaki Transfer Station General and overall waste streams - Secondary compositions 20 August - 16 September 2017		General waste (excludes kerbside waste)		Overall waste (includes kerbside waste)	
		% of total	Tonnes per week	% of total	Tonnes per week
Paper	Recyclable	2.5%	1 T/week	4.5%	7 T/week
	Cardboard	5.3%	3 T/week	2.4%	4 T/week
	Non-recyclable	0.6%	0 T/week	1.5%	2 T/week
	Subtotal	8.4%	5 T/week	8.3%	13 T/week
Plastics	Recyclable	0.6%	0 T/week	1.5%	2 T/week
	Non-recyclable	21.5%	12 T/week	13.1%	20 T/week
	Subtotal	22.1%	13 T/week	14.6%	22 T/week
Organics	Kitchen waste	5.7%	3 T/week	19.5%	30 T/week
	Compostable greenwaste	1.6%	1 T/week	14.3%	22 T/week
	Non-compostable greenwaste	0.2%	0 T/week	1.6%	2 T/week
	Organics other	2.5%	1 T/week	3.2%	5 T/week
	Subtotal	9.9%	6 T/week	38.6%	59 T/week
Ferrous metals	Primarily ferrous	1.8%	1 T/week	1.1%	2 T/week
	Steel other	1.8%	1 T/week	1.3%	2 T/week
	Subtotal	3.5%	2 T/week	2.4%	4 T/week
Non-ferrous metals		0.8%	0 T/week	0.8%	1 T/week
Glass	Recyclable	0.7%	0 T/week	2.1%	3 T/week
	Glass other	1.1%	1 T/week	0.7%	1 T/week
	Subtotal	1.8%	1 T/week	2.8%	4 T/week
Textiles	Clothing/textiles	1.2%	1 T/week	1.6%	2 T/week
	Multimaterial/other	6.7%	4 T/week	3.6%	6 T/week
	Subtotal	7.8%	5 T/week	5.2%	8 T/week
Sanitary paper		3.3%	2 T/week	7.1%	11 T/week
Rubble	Cleanfill	4.0%	2 T/week	2.7%	4 T/week
	New plasterboard	0.0%	0 T/week	0.0%	0 T/week
	Other	10.2%	6 T/week	5.0%	8 T/week
	Subtotal	14.2%	8 T/week	7.7%	12 T/week
Timber	Reusable	0.0%	0 T/week	0.0%	0 T/week
	Unpainted & untreated	0.1%	0 T/week	0.0%	0 T/week
	Non-recoverable	25.2%	15 T/week	10.3%	16 T/week
	Subtotal	25.3%	15 T/week	10.3%	16 T/week
Rubber		1.7%	1 T/week	0.8%	1 T/week
Potentially hazardous		1.1%	1 T/week	1.2%	2 T/week
TOTAL		100.0%	58 T/week	100.0%	154 T/week

4.2.4 Ōtaki Transfer Station - Primary composition of general waste - by activity source of waste

The primary compositions of the four activity sources that make up the general waste stream at Ōtaki Transfer Station are shown in Table 4.12.

Secondary compositions are given in Appendix 12, in terms of both percentages and tonnes per week.

Table 4.12 - Ōtaki Transfer Station general waste - by activity source

Ōtaki Transfer Station General waste - By activity source 20 Aug. - 16 Sept. 2017	C&D	ICI	Landscaping	Residential
Paper	3.5%	10.5%	1.9%	7.9%
Plastics	2.1%	32.7%	2.2%	11.1%
Organics	2.6%	11.2%	92.1%	16.5%
Ferrous metals	3.4%	3.4%	0.3%	4.7%
Non-ferrous metals	0.0%	1.1%	0.2%	0.9%
Glass	0.0%	2.1%	0.3%	4.1%
Textiles	0.2%	6.2%	0.7%	29.6%
Sanitary paper	0.0%	4.6%	1.7%	3.2%
Rubble	36.7%	6.7%	0.2%	6.8%
Timber	51.5%	17.2%	0.2%	13.5%
Rubber	0.0%	2.6%	0.2%	1.0%
Potentially hazardous	0.0%	1.7%	0.2%	0.7%
TOTAL	100.0%	100.0%	100.0%	100.0%
Tonnes per week	14 T/week	35 T/week	0.1 T/week	8 T/week

C&D waste was composed primarily of timber (51.5%) and rubble (36.7%), which combined represent 88.2%, by weight, of C&D waste. ICI waste was more heterogeneous, with plastics (32.7%) being the largest component. Landscaping waste was 92.1% organic material, primarily greenwaste. Residential waste was also heterogeneous, with textiles (29.6%), which includes carpet and underlay as well as clothing, being the largest component.

4.2.5 Ōtaki Transfer Station - Overall waste stream - by vehicle type

Table 4.13 on the next page shows the percentage of loads transported by each of the six vehicle types disposing of waste at Ōtaki Transfer Station, the percentage of total weight carried by each vehicle type, and the tonnes per week.

The tonnes per week for compactors, front loaders, and gantry trucks have been taken directly from the weighbridge records, using registration numbers recorded during the survey. The tonnes per week for cars, other trucks, and trailers are based on the survey results, using a total combined weight for those vehicle types taken from the weighbridge records.

Table 4.13 - Ōtaki Transfer Station overall waste - by vehicle type

Ōtaki Transfer Station Overall waste - By vehicle type - 20 Aug. - 16 Sept. 2017	% of loads surveyed	% of weight	Tonnes/week
Car-sized loads	57%	2%	3 T/week
Compactors	13%	63%	96 T/week
Front loader	4%	17%	26 T/week
Gantry	3%	3%	5 T/week
Other truck	0%	0%	0 T/week
Trailer-sized loads	23%	15%	23 T/week
TOTAL	100.0%	100.0%	154 T/week

While 57% of all loads were car-sized, these loads represented only 2% of the total weight of waste. Twenty-three percent of the loads surveyed were trailer-sized loads, and these loads represented 15% of the total weight. Compactors transported 63% of the total weight, but represented only 13% of the loads surveyed.

4.2.6 Ōtaki Transfer Station - Primary composition of general waste - by vehicle type

The primary compositions of the four vehicle types transporting general waste (compactors are excluded and no 'other trucks' were included in the survey) are shown in Table 4.14. Secondary compositions are given in Appendix 13.

Table 4.14 - Ōtaki Transfer Station general waste - by vehicle type

Ōtaki Transfer Station General waste - By vehicle type 20 Aug. - 16 Sept. 2017	Cars	Front loaders	Gantry trucks	Trailers
Paper	9.7%	9.3%	5.0%	9.5%
Plastics	14.2%	27.2%	3.6%	29.8%
Organics	48.6%	13.4%	4.9%	2.3%
Ferrous metals	3.6%	4.0%	3.9%	2.1%
Non-ferrous metals	0.8%	1.3%	0.1%	0.3%
Glass	3.1%	2.4%	0.9%	1.2%
Textiles	3.9%	6.5%	8.0%	11.1%
Sanitary paper	7.8%	5.3%	0.7%	0.8%
Rubble	3.0%	4.8%	37.7%	13.5%
Timber	3.7%	20.7%	34.6%	29.0%
Rubber	0.7%	3.1%	0.4%	0.1%
Potentially hazardous	0.8%	2.0%	0.1%	0.2%
TOTAL	100.0%	100.0%	100.0%	100.0%
Tonnes per week	3 T/week	26 T/week	5 T/week	23 T/week

4.2.7 Ōtaki Transfer Station - Diversion potential

Of the 25 material classifications used in the visual survey, nine are commonly recycled or recovered in New Zealand. A further four materials are compostable. There are currently diversion options available in Kāpiti Coast District for most of these 13 materials. Based on these 13 materials, Table 4.15 shows the proportion of the general and overall waste streams disposed of at Ōtaki Transfer Station that could potentially be diverted from landfill disposal. The percentages and tonnages have been taken from Table 4.11.

Table 4.15 - Diversion potential of Ōtaki Transfer Station general and overall waste streams

Ōtaki Transfer Station waste Diversion potential 20 Aug. - 16 Sept. 2017	General waste (excludes kerbside waste)		Overall waste (includes kerbside waste)	
	% of total	T/week	% of total	T/week
Recyclable and recoverable materials				
Paper - Recyclable	2.5%	1 T/week	4.5%	7 T/week
Paper - Cardboard	5.3%	3 T/week	2.4%	4 T/week
Plastic - Recyclable	0.6%	0 T/week	1.5%	2 T/week
Ferrous metals	3.5%	2 T/week	2.4%	4 T/week
Non-ferrous metals	0.8%	0 T/week	0.8%	1 T/week
Glass - Recyclable	0.7%	0 T/week	2.1%	3 T/week
Textiles - Clothing	1.2%	1 T/week	1.6%	2 T/week
Rubble - Cleanfill	4.0%	2 T/week	2.7%	4 T/week
Timber - Reusable	0.0%	0 T/week	0.0%	0 T/week
Subtotal	18.6%	11 T/week	18.0%	28 T/week
Compostable materials				
Organics - Kitchen waste	5.7%	3 T/week	19.5%	30 T/week
Organics - Compostable greenwaste	1.6%	1 T/week	14.3%	22 T/week
Rubble - New plasterboard	0.0%	0 T/week	0.0%	0 T/week
Timber - Untreated/unpainted	0.1%	0 T/week	0.0%	0 T/week
Subtotal	7.3%	4 T/week	33.8%	52 T/week
TOTAL - Potentially divertable	25.9%	15 T/week	51.8%	80 T/week

Recyclable and recoverable materials comprised 18.6% of the general waste stream at Ōtaki Transfer Station and 18.0% of the overall waste stream. Compostable materials comprised 7.3% of the general waste stream at Ōtaki Transfer Station and 33.8% of the overall waste stream. Overall, approximately 25.9% of the general waste stream at Ōtaki Transfer Station and 51.8% of the overall waste stream could have been diverted from landfill disposal.

The largest single divertable component was kitchen waste, which comprised 19.5% of the overall waste stream, or 30 tonnes per week. Nearly 90% of the kitchen waste was in kerbside waste collections. The second largest divertable component was compostable greenwaste. Ninety-six percent of the 22 tonnes per week of compostable greenwaste was in kerbside waste.

5 All waste to landfill from Kāpiti Coast District

5.1 Sources of waste to landfill

For the purposes of this section, 'all waste to landfill' is considered to be all waste disposed of from Otaihanga RRF and Ōtaki Transfer Station to a Class 1 landfill. While some waste from Kāpiti Coast District may be taken directly to a Class 1 landfill, bypassing the transfer stations, quantifying any such waste is beyond the scope of this research. The weekly tonnages for the two transfer stations are combined in Table 5.1. The tonnages from the 28-day period analysed for this report are compared to annual figures based on data provided by Council.

Table 5.1 - Sources of all waste to landfill

Sources of all waste to Class 1 landfill	20 August - 16 September 2017		September 2016 - August 2017		
	% of total	Mean T/week	% of total	Mean T/week	Tonnes per annum
Otaihanga RRF	73%	407 T/week	74%	405 T/week	21,099
Ōtaki Transfer Station	27%	154 T/week	26%	139 T/week	7,273
TOTAL	100%	561 T/week	100%	544 T/week	28,371

On average, over the 28-day period analysed, 561 tonnes per week of waste was disposed of to landfill from Otaihanga RRF and Ōtaki Transfer Station. Nearly three-quarters of the waste was from Otaihanga RRF. A combined total of 28,371 tonnes was disposed of to landfill from the two transfer stations for the period Sept. 2016 - Aug. 2017. The weekly average of 561 T/week used for this report is 3% higher than the annual average weekly tonnage of 544 T/week.

5.2 Activity source of all waste to landfill

The activity sources of waste from both facilities shown in Table 4.2 and Table 4.9 are combined in Table 5.2.

Table 5.2 - Activity source of all waste loads to landfill

Activity sources of all waste loads at Otaihanga RRF and Ōtaki Transfer Station 20 August - 16 September 2017	% of loads surveyed	% of total weight	Tonnes/week
Construction & demolition	22%	18%	98 T/week
Industrial/commercial/institutional	12%	21%	118 T/week
Landscaping & earthworks	3%	3%	15 T/week
Residential	51%	6%	35 T/week
Subtotal - general waste	89%	48%	267 T/week
Kerbside waste	11%	52%	294 T/week
TOTAL	100%	100%	561 T/week

C&D waste comprised 18% of all waste to landfill, by weight; ICI waste 21%, and landscaping and earthworks 3%. Residential loads comprised 51% of all loads, but only represented 6% of the total weight. Kerbside waste comprised 11% of vehicle loads, but represented 52% of all waste, by weight. During the survey period, based on data provided by Council, approximately 22% of kerbside waste originated outside Kāpiti Coast District.

5.3 Primary composition of general and overall waste to landfill

The primary compositions of the general waste from both transfer stations combined, which excludes kerbside waste, and overall waste to landfill, which includes kerbside waste, are presented in Table 5.3 below and Figure 5.1 and Figure 5.2 on the following page. The secondary compositions, which include all 25 categories, are shown in Table 5.4.

An extrapolation, to an annual basis, of the secondary composition shown in Table 5.4 is provided in Appendix 15. As waste composition is likely to vary throughout the year, this extrapolation should be considered to be of an indicative nature only.

Table 5.3 - Primary composition of general and overall waste to landfill

All waste to landfill - Otaihanga RRF & Otaki Transfer Station combined - 20 Aug. - 16 Sept. 2017	General waste (excludes kerbside waste)		Overall waste (includes kerbside waste)	
	% of total	Tonnes per week	% of total	Tonnes per week
Paper	8.2%	22 T/week	8.3%	46 T/week
Plastics	12.0%	32 T/week	11.0%	62 T/week
Organics	10.6%	28 T/week	34.3%	192 T/week
Ferrous metals	2.9%	8 T/week	2.3%	13 T/week
Non-ferrous metals	0.9%	3 T/week	0.9%	5 T/week
Glass	2.0%	5 T/week	2.8%	16 T/week
Textiles	8.8%	23 T/week	6.1%	34 T/week
Sanitary paper	2.2%	6 T/week	6.0%	34 T/week
Rubble	21.7%	58 T/week	12.3%	69 T/week
Timber	27.9%	74 T/week	14.0%	78 T/week
Rubber	1.7%	5 T/week	0.9%	5 T/week
Potentially hazardous	0.9%	2 T/week	1.1%	6 T/week
TOTAL	100.0%	267 T/week	100.0%	561 T/week

Timber was the largest component of general waste (27.9%) and organics the largest component of overall waste (34.3%). Rubble was the second largest component of general waste, comprising 21.7%, while timber was the second largest component of the overall waste stream, comprising 14.0%.

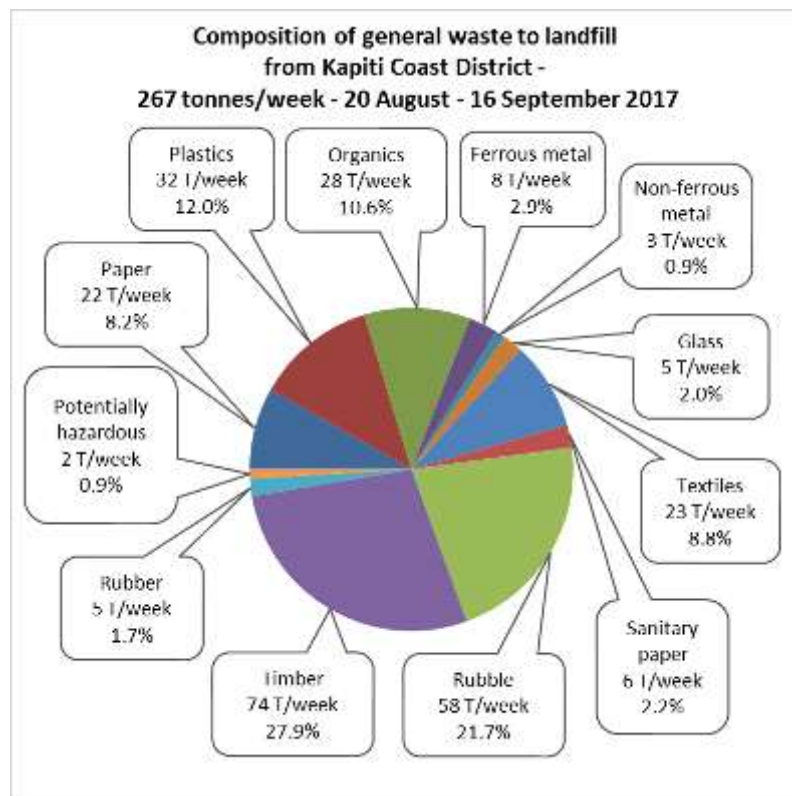


Figure 5.1 - Primary composition of general waste to landfill - Excludes kerbside waste

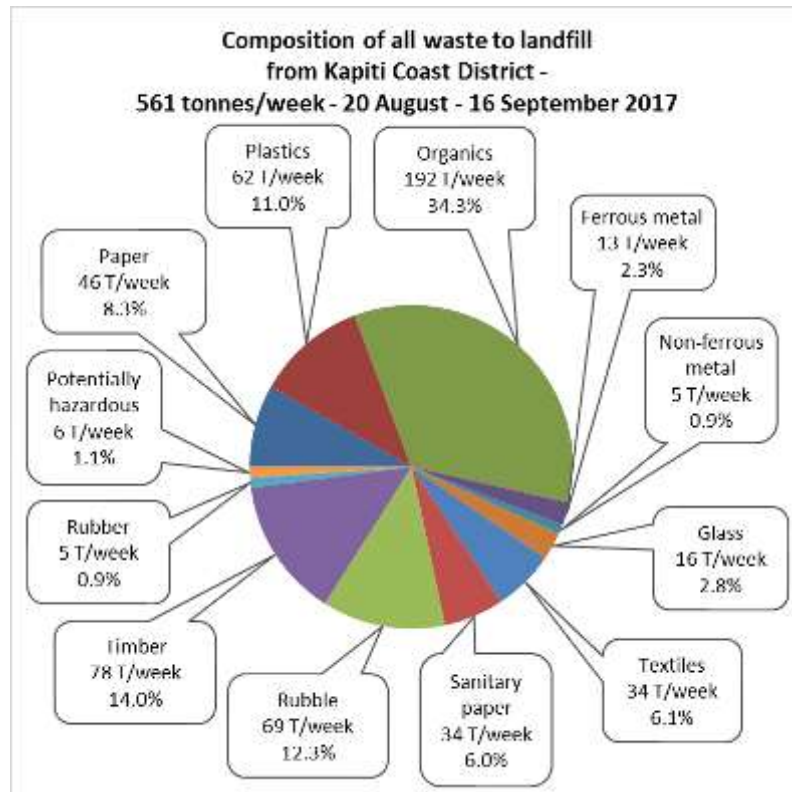


Figure 5.2 - Primary composition of overall waste to landfill - Includes kerbside waste

5.3.1 All waste to landfill - Secondary compositions of general and overall waste streams

Table 5.4 - Secondary composition of waste to landfill from Kāpiti Coast District

All waste to landfill from Otaihanga RRF & Otaki Transfer Station combined 20 Aug. - 16 Sept. 2017		General waste (excludes kerbside waste)		Overall waste (includes kerbside waste)	
		% of total	Tonnes per week	% of total	Tonnes per week
Paper	Recyclable	2.7%	7 T/week	4.2%	24 T/week
	Cardboard	5.0%	13 T/week	2.7%	15 T/week
	Non-recyclable	0.6%	2 T/week	1.3%	7 T/week
	Subtotal	8.2%	22 T/week	8.3%	46 T/week
Plastics	Recyclable	0.4%	1 T/week	1.3%	7 T/week
	Non-recyclable	11.6%	31 T/week	9.8%	55 T/week
	Subtotal	12.0%	32 T/week	11.0%	62 T/week
Organics	Kitchen waste	3.7%	10 T/week	16.3%	92 T/week
	Compostable greenwaste	4.0%	11 T/week	13.4%	75 T/week
	Non-compostable greenwaste	1.8%	5 T/week	2.1%	12 T/week
	Organics other	1.1%	3 T/week	2.4%	14 T/week
	Subtotal	10.6%	28 T/week	34.3%	192 T/week
Ferrous metals	Primarily ferrous	1.3%	3 T/week	1.0%	5 T/week
	Steel other	1.6%	4 T/week	1.3%	7 T/week
	Subtotal	2.9%	8 T/week	2.3%	13 T/week
Non-ferrous metals		0.9%	3 T/week	0.9%	5 T/week
Glass	Recyclable	0.7%	2 T/week	1.9%	10 T/week
	Glass other	1.4%	4 T/week	0.9%	5 T/week
	Subtotal	2.0%	5 T/week	2.8%	16 T/week
Textiles	Clothing/textiles	2.1%	6 T/week	2.0%	11 T/week
	Multimaterial/other	6.7%	18 T/week	4.1%	23 T/week
	Subtotal	8.8%	23 T/week	6.1%	34 T/week
Sanitary paper		2.2%	6 T/week	6.0%	34 T/week
Rubble	Cleanfill	9.2%	24 T/week	5.4%	30 T/week
	New plasterboard	2.0%	5 T/week	0.9%	5 T/week
	Other	10.5%	28 T/week	6.0%	34 T/week
	Subtotal	21.7%	58 T/week	12.3%	69 T/week
Timber	Reusable	1.0%	3 T/week	0.5%	3 T/week
	Unpainted & untreated	2.5%	7 T/week	1.2%	7 T/week
	Non-recoverable	24.4%	65 T/week	12.3%	69 T/week
	Subtotal	27.9%	74 T/week	14.0%	78 T/week
Rubber		1.7%	5 T/week	0.9%	5 T/week
Potentially hazardous		0.9%	2 T/week	1.1%	6 T/week
TOTAL		100.0%	267 T/week	100.0%	561 T/week

5.3.2 General waste to landfill - primary composition - by activity source of load

The primary compositions of the four activity sources that make up general waste disposed of to landfill from Kāpiti Coast District are shown in Table 5.5. Secondary compositions are given in Appendix 16.

Table 5.5 - General waste to landfill - by activity source

General waste to landfill By activity source - Otaihanga RRF & Otaki Transfer Station combined - 20 Aug. - 16 Sept. 2017	C&D	ICI	Landscaping	Residential
Paper	3.2%	13.1%	0.4%	9.2%
Plastics	4.6%	20.6%	2.0%	8.4%
Organics	1.0%	11.1%	69.4%	10.0%
Ferrous metals	1.0%	3.6%	0.1%	7.3%
Non-ferrous metals	0.1%	1.8%	0.0%	0.9%
Glass	0.3%	3.7%	0.0%	2.4%
Textiles	2.0%	11.6%	0.1%	22.6%
Sanitary paper	0.0%	4.6%	0.5%	1.4%
Rubble	46.2%	5.7%	10.2%	11.5%
Timber	41.6%	18.6%	17.2%	25.4%
Rubber	0.0%	3.7%	0.0%	0.7%
Potentially hazardous	0.0%	2.0%	0.0%	0.3%
TOTAL	100.0%	100.0%	100.0%	100.0%
Tonnes per week	98 T/week	118 T/week	15 T/week	35 T/week

C&D waste was composed primarily of rubble (46.2%) and timber (41.6%), which combined represent 87.8%, by weight, of C&D waste. ICI waste was more heterogeneous, with plastics (20.6%) being the largest component. Landscaping waste was 69.4% organic material, primarily greenwaste. Residential waste was also heterogeneous, with timber (25.4%) being the largest component.

5.3.3 All waste to landfill - by vehicle type

Table 5.6 shows the percentage of loads transported by each of the six vehicle types disposing of waste at Otaihanga RRF and Ōtaki Transfer Station, the percentage of total weight carried by each vehicle type, and the tonnes per week. The tonnes per week for compactors, front loaders, and gantry trucks have been taken directly from the weighbridge records, using registration numbers recorded during the survey. The tonnes per week for cars, other trucks, and trailers are based on the survey results, using a total combined weight for those vehicle types taken from the weighbridge records.

Table 5.6 - All waste to landfill - by vehicle type

All waste to landfill By vehicle type - Otaihanga RRF & Otaki Transfer Station combined - 20 Aug. - 16 Sept. 2017	% of loads surveyed	% of weight	Tonnes/week
Car-sized loads	40%	2%	10 T/week
Compactors	12%	53%	299 T/week
Front loader	2%	13%	71 T/week
Gantry	8%	9%	48 T/week
Other truck	3%	6%	34 T/week
Trailer-sized loads	34%	18%	99 T/week
TOTAL	100%	100%	561 T/week

While 40% of all loads were car-sized, these loads represented only 2% of the total weight of waste. Thirty-four percent of the loads surveyed were trailer-sized loads, and these loads represented 18% of the total weight. Compactors transported 53% of the total weight, but represented only 12% of the loads surveyed.

5.3.4 All waste to landfill - Primary composition of general waste - by vehicle type

The primary compositions of the five main vehicle types transporting general waste are shown in Table 5.7. The small numbers of compactors carrying general waste have been excluded. Secondary compositions are provided in Appendix 17.

Table 5.7 - General waste to landfill - by vehicle type

General waste to landfill - By vehicle type - Otaihanga RRF & Otaki Transfer Station combined - 20 Aug. - 16 Sept. 2017	Cars	Front loaders	Gantry trucks	Other trucks	Trailers
Paper	10.2%	14.3%	4.2%	0.0%	6.9%
Plastics	15.2%	21.6%	5.9%	1.4%	11.2%
Organics	27.9%	12.8%	7.6%	23.9%	4.2%
Ferrous metals	4.9%	3.6%	2.8%	1.8%	2.1%
Non-ferrous metals	0.9%	1.2%	0.2%	4.1%	0.3%
Glass	1.6%	3.4%	0.3%	4.1%	1.2%
Textiles	8.9%	8.9%	9.3%	5.1%	9.5%
Sanitary paper	5.0%	5.6%	0.2%	0.0%	0.5%
Rubble	5.9%	5.4%	33.9%	37.0%	25.0%
Timber	18.2%	15.9%	35.3%	22.5%	38.8%
Rubber	0.6%	4.8%	0.2%	0.0%	0.1%
Potentially hazardous	0.6%	2.6%	0.1%	0.0%	0.1%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%
Tonnes per week	10 T/week	71 T/week	48 T/week	34 T/week	99 T/week

5.3.5 All waste to landfill - Diversion potential

Of the 25 material classifications used in the visual survey, nine are commonly recycled or recovered in New Zealand. A further four materials are compostable. There are currently diversion options available in Kāpiti Coast District for most of these 13 materials. Based on these 13 materials, Table 5.8 shows the proportion of the general and overall waste streams disposed of at Otaihangā RRF Ōtaki Transfer Station combined that could potentially be diverted from landfill. The percentages and tonnages have been taken from Table 5.4.

Table 5.8 - Diversion potential of combined general and overall waste streams

Diversion potential - Otaihangā RRF & Ōtaki Transfer Station combined 20 Aug. - 16 Sept. 2017	General waste (excludes kerbside waste)		Overall waste (includes kerbside waste)	
	% of total	T/week	% of total	T/week
Recyclable and recoverable materials				
Paper - Recyclable	2.7%	7 T/week	4.2%	24 T/week
Paper - Cardboard	5.0%	13 T/week	2.7%	15 T/week
Plastic - Recyclable	0.4%	1 T/week	1.3%	7 T/week
Ferrous metals	2.9%	8 T/week	2.3%	13 T/week
Non-ferrous metals	0.9%	3 T/week	0.9%	5 T/week
Glass - Recyclable	0.7%	2 T/week	1.9%	10 T/week
Textiles - Clothing	2.1%	6 T/week	2.0%	11 T/week
Rubble - Cleanfill	9.2%	24 T/week	5.4%	30 T/week
Timber - Reusable	1.0%	3 T/week	0.5%	3 T/week
Subtotal	24.9%	66 T/week	21.1%	118 T/week
Compostable materials				
Organics - Kitchen waste	3.7%	10 T/week	16.3%	92 T/week
Organics - Compostable greenwaste	4.0%	11 T/week	13.4%	75 T/week
Rubble - New plasterboard	2.0%	5 T/week	0.9%	5 T/week
Timber - Untreated/unpainted	2.5%	7 T/week	1.2%	7 T/week
Subtotal	12.1%	32 T/week	31.8%	179 T/week
TOTAL - Potentially divertable	37.0%	99 T/week	52.9%	297 T/week

Recyclable and recoverable materials comprised 24.9% of the general waste and 21.1% of the overall waste. Compostable materials comprised 12.1% of the general waste and 31.8% of the overall waste stream.

Overall, approximately 37.0% of the general waste and 52.9% of the overall waste from Otaihangā RRF and Ōtaki Transfer Station combined could have been diverted from landfill disposal.

The largest single divertable component was kitchen waste, which comprised 16.3% of the overall waste stream, or 92 tonnes per week. Over 89% of the kitchen waste was in kerbside waste collections. The second largest divertable component was compostable greenwaste, which comprised 13.4% of the overall waste stream, or 75 tonnes per week. Nearly 86% of compostable greenwaste was in kerbside waste collections.

Photos of readily divertable loads are presented on the next page.



Concrete roof tiles



Clean soil



Paper and cardboard from school

6 Discussion and analysis

6.1 Comparison of kerbside waste receptacles

A comparison of the diversion potential of the four types of kerbside waste receptacles included in the audits is given, in percentage terms, in Table 6.1 and in terms of weight per household set out in Table 6.2.

Table 6.1 - Comparison of diversion potential of kerbside waste receptacles - as % of total

Comparison of diversion potential of kerbside waste receptacles - by % of total - 11-15 September 2017	Kerbside rubbish bags	80-litre wheelie bins	120/140-litre wheelie bins	240-litre wheelie bins
Kerbside recyclable materials				
Paper - Recyclable	7.2%	6.8%	7.2%	5.5%
Plastics - #1-7 containers	2.2%	1.7%	1.9%	2.0%
Ferrous metals - Steel cans	1.0%	0.6%	0.8%	0.6%
Non-ferrous metals - Aluminium cans	0.1%	0.1%	0.2%	0.4%
Glass - Bottles/jars	1.0%	0.9%	7.0%	2.2%
Subtotal	11.5%	10.1%	17.1%	10.8%
Compostable materials				
Organics - Kitchen/food waste	37.2%	25.0%	26.2%	25.6%
Organics - Greenwaste	3.9%	26.9%	26.1%	30.3%
Subtotal	41.1%	51.9%	52.3%	55.9%
TOTAL – Potentially divertable	52.6%	62.0%	69.4%	66.6%

While the recycling potentials of the four types of kerbside waste receptacles are similar, the two larger sizes of wheelie bins contain larger proportions of glass bottles and jars than rubbish bags and 80-litre wheelie bins. The relatively high proportion of glass bottles and jars in 120/140-litre wheelie bins is potentially an outlier, as one of the five-bin samples sorted contained several times the weight of glass as the other samples.

The composting potential shows much greater differences, in terms of percentage composition, with the rubbish bags containing a higher proportion of kitchen/food waste than wheelie bins while the wheelie bins contained substantially greater proportions of greenwaste than the rubbish bags.

Although the overall diversion potentials, in percentage terms, are similar, there are large differences in the weights of each material set out by households. The comparison is given in terms of set out weight per household in Table 6.2 on the next page.

Table 6.2 - Comparison of diversion potential of kerbside waste receptacles - weight per household set out

Comparison of diversion potential of kerbside waste receptacles - by household set out weight - 11-15 September 2017	Kerbside rubbish bags	80-litre wheelie bins	120/140-litre wheelie bins	240-litre wheelie bins
Kerbside recyclable materials				
Paper - Recyclable	0.55 kg	0.54 kg	0.79 kg	1.01 kg
Plastics - #1-7 containers	0.16 kg	0.14 kg	0.21 kg	0.37 kg
Ferrous metals - Steel cans	0.07 kg	0.05 kg	0.09 kg	0.11 kg
Non-ferrous metals - Aluminium cans	0.01 kg	0.01 kg	0.02 kg	0.08 kg
Glass - Bottles/jars	0.08 kg	0.07 kg	0.77 kg	0.40 kg
Subtotal	0.87 kg	0.81 kg	1.88 kg	1.96 kg
Compostable materials				
Organics - Kitchen/food waste	2.81 kg	1.99 kg	2.89 kg	4.67 kg
Organics - Greenwaste	0.29 kg	2.15 kg	2.89 kg	5.53 kg
Subtotal	3.10 kg	4.14 kg	5.78 kg	10.20 kg
TOTAL – Potentially divertable	3.97 kg	4.95 kg	7.66 kg	12.16 kg
All non-divertable waste	3.57 kg	3.03 kg	3.38 kg	6.09 kg
Weight per household set out	7.54 kg	7.98 kg	11.04 kg	18.25 kg

As shown in the bottom row, households using 240-litre wheelie bins set out 2.4 times as much waste as households that set out kerbside rubbish bags. Some of this may be due to differences in household sizes, as larger families may choose to use 240-litre wheelie bins, but some is also due to differences in waste management behaviour and, potentially, the frequency of set out.

Households using 240-litre wheelie bins set out 2.3 times the weight of recyclable materials as households using kerbside rubbish bags, even though they set out only 1.7 times as much 'All non-divertable waste'. This indicates that the consumption or recycling habits of 240-litre wheelie users may be different to those of rubbish bag users. Users of 240-litre wheelie bins also tended to dispose of more greenwaste to landfill, with 240-litre wheelie bins containing 19 times more greenwaste than rubbish bags, per household set out.

Apparent differences in waste management behaviour were less marked between users of 120/140-litre-wheelie bins compared to users of kerbside rubbish bags. Households using 120/140-litre wheelie bins set out 2.2 times the weight of recyclable materials compared to households using kerbside rubbish bags, compared to 0.9 times the weight of 'All non-divertable waste'. This indicates that the consumption and/or recycling behaviours of 120/140-litre wheelie users may be more similar to those of rubbish bag users than the behaviours of users of 240-litre wheelie bins are.

Users of 120/140-litre wheelie bins, however, tended to dispose of more greenwaste to landfill than users of rubbish bags, with 120/140-litre wheelie bins containing 10 times as much greenwaste per household set out as the average household set out of rubbish bags.

Users of 80-litre wheelie bins set out similar quantities of recyclable materials compared to users of kerbside rubbish bags and less food waste, but 7.4 times the quantity of greenwaste.

6.2 Comparisons with previous audits

6.2.1 Kerbside waste - comparisons with previous audits

Previous surveys of the composition of waste being disposed of in Kāpiti Coast District were conducted in 2002 by AgFirst Research, in 2007 by MWH New Zealand, and in 2010 and 2013 by Waste Not Consulting. In this section, results of the baseline 2010 audit are compared to the 2013 and 2017 audits. Very similar methodologies were used for all three projects.

The composition of kerbside rubbish bags from the three sort-and-weigh audits is presented in Table 6.3. The 2010 audit sample included only Council bags, the 2013 audit included a mix of Council and private operators' bags, and the 2017 audit included only private operators' bags, as the Council bag collection had been discontinued.

Table 6.3 – Comparison of kerbside rubbish bags composition - 2010, 2013, and 2017

Comparison of compositions of kerbside rubbish bags	2017	2013	2010
Paper	10.9%	11.9%	14.7%
Plastics	14.4%	14.6%	14.5%
Organics - subtotal	47.5%	41.6%	45.1%
<i>Comprising Kitchen waste</i>	37.2%	34.7%	38.8%
<i>Greenwaste</i>	3.9%	2.3%	2.9%
<i>Other</i>	6.4%	4.5%	3.4%
Ferrous metals	1.8%	1.6%	1.8%
Non-ferrous metals	0.8%	1.0%	1.1%
Glass	2.1%	2.7%	4.5%
Textiles	6.1%	8.1%	2.2%
Sanitary paper	12.3%	15.9%	12.3%
Rubble & concrete	1.9%	0.3%	1.6%
Timber	0.5%	0.4%	1.0%
Rubber	0.6%	0.3%	0.2%
Potentially hazardous	1.4%	1.5%	1.0%
TOTAL	100.0%	100.0%	100.0%
Average bag weight	6.66 kg	6.15 kg	5.93 kg

There were minor differences between the composition results from the three audits, with an increase in textiles after 2010 being the most significant. There is no obvious reason for the quantity of textiles to have increased and the increase may be due to random sampling differences. Alternatively, there may have been a change in consumer spending behaviour,

with more households buying new clothes and disposing of old clothes in 2013 and 2017 compared to 2010.

The composition of wheelie bin waste from the 2013 and 2017 audits is compared in Table 6.4. Private waste operators' wheelie bins were included in the 2010 audit, but 120/140-litre and 240-litre bins were not sorted separately so the data cannot be compared with the more recent audits. Neither the 2010 nor the 2013 audit included 80-litre wheelie bins.

Table 6.4 – Comparison of wheelie bin waste composition - 2017-2013

Comparison of compositions of kerbside wheelie bins	120-litre wheelie bins		240-litre wheelie bins	
	2017	2013	2017	2013
Paper	9.2%	9.1%	7.0%	15.1%
Plastics	8.5%	10.4%	9.5%	7.4%
Organics - subtotal	56.1%	48.8%	58.5%	54.3%
<i>Comprising : Kitchen waste</i>	26.2%	23.0%	25.6%	18.3%
<i>Greenwaste</i>	26.1%	23.3%	30.3%	33.5%
<i>Other</i>	3.7%	2.6%	2.6%	2.5%
Ferrous metals	2.4%	1.8%	1.5%	2.2%
Non-ferrous metals	0.9%	1.9%	0.9%	0.5%
Glass	7.4%	2.9%	2.5%	3.7%
Textiles	2.0%	3.6%	3.7%	2.6%
Sanitary paper	7.8%	11.0%	9.2%	10.0%
Rubble & concrete	3.4%	6.9%	4.2%	0.5%
Timber	1.2%	1.9%	1.5%	2.9%
Rubber	0.1%	0.1%	0.2%	0.2%
Potentially hazardous	1.0%	1.7%	1.3%	0.6%
TOTAL	100.0%	100.0%	100.0%	100.0%
Average bin weight	11.04 kg	11.62 kg	18.25 kg	21.98 kg

The compositions of the contents of 120/140-litre wheelie bins were similar in the 2017 and 2013 audits, with one exception - the proportion of glass was much higher in the 2017 audit. This may be a function of random sampling (there was an anomalously large five-bin sample in the 2017 audit) or may indicate a change in recycling behaviour. Any change may be associated with different types of recycling services being offered.

Similarly, the compositions of 240-litre wheelie bins were very similar in 2013 and 2017, with only the proportion of paper being markedly different. This reduction could be associated with the effects of random sampling, the marked decrease in printed media, or a change in recycling behaviours.

6.2.2 Activity source of all waste to landfill - comparison with previous audits

The activity sources of all waste to landfill from the 2017 visual survey (as presented in section 5.2) are compared to those from the 2010 and 2013 audits in Table 6.5. All three visual surveys used the same methodology.

Table 6.5 - Activity sources of all waste to landfill - 2010, 2013, and 2017

Comparison of activity sources of all waste to landfill	2017	2013	2010
Construction & demolition	98 T/week	88 T/week	41 T/week
Industrial/commercial/institutional	118 T/week	113 T/week	107 T/week
Landscaping & earthworks	15 T/week	8 T/week	9 T/week
Residential	35 T/week	31 T/week	37 T/week
Subtotal - general waste	267 T/week	240 T/week	193 T/week
Kerbside waste	294 T/week	195 T/week	196 T/week
TOTAL	561 T/week	435 T/week	389 T/week

The weekly tonnage of C&D waste has more than doubled between 2010 and 2017, likely reflecting an increase in construction activity following the global financial crisis of 2008. ICI, landscaping and residential waste have shown much more gradual changes. The significant increase in the quantity of kerbside waste is likely to be associated with cross-boundary movements of kerbside waste into the District. This is discussed in detail in section 6.3.1.

6.2.3 Composition of overall waste to landfill - comparison with previous audits

The composition of the overall waste stream from the 2017 visual survey (as presented in section 5.3) is compared with those from the 2010 and 2013 audits in Table 6.6. All three visual surveys used the same methodology.

Table 6.6 – Comparison of composition of overall waste – 2010, 2013, and 2017

Comparison of compositions of all waste to landfill	2017	2013	2010
Paper	8.3%	11.8%	13.0%
Plastics	11.0%	9.5%	10.1%
Organics - subtotal	34.3%	29.9%	33.6%
<i>Comprising Kitchen waste</i>	16.3%	12.9%	19.2%
<i>Greenwaste</i>	15.5%	15.1%	12.8%
<i>Other</i>	2.4%	1.9%	1.6%
Ferrous metals	2.3%	2.9%	3.0%
Non-ferrous metals	0.9%	0.7%	0.8%
Glass	2.8%	3.4%	4.6%
Textiles	6.1%	5.9%	5.3%
Sanitary paper	6.0%	6.6%	5.3%
Rubble & concrete	12.3%	13.8%	6.7%
Timber	14.0%	14.4%	16.3%
Rubber	0.9%	0.3%	0.5%
Potentially hazardous	1.1%	0.8%	0.7%
TOTAL	100%	100%	100%

The only significant trend in waste composition across the three audits is the decrease in the proportion of paper. This is associated with a similar decrease in paper in both kerbside rubbish bags and wheelie bins.

6.3 Comparisons with other districts

6.3.1 Per capita disposal of kerbside waste per annum

The per capita disposal of kerbside waste for residents of Kāpiti Coast District in 2017 is calculated in Table 6.7 below. The results from both the 2010 and 2013 surveys are also shown.

The total for kerbside waste includes collections of both residential and commercial waste in both rubbish bags and wheelie bins. While there is currently no data available to Council on the split between residential and commercial waste, generally about 5% of kerbside waste originates from commercial premises.

The 2017 average of 294 tonnes per week is based on the analysis of weighbridge records for 20 August - 16 September 2017, as shown in Table 5.2. The population for 2017 is based on Stats NZ subnational medium range population estimates.

For the 2017 calculations, waste that was collected in other Districts and disposed of at Otaihangā RRF or Ōtaki Transfer Station has been accounted for. Data on this cross-boundary movement of waste was provided to Council by the private waste operators for the July-September 2017 quarter and the out-of-district waste reported to Council has been deducted from the total.

Table 6.7 - Per capita disposal of kerbside waste

Calculation of per capita disposal of kerbside waste	2017	2013	2010
Population of Kāpiti Coast District	51,928	49,104	48,900
Total kerbside waste collections per week to Otaihangā	198 T/week	163 T/week	137 T/week
Total kerbside waste collections per week to Ōtaki	96 T/week	32 T/week	58 T/week
Total kerbside waste collections per week combined	294 T/week	194 T/week	195 T/week
Deduct out-of-district waste	65 T/week	0	0
Total kerbside waste from Kāpiti Coast District	229 T/week	194 T/week	195 T/week
Estimated annual tonnage of kerbside waste	11,597 T/annum	10,123 T/annum	10,180 T/annum
Per capita disposal of kerbside waste	230 kg/capita/annum	206 kg/capita/annum	208 kg/capita/annum

The estimated 11,597 tonnes per annum of kerbside waste from Kāpiti Coast District equates to 230 kg/capita/annum. Were this figure to be accurate, this represents a substantial 12% increase since 2013.

The operators of both Ōtaki Transfer Station and Otaihangā Resource Recovery Facility provide monthly activity reports to Council. These reports include data on kerbside waste

compactors, which are based on tracking of the registration numbers of all compactor trucks. This data shows a steady increase in kerbside waste over the period September 2016 to August 2017, which is, anecdotally, associated with an increase in cross-boundary movement of waste rather than a sudden increase in kerbside waste generation in Kāpiti Coast District.

The *Wellington Region Waste Management and Minimisation Plan 2017-2023* includes a regional target for “A decrease in kerbside household waste to landfill from approximately 200 kilograms per person per annum to 143 kilograms per person per annum by 2026”. Rather than using the figure of 230 kg/capita/annum in Table 6.7 as a baseline figure against which to measure progress towards this target, it is recommended that Council monitor and analyse the private waste operators’ facility data and data on cross-boundary movement of waste over a one-year period.

The kerbside waste per capita per annum figures in Table 6.7 are compared to the disposal rates from other areas previously surveyed by Waste Not Consulting in Table 6.8 below. All of these figures are for commercial and residential kerbside waste combined, as these are often collected in the same vehicles and cannot be readily distinguished.

Table 6.8 – Comparison of per capita disposal of kerbside waste

Comparison of per capita disposal of kerbside waste	Kg/capita/annum	Comment
Christchurch City 2011	110	Fortnightly 140-litre refuse mobile garbage bin (MGB) with weekly organic collection
Hauraki District 2011	145	User-pays rubbish bags
Auckland Council 2012	160	Range of legacy council services.
Waimakariri District 2012	165	User-pays rubbish bags + private MGBs
Selwyn District 2013	165	User-pays rubbish bags and user-pays MGBs
Hamilton City 2013	182	Rates-funded rubbish bags, max. 2 per week
Wellington region 2014/15	206	User-pays rubbish bags + private MGBs
Kāpiti Coast District 2013	206	User-pays rubbish bags + private MGBs. Only private kerbside recycling collection.
Kāpiti Coast District 2010	208	User-pays rubbish bags + private MGBs. Only private kerbside recycling collection
Tauranga City and Western Bay of Plenty District 2014/15	212	User-pays rubbish bags + private MGBs. Only private kerbside recycling collection.
Taupō District 2013	212	User-pays rubbish bags + privately collected MGBs
Hastings District / Napier City 2016	225	User-pays rubbish bags (Hastings) & rates-funded bags max. 2 bags/week(Napier) + private MGBs
Kāpiti Coast District 2017	230	User-pays rubbish bags + private MGBs. Only private kerbside recycling collection.

The per capita rate of kerbside waste disposal from Kāpiti Coast District in 2010 and 2013 was very similar to the rate in several other districts measured. The per capita rate for 2017 was higher than any other of the districts previously measured. Further investigation and on-going monitoring may be warranted to determine whether this high disposal rate is associated with unidentified cross-boundary movements of kerbside waste into Kāpiti Coast District.

Kerbside waste disposal rates are associated with the generation of residential refuse by households, the proportion of households using different sizes of wheelie bins, the availability and type of kerbside recycling services, and the uptake of kerbside waste services by the commercial sector relative to other waste services, such as gantry bins and front-loader bins.

The per capita rate of disposal is also associated with the proportion of households that are serviced by kerbside waste collections. All private collectors in Kāpiti Coast District provide collection services in the urban areas, which is approximately 95% of households. Householders may also choose to take their residential waste directly to a transfer station. Residential rubbish bags that are taken by the householder directly to a transfer station are not included in the figures in Table 6.9.

6.3.2 Per capita disposal of waste to landfill per annum

The per capita disposal of waste that is disposed of at the transfer stations in the District is calculated for 2010, 2013, and 2017 as in Table 6.10 below. The annual tonnages for the two facilities have been taken from monthly weighbridge records provided by Council. This per capita disposal figure is compared to disposal figures from other local authorities surveyed by Waste Not Consulting in Table 6.11 on the next page.

The calculations in Table 6.10 are based on the assumption that there is no waste taken directly from Kāpiti Coast District to landfill. Although this assumption has not been verified for this report, discussions with waste operators and Council indicate that minimal amounts of waste are transported from within Kāpiti Coast District to disposal facilities other than Ōtaki Transfer Station and Otaihanga RRF. For example, this waste likely includes front-loader vehicles that collect partial loads in Kāpiti Coast District and then complete their run in Horowhenua District and dispose of the load at Levin landfill.

It is noted that an unknown quantity of out-of-district waste is included in the totals in Table 6.10. Out-of-district waste includes kerbside waste from Horowhenua District, as discussed in section 6.3.1, and, potentially, partial loads from front-loader trucks.

Table 6.10 - Per capita disposal of waste to landfill

Calculation of per capita disposal of waste to landfill	2017	2013	2010
Population Kāpiti Coast	51,928	49,104	48,900
Otaihanga RRF waste to landfill	21,099 T	16,488 T	16,145 T
Ōtaki Transfer Station waste to landfill	7,273 T	5,167 T	3,947 T
Total waste to landfill per annum	28,371 T	21,655 T	20,092 T
Kg/capita/annum	546 kg/capita/annum	441 kg/capita/annum	411 kg/capita/annum

The calculations show that in 2017 a total of 546 kg of waste per capita was disposed of to landfill from the transfer stations in Kāpiti Coast District. The comparable figure for 2013 was 441 kg and, for 2010, a 411 kg. The 2017 figure represents a 24% increase since 2013 and a 33% increase since 2010. Until a longer time series of data on out-of-district waste is available to Council, using the figure of 546 kg/capita/annum as a baseline figure in terms of WMMP targets would not be recommended.

Table 6.11 – Disposal rates compared to other local authorities

Overall waste to landfill including special wastes (excluding cover materials)	Tonnes per capita per annum
Gisborne District 2010	305
Waimakariri District 2012	311
Westland District 2011	331
Ashburton District 2015	366
Kāpiti Coast District 2010	411
Kāpiti Coast District 2013	441
Napier/Hastings 2016	495
Southland region 2011	500
Tauranga and WBOP District 2014/15	524
Christchurch City 2012	524
Palmerston North 2017 (seasonally-adjusted)	545
Kāpiti Coast District 2017	546
Wellington region 2016	608
Hamilton City 2013	668
Taupō District 2017	673
New Zealand (to June 2016) ¹	734
Queenstown Lakes District 2012	735
Rotorua District 2009	736
Auckland region 2012	803
Queenstown Lakes District 2016	1,103

As shown in Table 6.11, the per capita rates of waste disposal to landfill from Kāpiti Coast District in 2010 and 2013 were in the lower range of the territorial authority areas measured. The 2017 figure was in the middle range.

While the necessary research that would be required to understand the differences in waste generation and disposal has not been undertaken, it is likely that higher levels of per capita waste disposal are associated with higher levels of particular types of industrial/commercial activity and, in some instances, such as Queenstown Lakes District, construction activity.

6.3.3 Activity sources of waste - comparison with other areas

Waste Not Consulting has conducted surveys for a large number of territorial authorities that used the methodology described in section 2.3.3 for determining the activity sources of waste to landfill. This allows for reliable comparisons to be made between the overall waste streams in these districts.

¹ Ministry for the Environment. 2017. *Review of the Effectiveness of the Waste Disposal Levy 2017*. Wellington: Ministry for the Environment.

Table 6.12 below compares the proportions of the different activity sources of waste from four other districts with Kāpiti Coast District in 2017. The 2017 data for Kāpiti Coast District has been taken from Table 5.2.

Table 6.12 - Comparison of activity sources of waste with other districts

Activity sources of waste to landfill - excludes special wastes	Napier/Hastings	Hamilton	Taranaki Region	Queenstown Lakes District	Kāpiti Coast District
Year of survey	2016	2017	2016	2016	2017
Construction & demolition	7%	21%	15%	36%	18%
Industrial/commercial/institutional	41%	46%	43%	29%	21%
Landscaping & earthworks	2%	3%	3%	1%	3%
Residential	6%	5%	9%	4%	6%
Subtotal - general waste	57%	72%	70%	70%	48%
Kerbside waste	43%	28%	30%	30%	52%
TOTAL	100%	100	100%	100%	100%

The relative proportions of the activity sources of waste in each area reflect the nature and level of economic activity in the area and other factors. Relative to the other areas, Kāpiti Coast District has a lower proportion of ICI waste and a higher proportion of kerbside waste. The high proportion of kerbside waste is, to a degree, associated with out-of-district kerbside waste being disposed of at Otaihanga RRF and Ōtaki Transfer Station.

6.4 Weekly waste to landfill from Kāpiti Coast District – by month

Using the monthly data provided by Council for Otaihanga RRF and Ōtaki Transfer Station for the period September 2016 to August 2017, the average weekly tonnage of general waste, kerbside waste, and all waste to landfill for each month has been calculated. The results are shown in Table 6.13 below and Figure 6.1 on the next page.

Table 6.13 – Average tonnes/week to landfill from Kāpiti Coast District

Tonnes/week to landfill from Kāpiti Coast District	Sep-16	Oct-16	Nov-16	Dec-16	Jan-17	Feb-17	Mar-17	Apr-17	May-17	Jun-17	Jul-17	Aug-17
General waste	309	322	300	331	247	302	265	238	282	264	254	252
Kerbside waste	231	229	240	253	276	264	287	276	276	277	260	295
TOTAL	540	551	540	584	524	566	552	514	558	542	514	547

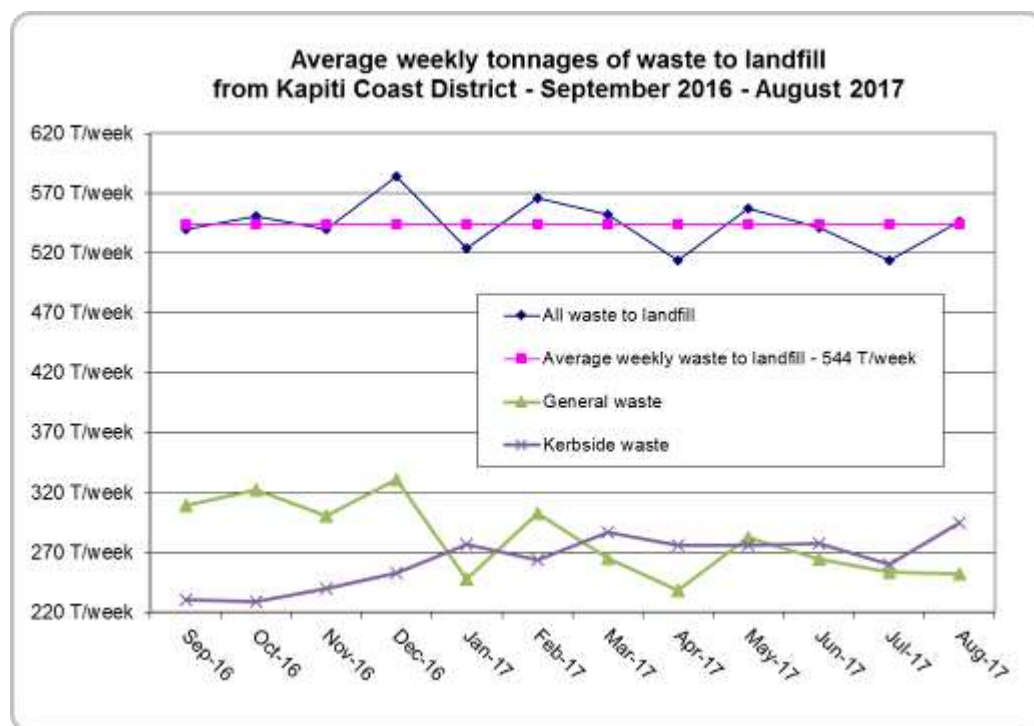


Figure 6.1 - Average tonnes/week to landfill from Kāpiti Coast District

For the year to August 2017, an average of 544 tonnes per week of residual waste was being disposed of to landfill from Kāpiti Coast District. This compares to the average 561 tonnes per week for 20 Aug. - 16 Sept. 2017, the period analysed for this report.

The disposal trends for general waste and kerbside waste through the year are unusual, with general waste apparently decreasing through the year and kerbside waste increasing. Detailed analysis of the weighbridge records shows most of the decrease in general waste occurred at Otaihanga RRF. A small proportion of the decrease is considered to be due to the completion of the Mackays to Peka Peka expressway in February 2017.

Any other reasons for this decrease are not obvious, and it may be related to weighbridge record-keeping or cross-boundary movement of waste. Further investigation and discussion with the transfer station operators and collectors may be required should a better understanding of the waste flows be needed.

Appendix 1 - Kerbside recyclable materials



Kerbside recycling

✓ Accepted

Everything we put in our recycling crates and bins will be handled by someone else – please keep it clean!

✓ Plastics



- Items with numbers 1 to 7 printed inside a triangle (except foam polystyrene).
- Remove lids. If lids don't have a number, they must go in your rubbish bin or bag.
- Clean plastic bags – including bread/supermarket bags – are also accepted.



✓ Glass



- Rinsed bottles and jars – green, brown, blue and clear (no pane glass).
- Lids must go in your rubbish bin or bag.

✓ Aluminium & steel cans



- Clean and squash them flat (if you can).

✓ Paper & cardboard



- E.g. cardboard packaging, newspapers, brochures, office paper, magazines, books and empty pizza boxes.
- If you have a mixed recycling crate, place paper and flattened cardboard into a supermarket bag or tie it into a bundle (this can be stacked on top of your crate).
- Flattened cardboard should be no larger than your crate.

✗ Not accepted

✗ Dirty pizza boxes



- Pizza boxes must be empty to be accepted i.e. free of food scraps, bottle caps, cigarette butts and serviettes.

✗ Foam polystyrene



- Includes meat trays and white packaging.
- This material can't be recycled in Kāpiti – even if it has a number.

✗ Dangerous items



- Nappies and broken glass can hurt our collectors or make them sick.
- These items will make the entire contents of your crate unsuitable for recycling.

Two recycling systems

Two different recycling systems are available in Kāpiti:

- Two-stream recycling:** A wheelie bin with yellow lid for plastic, paper and cans, and a green crate for glass only. All recyclables must go into the bin and crate loosely, i.e. don't bag your recycling. Wheelie bins and crates are emptied on alternate weeks. This system is used by Low Cost Bins, EnviroWaste and rubbish bag customers.
- Mixed recycling crates:** One recycling crate for all your recycling, emptied every week. Please pack the crate in a way that prevents recycling blowing out - recycling can be placed into the crate in bags for convenience. This system is used by Waste Management and Lucy's Bins customers.

For more information on how to reduce, reuse and recycle:
 Visit www.kapiticoast.govt.nz/waste
 Phone 0800 486 486 | Email waste@kapiticoast.govt.nz



Appendix 2 - Waste classifications

KERBSIDE WASTE AUDIT CLASSIFICATIONS

Primary category	Secondary category	Definition
Paper	Recyclable paper	Cardboard packaging, newspapers, brochures, office paper, magazines, books, empty pizza boxes
	Non-recyclable paper	Non-recyclable paper packaging (wet-strength, food contaminated), photographic paper, playing cards, laminated paper, Tetra Pak, gabletop.
Plastics	#1-7 plastics	Household plastic containers & lids with a recycling number
	Plastic bags/film	All plastic bags and film
	Other non-recyclable	Non-recyclable plastic packaging, including polystyrene meat trays, paint, engine oil and chemical containers. All other non-packaging materials made primarily of plastic
Organics	Kitchen waste	All kitchen waste
	Greenwaste	All organic garden waste
	Other organics	All other primarily organic items – includes cat tray litter, hair, vacuum cleaner bags
Ferrous metals	Steel cans	All steel cans, <i>excluding</i> aerosol cans
	Multimaterial/ other	All other items made primarily of ferrous metal
Non-ferrous metals	Aluminium cans	All aluminium cans, <i>excluding</i> aerosol cans
	Multimaterial/ other	All other items made primarily of non-ferrous metal
Glass	Glass bottles/jars	All bottles and jars, emptied with the lids and contents removed
	Non-recyclable glass	All other items made primarily of glass, includes light bulbs, drinking glasses, and window glass
Textiles	Clothing & textile	All items primarily made of a fabric, such as clothes, curtains, suitable for rags
	Other textiles	Includes shoes, backpacks, handbags, rugs, not suitable for rags
Sanitary paper		Includes disposable nappies, paper towels, tissues
Rubble, concrete		All concrete, rubble and soil
Timber		All items made primarily of timber
Rubber		All items made primarily of rubber (e.g. kitchen gloves)
Potentially hazardous	Household	Batteries, aerosol cans, medicines and cosmetics, cleaning agents
	Other	Potentially hazardous items not associated with domestic activity, such as used oil and garden chemicals.

TRANSFER STATION VEHICLE SURVEY CLASSIFICATIONS

Primary category	Secondary category	Description
Paper	Recyclable	Newspapers, magazines, office paper, etc.
	Cardboard	Kraft cartons
	Paper non-recyclable	Multimaterials, building paper, contaminated paper
Plastics	Recyclable	Containers with recycling logo 1-7
	Plastics non-recyclable	Other types of plastic and primarily plastic multimaterials
Organic	Kitchen/food	Food and food preparation waste
	Compostable greenwaste	Lawn clippings, hedge clippings, leaves, tree trimmings with branches less than 150mm diameter, and garden weeds
	Non-compostable greenwaste	Flax, cabbage tree, palm fronds, branches over 150mm
	Organic other	Organic matter such as meat processing waste
Ferrous metals	Primarily ferrous	Items made primarily of steel
	Multimaterials	Ferrous items containing a sizable proportion of other materials
Nonferrous metals	Primarily nonferrous	Items made primarily of nonferrous metal
Glass	Recyclable	Bottles and jars
	Other glass	Includes glass pane, CRT TVs, and computer monitors
Textiles	Clothing/textile	Items made primarily of cloth or textiles
	Multimaterial/other	Items containing some textile and other materials, such as carpets, shoes, backpacks, suitcases
Sanitary paper	None	Sanitary materials such as nappies, paper towels, feminine hygiene products
Rubble	Cleanfill	All materials suitable for cleanfill disposal
	New plasterboard	Sizable pieces of new plasterboard
	Other	Other materials such as soil, ceramics, plasterboard
Timber	Reusable	Lengths of timber and pieces of sheet suitable for reuse
	Unpainted & untreated	Unpainted and untreated lengths of timber
	Multimaterial/other	Sawdust, construction and demolition debris, CCA-treated wood, MDF
Rubber	-	All items made primarily of rubber such as tyres, latex foam mattresses
Potentially hazardous	-	Material with potentially toxic or ecotoxic properties or having properties requiring special disposal techniques.

Appendix 3 - Types of waste disposal vehicles

FRONT-LOADER TRUCKS

“Front-loaders” are top-loading compactors that use forks mounted to the front of the vehicle to lift bins over the cab and tip the contents of the bin into the compactor unit at the rear. Front-loaders work primarily in urban areas, regularly servicing medium to large-scale industrial, commercial, and institutional customers. In general, a business using front-loader bins would be serviced at least weekly, but can be serviced several times a day for a business like a large supermarket. Front-loaders vary in size, and may carry loads from 4 to 10 tonnes. A single load may contain waste from ten to fifty customers.



The potential for the recovery of materials from waste transported by front-loaders is limited. The waste load is compacted by the truck, and the loads tend to be large and heterogeneous. This restricts significantly the potential for manually separating recoverable materials when the load is discharged on a tipping floor. There are usually not significant quantities of easily-separable materials other than cardboard packaging in front-loader refuse.

GANTRY TRUCK

“Gantry trucks” are used to transport gantry bins (skip bins) from customers’ premises to a disposal facility. Gantry truck services are used by industrial, commercial, institutional, and residential customers. Some large-scale commercial waste generators use gantry bins as their regular disposal system. Residential customers and business customers both use gantry bins for one-off large-scale refuse removal. Some commercial customers, such as hotels and supermarkets, use portable, stationary refuse compactors that are transported for disposal by gantry trucks. The gantry truck in the photo on the next page is carrying a stationary compactor unit from a supermarket. Gantry bins are often used for special wastes, such as sludges, asbestos, and animal by-products.



Typical gantry truck loads weigh from 0.5-3 tonnes. As most refuse transported in gantry bins is not compacted, there is often opportunity for manually recovering materials from gantry bins when discharged onto a tipping floor. Gantry bins often contain significant quantities of recoverable materials, such as timber and packaging, and these materials as well as reusable items can often be recovered intact from loads.

HOOK TRUCK

Hook trucks (or “huka” trucks) transport bins that can be loaded and unloaded from the rear of the truck for transport and that can be emptied quickly like a tip truck. Hook bins are used by large-scale waste generators, either for regular waste disposal or one-off refuse removal. Hook trucks are often used for transporting 25 or 30-cubic metre bins from transfer stations to landfills or large stationary compactors. Hook bins are also used for large-scale transport of recovered materials, such as cardboard and metal. Hook bins are rarely used for residential waste disposal.



The potential for material recovery from hook bins is similar to that for gantry bins.

KERBSIDE WASTE COLLECTION VEHICLES

Side-loading and rear-loading compactors are commonly used for the kerbside collection of residential and small business refuse. They can be designed to service bagged refuse collections, wheelie bin collections, or both. Side-loading compactors can be used for bag collections or fitted with hydraulic arms for emptying wheelie bins without the driver leaving the vehicle. Rear-loading compactors can also be used for bag collections or fitted with hydraulic arms for emptying bins. Non-compacting trucks are also used for kerbside waste collections, but are less common, as the economics of transporting uncompacted waste are less favourable.



As kerbside waste collection vehicles collect small quantities of refuse from a large number of customers and the refuse is heavily compacted, there is little opportunity for manually recovering materials from the refuse.

OTHER TRUCKS

Other truck types commonly used for the transport of waste include tip trucks, box trucks, and flat decks. Tip trucks are most commonly used for the transport of waste from landscaping, earthworks, and construction and demolition activity. Box trucks are rarely used as dedicated waste transport vehicles, but are often used for waste transport by businesses that also use them for goods pick-up and delivery. Flat decks are used for the transport of bulky waste items, or by general carriers for the disposal of stackable items, such as pallets.



Appendix 4 - Kerbside rubbish bags

Kāpiti Coast District - Domestic kerbside rubbish bags 11-15 September 2017 (Margins of error for 95% confidence level)		% of total weight	Mean wt. per household set out	Mean wt. per rubbish bag
Paper	Recyclable	7.2% (±3.0%)	0.55 kg (±0.23 kg)	0.48 kg (±0.20 kg)
	Non-recyclable paper	3.6% (±1.5%)	0.27 kg (±0.11 kg)	0.24 kg (±0.10 kg)
	Subtotal	10.9% (±3.4%)	0.82 kg (±0.25 kg)	0.72 kg (±0.22 kg)
Plastics	# 1-7 containers	2.2% (±0.5%)	0.16 kg (±0.04 kg)	0.14 kg (±0.04 kg)
	Plastic bags & film	9.4% (±1.4%)	0.71 kg (±0.11 kg)	0.63 kg (±0.09 kg)
	Other non-recyclable plastic	2.9% (±1.0%)	0.22 kg (±0.07 kg)	0.19 kg (±0.07 kg)
	Subtotal	14.4% (±2.1%)	1.09 kg (±0.16 kg)	0.96 kg (±0.14 kg)
Organics	Kitchen/food waste	37.2% (±7.1%)	2.81 kg (±0.53 kg)	2.48 kg (±0.47 kg)
	Greenwaste	3.9% (±3.7%)	0.29 kg (±0.28 kg)	0.26 kg (±0.25 kg)
	Other organic	6.4% (±2.6%)	0.48 kg (±0.20 kg)	0.42 kg (±0.18 kg)
	Subtotal	47.5% (±6.4%)	3.58 kg (±0.48 kg)	3.16 kg (±0.43 kg)
Ferrous metals	Steel cans	1.0% (±0.5%)	0.07 kg (±0.04 kg)	0.07 kg (±0.04 kg)
	Other steel	0.8% (±0.7%)	0.06 kg (±0.05 kg)	0.05 kg (±0.04 kg)
	Subtotal	1.8% (±0.9%)	0.13 kg (±0.07 kg)	0.12 kg (±0.06 kg)
Non-ferrous metals	Aluminium cans	0.1% (±0.1%)	0.01 kg (±0.00 kg)	0.01 kg (±0.00 kg)
	Other non-ferrous	0.7% (±0.2%)	0.05 kg (±0.02 kg)	0.05 kg (±0.01 kg)
	Subtotal	0.8% (±0.3%)	0.06 kg (±0.02 kg)	0.05 kg (±0.02 kg)
Glass	Bottles/jars	1.0% (±0.6%)	0.08 kg (±0.04 kg)	0.07 kg (±0.04 kg)
	Non-recyclable glass	1.1% (±1.2%)	0.08 kg (±0.09 kg)	0.07 kg (±0.08 kg)
	Subtotal	2.1% (±1.3%)	0.16 kg (±0.10 kg)	0.14 kg (±0.09 kg)
Textiles	Clothing/textiles	3.5% (±2.5%)	0.26 kg (±0.19 kg)	0.23 kg (±0.17 kg)
	Multimaterial/other	2.6% (±1.6%)	0.20 kg (±0.12 kg)	0.17 kg (±0.10 kg)
	Subtotal	6.1% (±3.4%)	0.46 kg (±0.26 kg)	0.40 kg (±0.23 kg)
Sanitary paper		12.3% (±7.7%)	0.93 kg (±0.58 kg)	0.82 kg (±0.51 kg)
Rubble		1.9% (±0.9%)	0.14 kg (±0.07 kg)	0.12 kg (±0.06 kg)
Timber		0.5% (±0.5%)	0.03 kg (±0.04 kg)	0.03 kg (±0.03 kg)
Rubber		0.6% (±0.7%)	0.04 kg (±0.05 kg)	0.04 kg (±0.04 kg)
Potentially hazardous	Household hazardous	1.2% (±0.8%)	0.09 kg (±0.06 kg)	0.08 kg (±0.05 kg)
	Other hazardous	0.1% (±0.2%)	0.01 kg (±0.01 kg)	0.01 kg (±0.01 kg)
	Subtotal	1.4% (±0.9%)	0.10 kg (±0.06 kg)	0.09 kg (±0.06 kg)
TOTAL		100.0%	7.54 kg (±0.99 kg)	6.66 kg (±0.88 kg)

Appendix 5 - 80-litre wheelie bins

Kāpiti Coast District - 80-litre wheelie bins 11-15 September 2017 (Margins of error for 95% confidence level)		% of total weight	Mean wt. per wheelie bin
Paper	Recyclable	6.8% (±2.6%)	0.54 kg (±0.21 kg)
	Non-recyclable paper	1.4% (±0.3%)	0.11 kg (±0.02 kg)
	Subtotal	8.2% (±2.7%)	0.65 kg (±0.21 kg)
Plastics	# 1-7 containers	1.7% (±0.4%)	0.14 kg (±0.03 kg)
	Plastic bags & film	4.9% (±0.5%)	0.39 kg (±0.04 kg)
	Other non-recyclable plastic	2.0% (±0.5%)	0.16 kg (±0.04 kg)
	Subtotal	8.5% (±1.0%)	0.68 kg (±0.08 kg)
Organics	Kitchen/food waste	25.0% (±3.5%)	1.99 kg (±0.28 kg)
	Greenwaste	26.9% (±13.5%)	2.15 kg (±1.07 kg)
	Other organic	3.9% (±2.1%)	0.31 kg (±0.17 kg)
	Subtotal	55.8% (±12.3%)	4.45 kg (±0.98 kg)
Ferrous metals	Steel cans	0.6% (±0.3%)	0.05 kg (±0.02 kg)
	Other steel	0.9% (±0.8%)	0.07 kg (±0.07 kg)
	Subtotal	1.5% (±0.8%)	0.12 kg (±0.07 kg)
Non-ferrous metals	Aluminium cans	0.1% (±0.1%)	0.01 kg (±0.00 kg)
	Other non-ferrous	0.6% (±0.4%)	0.05 kg (±0.03 kg)
	Subtotal	0.7% (±0.4%)	0.05 kg (±0.03 kg)
Glass	Bottles/jars	0.9% (±0.4%)	0.07 kg (±0.03 kg)
	Non-recyclable glass	0.4% (±0.4%)	0.03 kg (±0.03 kg)
	Subtotal	1.4% (±0.4%)	0.11 kg (±0.03 kg)
Textiles	Clothing/textiles	1.4% (±1.3%)	0.11 kg (±0.11 kg)
	Multimaterial/other	1.3% (±0.8%)	0.10 kg (±0.06 kg)
	Subtotal	2.6% (±1.8%)	0.21 kg (±0.15 kg)
Sanitary paper		9.3% (±3.8%)	0.74 kg (±0.30 kg)
Rubble		7.1% (±9.0%)	0.57 kg (±0.72 kg)
Timber		2.9% (±4.8%)	0.23 kg (±0.38 kg)
Rubber		0.0% (±0.0%)	0.00 kg (±0.00 kg)
Potentially hazardous	Household hazardous	1.6% (±1.4%)	0.13 kg (±0.11 kg)
	Other hazardous	0.3% (±0.4%)	0.03 kg (±0.03 kg)
	Subtotal	2.0% (±1.5%)	0.16 kg (±0.12 kg)
TOTAL		100.0%	7.98 kg (±1.24 kg)

Appendix 6 - 120/140-litre wheelie bins

Kāpiti Coast District - 120-140-litre wheelie bins 11-15 September 2017 (Margins of error for 95% confidence level)		% of total weight	Mean wt. per wheelie bin
Paper	Recyclable	7.2% (±4.0%)	0.79 kg (±0.45 kg)
	Non-recyclable paper	2.0% (±0.6%)	0.22 kg (±0.06 kg)
	Subtotal	9.2% (±3.9%)	1.01 kg (±0.43 kg)
Plastics	# 1-7 containers	1.9% (±0.4%)	0.21 kg (±0.05 kg)
	Plastic bags & film	4.8% (±0.7%)	0.53 kg (±0.08 kg)
	Other non-recyclable plastic	1.7% (±0.5%)	0.19 kg (±0.06 kg)
	Subtotal	8.5% (±1.4%)	0.93 kg (±0.15 kg)
Organics	Kitchen/food waste	26.2% (±4.9%)	2.89 kg (±0.54 kg)
	Greenwaste	26.1% (±12.9%)	2.89 kg (±1.42 kg)
	Other organic	3.7% (±2.0%)	0.41 kg (±0.22 kg)
	Subtotal	56.1% (±12.5%)	6.19 kg (±1.38 kg)
Ferrous metals	Steel cans	0.8% (±0.3%)	0.09 kg (±0.04 kg)
	Other steel	1.6% (±1.4%)	0.18 kg (±0.15 kg)
	Subtotal	2.4% (±1.4%)	0.27 kg (±0.16 kg)
Non-ferrous metals	Aluminium cans	0.2% (±0.1%)	0.02 kg (±0.01 kg)
	Other non-ferrous	0.7% (±0.5%)	0.08 kg (±0.05 kg)
	Subtotal	0.9% (±0.5%)	0.10 kg (±0.05 kg)
Glass	Bottles/jars	7.0% (±4.7%)	0.77 kg (±0.52 kg)
	Non-recyclable glass	0.5% (±0.3%)	0.05 kg (±0.04 kg)
	Subtotal	7.4% (±4.9%)	0.82 kg (±0.54 kg)
Textiles	Clothing/textiles	0.7% (±0.3%)	0.08 kg (±0.04 kg)
	Multimaterial/other	1.3% (±0.7%)	0.14 kg (±0.08 kg)
	Subtotal	2.0% (±0.8%)	0.22 kg (±0.09 kg)
Sanitary paper		7.8% (±2.8%)	0.86 kg (±0.31 kg)
Rubble		3.4% (±2.4%)	0.37 kg (±0.27 kg)
Timber		1.2% (±1.2%)	0.14 kg (±0.13 kg)
Rubber		0.1% (±0.2%)	0.01 kg (±0.02 kg)
Potentially hazardous	Household hazardous	0.7% (±0.4%)	0.07 kg (±0.04 kg)
	Other hazardous	0.3% (±0.3%)	0.04 kg (±0.04 kg)
	Subtotal	1.0% (±0.5%)	0.11 kg (±0.06 kg)
TOTAL		100.0%	11.04 kg (±1.39 kg)

Appendix 7 - 240-litre wheelie bins

Kāpiti Coast District - 240-litre wheelie bins 11-15 September 2017 (Margins of error for 95% confidence level)		% of total weight	Mean wt. per wheelie bin
Paper	Recyclable	5.5% (±3.3%)	1.01 kg (±0.60 kg)
	Non-recyclable paper	1.5% (±0.5%)	0.27 kg (±0.10 kg)
	Subtotal	7.0% (±3.5%)	1.28 kg (±0.64 kg)
Plastics	# 1-7 containers	2.0% (±1.0%)	0.37 kg (±0.18 kg)
	Plastic bags & film	4.1% (±1.1%)	0.74 kg (±0.20 kg)
	Other non-recyclable plastic	3.4% (±2.5%)	0.62 kg (±0.46 kg)
	Subtotal	9.5% (±3.2%)	1.74 kg (±0.58 kg)
Organics	Kitchen/food waste	25.6% (±9.8%)	4.67 kg (±1.78 kg)
	Greenwaste	30.3% (±29.2%)	5.53 kg (±5.34 kg)
	Other organic	2.6% (±2.9%)	0.47 kg (±0.52 kg)
	Subtotal	58.5% (±28.9%)	10.67 kg (±5.27 kg)
Ferrous metals	Steel cans	0.6% (±0.3%)	0.11 kg (±0.06 kg)
	Other steel	0.9% (±1.6%)	0.16 kg (±0.29 kg)
	Subtotal	1.5% (±1.6%)	0.27 kg (±0.29 kg)
Non-ferrous metals	Aluminium cans	0.4% (±0.7%)	0.08 kg (±0.12 kg)
	Other non-ferrous	0.5% (±0.4%)	0.08 kg (±0.08 kg)
	Subtotal	0.9% (±0.7%)	0.16 kg (±0.13 kg)
Glass	Bottles/jars	2.2% (±2.5%)	0.40 kg (±0.46 kg)
	Non-recyclable glass	0.3% (±0.3%)	0.06 kg (±0.05 kg)
	Subtotal	2.5% (±2.5%)	0.45 kg (±0.46 kg)
Textiles	Clothing/textiles	1.9% (±3.4%)	0.35 kg (±0.62 kg)
	Multimaterial/other	1.8% (±2.6%)	0.33 kg (±0.48 kg)
	Subtotal	3.7% (±4.3%)	0.68 kg (±0.79 kg)
Sanitary paper		9.2% (±10.6%)	1.68 kg (±1.93 kg)
Rubble		4.2% (±9.3%)	0.77 kg (±1.70 kg)
Timber		1.5% (±2.2%)	0.27 kg (±0.40 kg)
Rubber		0.2% (±0.3%)	0.03 kg (±0.06 kg)
Potentially hazardous	Household hazardous	1.0% (±2.0%)	0.19 kg (±0.36 kg)
	Other hazardous	0.3% (±0.8%)	0.06 kg (±0.14 kg)
	Subtotal	1.3% (±2.1%)	0.24 kg (±0.38 kg)
TOTAL		100.0%	18.25 kg (±5.68 kg)

Appendix 8 – Combined kerbside waste collections

Kāpiti Coast District - Combined kerbside waste - Rubbish bags and wheelie bins combined 11-15 September 2017 (Margins of error for 95% confidence level)		% of total weight	Tonnes per week
Paper	Recyclable	6.3%	19 T/week
	Non-recyclable paper	2.0%	6 T/week
	Subtotal	8.3%	24 T/week
Plastics	# 1-7 containers	2.0%	6 T/week
	Plastic bags & film	5.3%	15 T/week
	Other non-recyclable plastic	2.8%	8 T/week
	Subtotal	10.1%	30 T/week
Organics	Kitchen/food waste	27.8%	82 T/week
	Greenwaste	24.3%	72 T/week
	Other organic	3.6%	11 T/week
	Subtotal	55.7%	164 T/week
Ferrous metals	Steel cans	0.7%	2 T/week
	Other steel	1.0%	3 T/week
	Subtotal	1.7%	5 T/week
Non-ferrous metals	Aluminium cans	0.3%	1 T/week
	Other non-ferrous	0.6%	2 T/week
	Subtotal	0.9%	3 T/week
Glass	Bottles/jars	3.0%	9 T/week
	Non-recyclable glass	0.5%	1 T/week
	Subtotal	3.4%	10 T/week
Textiles	Clothing/textiles	1.9%	6 T/week
	Multimaterial/other	1.8%	5 T/week
	Subtotal	3.7%	11 T/week
Sanitary paper		9.4%	28 T/week
Rubble		3.8%	11 T/week
Timber		1.4%	4 T/week
Rubber		0.2%	1 T/week
Potentially hazardous	Household hazardous	1.0%	3 T/week
	Other hazardous	0.3%	1 T/week
	Subtotal	1.3%	4 T/week
TOTAL		100.0%	294 T/week

Appendix 9 - Otaihanga RRF general waste - by activity source

Otaihanga RRF - General waste by activity source Excludes kerbside waste % of total 20 August - 16 September 2017		C&D	ICI	Landscaping	Residential
Paper	Recyclable	0.2%	5.6%	0.3%	2.9%
	Cardboard	2.7%	7.7%	0.0%	6.4%
	Non-recyclable	0.3%	1.0%	0.1%	0.3%
	Subtotal	3.2%	14.2%	0.4%	9.6%
Plastics	Recyclable	0.0%	0.9%	0.1%	0.2%
	Non-recyclable	5.0%	14.5%	1.9%	7.4%
	Subtotal	5.0%	15.5%	2.0%	7.6%
Organics	Kitchen/food waste	0.0%	6.6%	1.4%	3.1%
	Comp. greenwaste	0.6%	1.9%	41.9%	4.7%
	Non-comp. greenwaste	0.1%	0.8%	25.8%	0.1%
	Other organic	0.0%	1.7%	0.1%	0.2%
	Subtotal	0.7%	11.0%	69.2%	8.1%
Ferrous metals	Primarily ferrous	0.5%	1.4%	0.0%	2.7%
	Multi/other	0.1%	2.2%	0.1%	5.3%
	Subtotal	0.6%	3.6%	0.1%	8.0%
Non-ferrous metals		0.1%	2.1%	0.0%	0.8%
Glass	Recyclable	0.0%	1.5%	0.0%	0.5%
	Non-recyclable	0.3%	2.9%	0.0%	1.4%
	Subtotal	0.3%	4.4%	0.0%	1.9%
Textiles	Clothing/textile	0.0%	3.4%	0.1%	8.1%
	Multimaterial/other	2.3%	10.4%	0.0%	12.5%
	Subtotal	2.3%	13.9%	0.1%	20.5%
Sanitary paper		0.0%	4.5%	0.5%	0.9%
Rubble	Cleanfill	21.1%	1.0%	10.2%	7.6%
	New plasterboard	5.8%	0.3%	0.0%	0.4%
	Other	20.9%	4.0%	0.2%	4.7%
	Subtotal	47.9%	5.3%	10.3%	12.8%
Timber	Reusable	1.3%	1.7%	0.0%	0.5%
	Unpainted & untreated	4.0%	2.9%	0.0%	2.9%
	Non-recoverable	34.6%	14.6%	17.3%	25.4%
	Subtotal	39.9%	19.2%	17.3%	28.8%
Rubber		0.0%	4.2%	0.0%	0.7%
Potentially hazardous		0.0%	2.1%	0.0%	0.2%
TOTAL		100.0%	100.0%	100.0%	100.0%

Otaihanga RRF - General waste by activity source Excludes kerbside waste Tonnes per week 20 August - 16 September 2017		C&D	ICI	Landscaping	Residential
Paper	Recyclable	0 T/week	5 T/week	0 T/week	1 T/week
	Cardboard	2 T/week	6 T/week	0 T/week	2 T/week
	Non-recyclable	0 T/week	1 T/week	0 T/week	0 T/week
	Subtotal	3 T/week	12 T/week	0 T/week	3 T/week
Plastics	Recyclable	0 T/week	1 T/week	0 T/week	0 T/week
	Non-recyclable	4 T/week	12 T/week	0 T/week	2 T/week
	Subtotal	4 T/week	13 T/week	0 T/week	2 T/week
Organics	Kitchen/food waste	0 T/week	6 T/week	0 T/week	1 T/week
	Comp. greenwaste	0 T/week	2 T/week	6 T/week	1 T/week
	Non-comp. greenwaste	0 T/week	1 T/week	4 T/week	0 T/week
	Other organic	0 T/week	1 T/week	0 T/week	0 T/week
	Subtotal	1 T/week	9 T/week	11 T/week	2 T/week
Ferrous metals	Primarily ferrous	0 T/week	1 T/week	0 T/week	1 T/week
	Multi/other	0 T/week	2 T/week	0 T/week	1 T/week
	Subtotal	0 T/week	3 T/week	0 T/week	2 T/week
Non-ferrous metals		0 T/week	2 T/week	0 T/week	0 T/week
Glass	Recyclable	0 T/week	1 T/week	0 T/week	0 T/week
	Non-recyclable	0 T/week	2 T/week	0 T/week	0 T/week
	Subtotal	0 T/week	4 T/week	0 T/week	1 T/week
Textiles	Clothing/textile	0 T/week	3 T/week	0 T/week	2 T/week
	Multimaterial/other	2 T/week	9 T/week	0 T/week	3 T/week
	Subtotal	2 T/week	11 T/week	0 T/week	6 T/week
Sanitary paper		0 T/week	4 T/week	0 T/week	0 T/week
Rubble	Cleanfill	18 T/week	1 T/week	2 T/week	2 T/week
	New plasterboard	5 T/week	0 T/week	0 T/week	0 T/week
	Other	18 T/week	3 T/week	0 T/week	1 T/week
	Subtotal	40 T/week	4 T/week	2 T/week	3 T/week
Timber	Reusable	1 T/week	1 T/week	0 T/week	0 T/week
	Unpainted & untreated	3 T/week	2 T/week	0 T/week	1 T/week
	Non-recoverable	29 T/week	12 T/week	3 T/week	7 T/week
	Subtotal	33 T/week	16 T/week	3 T/week	8 T/week
Rubber		0 T/week	3 T/week	0 T/week	0 T/week
Potentially hazardous		0 T/week	2 T/week	0 T/week	0 T/week
TOTAL		84 T/week	83 T/week	15 T/week	27 T/week

Appendix 10 - Otaihanga RRF general waste - by vehicle type

Otaihanga RRF - General waste composition by vehicle type Excludes kerbside waste 20 August - 16 September 2017		Cars	Front-loaders	Gantry trucks	Other trucks	Trailer
Paper	Recyclable	4.5%	6.9%	0.6%	0.0%	1.4%
	Cardboard	5.2%	9.2%	3.3%	0.0%	4.4%
	Non-recyclable	0.7%	1.1%	0.2%	0.0%	0.3%
	Subtotal	10.4%	17.2%	4.1%	0.0%	6.1%
Plastics	Recyclable	0.5%	1.1%	0.0%	0.0%	0.1%
	Non-recyclable	15.1%	17.2%	6.2%	1.4%	5.4%
	Subtotal	15.6%	18.3%	6.2%	1.4%	5.5%
Organics	Kitchen/food waste	13.7%	8.2%	0.3%	0.0%	0.9%
	Compostable greenwaste	4.9%	1.0%	7.0%	8.9%	3.5%
	Non-compostable greenwaste	0.3%	1.0%	0.6%	15.0%	0.4%
	Other organic	0.6%	2.3%	0.0%	0.0%	0.1%
	Subtotal	19.6%	12.4%	7.9%	23.9%	4.8%
Ferrous metals	Primarily ferrous	1.5%	1.1%	1.8%	0.0%	0.7%
	Multi/other	4.0%	2.3%	0.9%	1.8%	1.4%
	Subtotal	5.5%	3.4%	2.7%	1.8%	2.1%
Non-ferrous metals		1.0%	1.1%	0.2%	4.1%	0.3%
Glass	Recyclable	0.4%	1.7%	0.0%	0.0%	0.2%
	Non-recyclable	0.6%	2.3%	0.2%	4.1%	1.0%
	Subtotal	1.0%	4.0%	0.2%	4.1%	1.2%
Textiles	Clothing/textile	1.9%	4.6%	2.9%	0.0%	0.4%
	Multimaterial/other	9.1%	5.7%	6.6%	5.1%	8.6%
	Subtotal	11.0%	10.3%	9.4%	5.1%	9.0%
Sanitary paper		3.8%	5.7%	0.1%	0.0%	0.4%
Rubble	Cleanfill	1.8%	1.1%	11.5%	37.0%	9.8%
	New plasterboard	0.8%	0.0%	5.1%	0.0%	3.5%
	Other	4.5%	4.6%	16.9%	0.0%	15.3%
	Subtotal	7.1%	5.7%	33.4%	37.0%	28.6%
Timber	Reusable	0.7%	2.3%	0.3%	0.0%	1.9%
	Unpainted & untreated	0.5%	4.0%	1.1%	0.0%	6.4%
	Non-recoverable	22.8%	6.9%	33.9%	22.5%	33.5%
	Subtotal	24.1%	13.2%	35.4%	22.5%	41.8%
Rubber		0.6%	5.7%	0.2%	0.0%	0.1%
Potentially hazardous		0.5%	2.9%	0.0%	0.0%	0.1%
TOTAL		100.0%	100.0%	100.0%	100.0%	100.0%

Appendix 11 - Otaihanga RRF - Annual composition

Otaihanga RRF - All waste to landfill Composition for 20 August - 16 September 2017		% of total weight	Tonnes/annum Sept. 16 - Aug. 17 (indicative only)
Paper	Recyclable	4.2%	876 T/annum
	Cardboard	2.8%	599 T/annum
	Non-recyclable	1.2%	263 T/annum
	Subtotal	8.2%	1,738 T/annum
Plastics	Recyclable	1.2%	250 T/annum
	Non-recyclable	8.5%	1,790 T/annum
	Subtotal	9.7%	2,040 T/annum
Organics	Kitchen/food waste	15.1%	3,195 T/annum
	Compostable greenwaste	13.1%	2,754 T/annum
	Non-compostable greenwaste	2.4%	496 T/annum
	Other organic	2.1%	448 T/annum
	Subtotal	32.7%	6,893 T/annum
Ferrous metals	Primarily ferrous	0.9%	194 T/annum
	Multi/other	1.3%	280 T/annum
	Subtotal	2.2%	474 T/annum
Non-ferrous metals		0.9%	194 T/annum
Glass	Recyclable	1.8%	375 T/annum
	Non-recyclable	1.0%	208 T/annum
	Subtotal	2.8%	583 T/annum
Textiles	Clothing/textile	2.1%	452 T/annum
	Multimaterial/other	4.3%	908 T/annum
	Subtotal	6.4%	1,361 T/annum
Sanitary paper		5.6%	1,181 T/annum
Rubble	Cleanfill	6.4%	1,345 T/annum
	New plasterboard	1.3%	271 T/annum
	Other	6.4%	1,346 T/annum
	Subtotal	14.0%	2,961 T/annum
Timber	Reusable	0.6%	136 T/annum
	Unpainted & untreated	1.6%	339 T/annum
	Non-recoverable	13.1%	2,759 T/annum
	Subtotal	15.3%	3,234 T/annum
Rubber		1.0%	210 T/annum
Potentially hazardous		1.1%	228 T/annum
TOTAL		100.0%	21,099 T/annum

Appendix 12 - Ōtaki Transfer Station general waste - by activity source

Ōtaki Transfer Station - General waste by activity source Excludes kerbside waste % of total 20 August - 16 September 2017		C&D	ICI	Landscaping	Residential
Paper	Recyclable	0.3%	3.3%	1.6%	2.9%
	Cardboard	3.1%	6.3%	0.1%	4.5%
	Non-recyclable	0.1%	0.9%	0.2%	0.5%
	Subtotal	3.5%	10.5%	1.9%	7.9%
Plastics	Recyclable	0.0%	0.9%	0.2%	0.5%
	Non-recyclable	2.1%	31.8%	2.0%	10.6%
	Subtotal	2.1%	32.7%	2.2%	11.1%
Organics	Kitchen/food waste	0.0%	7.1%	6.4%	9.8%
	Comp. greenwaste	2.6%	0.2%	49.3%	5.3%
	Non-comp. greenwaste	0.0%	0.2%	36.2%	0.2%
	Other organic	0.0%	3.8%	0.2%	1.3%
	Subtotal	2.6%	11.2%	92.1%	16.5%
Ferrous metals	Primarily ferrous	3.1%	1.2%	0.2%	1.8%
	Multi/other	0.3%	2.1%	0.2%	2.9%
	Subtotal	3.4%	3.4%	0.3%	4.7%
Non-ferrous metals		0.0%	1.1%	0.2%	0.9%
Glass	Recyclable	0.0%	0.8%	0.2%	1.6%
	Non-recyclable	0.0%	1.2%	0.2%	2.5%
	Subtotal	0.0%	2.1%	0.3%	4.1%
Textiles	Clothing/textile	0.0%	1.3%	0.3%	2.6%
	Multimaterial/other	0.2%	4.9%	0.3%	27.0%
	Subtotal	0.2%	6.2%	0.7%	29.6%
Sanitary paper		0.0%	4.6%	1.7%	3.2%
Rubble	Cleanfill	15.2%	0.0%	0.0%	1.7%
	New plasterboard	0.0%	0.0%	0.0%	0.0%
	Other	21.5%	6.7%	0.2%	5.1%
	Subtotal	36.7%	6.7%	0.2%	6.8%
Timber	Reusable	0.0%	0.0%	0.0%	0.1%
	Unpainted & untreated	0.3%	0.0%	0.0%	0.1%
	Non-recoverable	51.3%	17.2%	0.2%	13.3%
	Subtotal	51.5%	17.2%	0.2%	13.5%
Rubber		0.0%	2.6%	0.2%	1.0%
Potentially hazardous		0.0%	1.7%	0.2%	0.7%
TOTAL		100.0%	100.0%	100.0%	100.0%

Ōtaki Transfer Station - General waste by activity source Excludes kerbside waste Tonnes per week 20 August - 16 September 2017		C&D	ICI	Landscaping	Residential
Paper	Recyclable	0.0 T/week	1.2 T/week	0.0 T/week	0.2 T/week
	Cardboard	0.5 T/week	2.2 T/week	0.0 T/week	0.3 T/week
	Non-recyclable	0.0 T/week	0.3 T/week	0.0 T/week	0.0 T/week
	Subtotal	0.5 T/week	3.7 T/week	0.0 T/week	0.6 T/week
Plastics	Recyclable	0.0 T/week	0.3 T/week	0.0 T/week	0.0 T/week
	Non-recyclable	0.3 T/week	11.3 T/week	0.0 T/week	0.8 T/week
	Subtotal	0.3 T/week	11.6 T/week	0.0 T/week	0.9 T/week
Organics	Kitchen/food waste	0.0 T/week	2.5 T/week	0.0 T/week	0.8 T/week
	Comp. greenwaste	0.4 T/week	0.1 T/week	0.1 T/week	0.4 T/week
	Non-comp. greenwaste	0.0 T/week	0.1 T/week	0.0 T/week	0.0 T/week
	Other organic	0.0 T/week	1.3 T/week	0.0 T/week	0.1 T/week
	Subtotal	0.4 T/week	4.0 T/week	0.1 T/week	1.3 T/week
Ferrous metals	Primarily ferrous	0.4 T/week	0.4 T/week	0.0 T/week	0.1 T/week
	Multi/other	0.0 T/week	0.7 T/week	0.0 T/week	0.2 T/week
	Subtotal	0.5 T/week	1.2 T/week	0.0 T/week	0.4 T/week
Non-ferrous metals		0.0 T/week	0.4 T/week	0.0 T/week	0.1 T/week
Glass	Recyclable	0.0 T/week	0.3 T/week	0.0 T/week	0.1 T/week
	Non-recyclable	0.0 T/week	0.4 T/week	0.0 T/week	0.2 T/week
	Subtotal	0.0 T/week	0.7 T/week	0.0 T/week	0.3 T/week
Textiles	Clothing/textile	0.0 T/week	0.5 T/week	0.0 T/week	0.2 T/week
	Multimaterial/other	0.0 T/week	1.7 T/week	0.0 T/week	2.1 T/week
	Subtotal	0.0 T/week	2.2 T/week	0.0 T/week	2.3 T/week
Sanitary paper		0.0 T/week	1.6 T/week	0.0 T/week	0.2 T/week
Rubble	Cleanfill	2.2 T/week	0.0 T/week	0.0 T/week	0.1 T/week
	New plasterboard	0.0 T/week	0.0 T/week	0.0 T/week	0.0 T/week
	Other	3.1 T/week	2.4 T/week	0.0 T/week	0.4 T/week
	Subtotal	5.3 T/week	2.4 T/week	0.0 T/week	0.5 T/week
Timber	Reusable	0.0 T/week	0.0 T/week	0.0 T/week	0.0 T/week
	Unpainted & untreated	0.0 T/week	0.0 T/week	0.0 T/week	0.0 T/week
	Non-recoverable	7.4 T/week	6.1 T/week	0.0 T/week	1.0 T/week
	Subtotal	7.4 T/week	6.1 T/week	0.0 T/week	1.0 T/week
Rubber		0.0 T/week	0.9 T/week	0.0 T/week	0.1 T/week
Potentially hazardous		0.0 T/week	0.6 T/week	0.0 T/week	0.1 T/week
TOTAL		14.4 T/week	35.4 T/week	0.1 T/week	7.7 T/week

Appendix 13 - Ōtaki Transfer Station general waste - by vehicle type

Ōtaki Transfer Station - General waste composition by vehicle type Excludes kerbside waste 20 August - 16 September 2017		Cars	Front-loaders	Gantry trucks	Trailer
Paper	Recyclable	7.5%	2.3%	0.8%	4.0%
	Cardboard	1.4%	6.0%	4.1%	5.3%
	Non-recyclable	0.8%	1.0%	0.1%	0.2%
	Subtotal	9.7%	9.3%	5.0%	9.5%
Plastics	Recyclable	0.8%	1.0%	0.1%	0.1%
	Non-recyclable	13.4%	26.3%	3.4%	29.7%
	Subtotal	14.2%	27.2%	3.6%	29.8%
Organics	Kitchen/food waste	29.4%	8.4%	1.5%	0.7%
	Compostable greenwaste	15.1%	0.2%	2.8%	1.6%
	Non-compostable greenwaste	3.3%	0.2%	0.0%	0.0%
	Other organic	0.9%	4.5%	0.6%	0.0%
	Subtotal	48.6%	13.4%	4.9%	2.3%
Ferrous metals	Primarily ferrous	2.8%	1.5%	3.3%	0.8%
	Multi/other	0.8%	2.5%	0.6%	1.3%
	Subtotal	3.6%	4.0%	3.9%	2.1%
Non-ferrous metals		0.8%	1.3%	0.1%	0.3%
Glass	Recyclable	2.4%	0.9%	0.6%	0.1%
	Non-recyclable	0.7%	1.5%	0.3%	1.1%
	Subtotal	3.1%	2.4%	0.9%	1.2%
Textiles	Clothing/textile	1.5%	1.5%	0.6%	0.8%
	Multimaterial/other	2.4%	5.0%	7.4%	10.3%
	Subtotal	3.9%	6.5%	8.0%	11.1%
Sanitary paper		7.8%	5.3%	0.7%	0.8%
Rubble	Cleanfill	0.0%	0.0%	16.3%	1.5%
	New plasterboard	0.0%	0.0%	0.0%	0.0%
	Other	3.0%	4.8%	21.4%	12.0%
	Subtotal	3.0%	4.8%	37.7%	13.5%
Timber	Reusable	0.0%	0.0%	0.0%	0.0%
	Unpainted & untreated	0.0%	0.0%	0.0%	0.3%
	Non-recoverable	3.7%	20.7%	34.6%	28.6%
	Subtotal	3.7%	20.7%	34.6%	29.0%
Rubber		0.7%	3.1%	0.4%	0.1%
Potentially hazardous		0.8%	2.0%	0.1%	0.2%
TOTAL		100.0%	100.0%	100.0%	100.0%

Appendix 14 - Otaki Transfer Station - Annual composition

Otaki Transfer Station - All waste to landfill 20 August - 16 September 2017		% of total weight	Tonnes/annum Sept. 16 - Aug. 17 (indicative only)
Paper	Recyclable	4.5%	326 T/annum
	Cardboard	2.4%	172 T/annum
	Non-recyclable	1.5%	108 T/annum
	Subtotal	8.3%	606 T/annum
Plastics	Recyclable	1.5%	107 T/annum
	Non-recyclable	13.1%	953 T/annum
	Subtotal	14.6%	1,060 T/annum
Organics	Kitchen/food waste	19.5%	1,418 T/annum
	Compostable greenwaste	14.3%	1,038 T/annum
	Non-compostable greenwaste	1.6%	116 T/annum
	Other organic	3.2%	233 T/annum
	Subtotal	38.6%	2,805 T/annum
Ferrous metals	Primarily ferrous	1.1%	81 T/annum
	Multi/other	1.3%	95 T/annum
	Subtotal	2.4%	175 T/annum
Non-ferrous metals		0.8%	60 T/annum
Glass	Recyclable	2.1%	154 T/annum
	Non-recyclable	0.7%	52 T/annum
	Subtotal	2.8%	206 T/annum
Textiles	Clothing/textile	1.6%	117 T/annum
	Multimaterial/other	3.6%	264 T/annum
	Subtotal	5.2%	381 T/annum
Sanitary paper		7.1%	519 T/annum
Rubble	Cleanfill	2.7%	198 T/annum
	New plasterboard	0.0%	0 T/annum
	Other	5.0%	364 T/annum
	Subtotal	7.7%	562 T/annum
Timber	Reusable	0.0%	0 T/annum
	Unpainted & untreated	0.0%	2 T/annum
	Non-recoverable	10.3%	748 T/annum
	Subtotal	10.3%	751 T/annum
Rubber		0.8%	56 T/annum
Potentially hazardous		1.2%	91 T/annum
TOTAL		100.0%	7,273 T/annum

Appendix 15 - All waste to landfill - Annual tonnages

All waste to landfill - Otaihanga RRF & Otaki Transfer Station combined - September 2016 - August 2017		General waste (excludes kerbside waste)		Overall waste (includes kerbside waste)	
		% of total	T/annum (Indicative only)	% of total	T/annum (Indicative only)
Paper	Recyclable	2.7%	358 T/annum	4.2%	1,205 T/annum
	Cardboard	5.0%	674 T/annum	2.7%	768 T/annum
	Non-recyclable	0.6%	76 T/annum	1.3%	372 T/annum
	Subtotal	8.2%	1,109 T/annum	8.3%	2,345 T/annum
Plastics	Recyclable	0.4%	60 T/annum	1.3%	359 T/annum
	Non-recyclable	11.6%	1,564 T/annum	9.8%	2,767 T/annum
	Subtotal	12.0%	1,624 T/annum	11.0%	3,125 T/annum
Organics	Kitchen/food waste	3.7%	499 T/annum	16.3%	4,635 T/annum
	Comp. greenwaste	4.0%	539 T/annum	13.4%	3,798 T/annum
	Non-comp. greenwaste	1.8%	246 T/annum	2.1%	608 T/annum
	Other organic	1.1%	146 T/annum	2.4%	686 T/annum
	Subtotal	10.6%	1,429 T/annum	34.3%	9,728 T/annum
Ferrous metals	Primarily ferrous	1.3%	169 T/annum	1.0%	276 T/annum
	Multi/other	1.6%	222 T/annum	1.3%	374 T/annum
	Subtotal	2.9%	391 T/annum	2.3%	650 T/annum
Non-ferrous metals		0.9%	127 T/annum	0.9%	254 T/annum
Glass	Recyclable	0.7%	90 T/annum	1.9%	531 T/annum
	Non-recyclable	1.4%	186 T/annum	0.9%	259 T/annum
	Subtotal	2.0%	276 T/annum	2.8%	790 T/annum
Textiles	Clothing/textile	2.1%	287 T/annum	2.0%	566 T/annum
	Multimaterial/other	6.7%	901 T/annum	4.1%	1,169 T/annum
	Subtotal	8.8%	1,188 T/annum	6.1%	1,735 T/annum
Sanitary paper		2.2%	301 T/annum	6.0%	1,708 T/annum
Rubble	Cleanfill	9.2%	1,238 T/annum	5.4%	1,524 T/annum
	New plasterboard	2.0%	264 T/annum	0.9%	264 T/annum
	Other	10.5%	1,417 T/annum	6.0%	1,703 T/annum
	Subtotal	21.7%	2,919 T/annum	12.3%	3,491 T/annum
Timber	Reusable	1.0%	133 T/annum	0.5%	133 T/annum
	Unpainted & untreated	2.5%	334 T/annum	1.2%	334 T/annum
	Non-recoverable	24.4%	3,290 T/annum	12.3%	3,493 T/annum
	Subtotal	27.9%	3,757 T/annum	14.0%	3,960 T/annum
Rubber		1.7%	234 T/annum	0.9%	266 T/annum
Potentially hazardous		0.9%	124 T/annum	1.1%	319 T/annum
TOTAL		100.0%	13,479 T/annum	100.0%	28,371 T/annum

Appendix 16 - All general waste - by activity source

All general waste to landfill - Otaihanga RRF & Otaki Transfer Station combined - By activity source - Excludes kerbside waste % of total 20 Aug. - 16 Sept. 2017		C&D	ICI	Landscaping	Residential
Paper	Recyclable	0.2%	4.9%	0.3%	2.9%
	Cardboard	2.7%	7.3%	0.0%	6.0%
	Non-recyclable	0.2%	1.0%	0.1%	0.3%
	Subtotal	3.2%	13.1%	0.4%	9.2%
Plastics	Recyclable	0.0%	0.9%	0.1%	0.3%
	Non-recyclable	4.6%	19.7%	1.9%	8.1%
	Subtotal	4.6%	20.6%	2.0%	8.4%
Organics	Kitchen/food waste	0.0%	6.8%	1.5%	4.6%
	Comp. greenwaste	0.8%	1.4%	42.0%	4.9%
	Non-comp. greenwaste	0.1%	0.6%	25.8%	0.1%
	Other organic	0.0%	2.3%	0.1%	0.4%
	Subtotal	1.0%	11.1%	69.4%	10.0%
Ferrous metals	Primarily ferrous	0.9%	1.4%	0.0%	2.5%
	Multi/other	0.1%	2.2%	0.1%	4.8%
	Subtotal	1.0%	3.6%	0.1%	7.3%
Non-ferrous metals		0.1%	1.8%	0.0%	0.9%
Glass	Recyclable	0.0%	1.3%	0.0%	0.7%
	Non-recyclable	0.3%	2.4%	0.0%	1.7%
	Subtotal	0.3%	3.7%	0.0%	2.4%
Textiles	Clothing/textile	0.0%	2.8%	0.1%	6.8%
	Multimaterial/other	2.0%	8.8%	0.0%	15.7%
	Subtotal	2.0%	11.6%	0.1%	22.6%
Sanitary paper		0.0%	4.6%	0.5%	1.4%
Rubble	Cleanfill	20.2%	0.7%	10.1%	6.3%
	New plasterboard	5.0%	0.2%	0.0%	0.3%
	Other	21.0%	4.8%	0.2%	4.8%
	Subtotal	46.2%	5.7%	10.2%	11.5%
Timber	Reusable	1.1%	1.2%	0.0%	0.4%
	Unpainted & untreated	3.4%	2.1%	0.0%	2.3%
	Non-recoverable	37.0%	15.4%	17.2%	22.7%
	Subtotal	41.6%	18.6%	17.2%	25.4%
Rubber		0.0%	3.7%	0.0%	0.7%
Potentially hazardous		0.0%	2.0%	0.0%	0.3%
TOTAL		100.0%	100.0%	100.0%	100.0%

All general waste to landfill - Otaihanga RRF & Otaki Transfer Station combined - By activity source - Excludes kerbside waste Tonnes per week 20 Aug. - 16 Sept. 2017		C&D	ICI	Landscaping	Residential
Paper	Recyclable	0.2 T/week	5.8 T/week	0.0 T/week	1.0 T/week
	Cardboard	2.7 T/week	8.6 T/week	0.0 T/week	2.1 T/week
	Non-recyclable	0.2 T/week	1.1 T/week	0.0 T/week	0.1 T/week
	Subtotal	3.2 T/week	15.5 T/week	0.1 T/week	3.2 T/week
Plastics	Recyclable	0.0 T/week	1.1 T/week	0.0 T/week	0.1 T/week
	Non-recyclable	4.5 T/week	23.3 T/week	0.3 T/week	2.8 T/week
	Subtotal	4.5 T/week	24.4 T/week	0.3 T/week	2.9 T/week
Organics	Kitchen/food waste	0.0 T/week	8.0 T/week	0.2 T/week	1.6 T/week
	Comp. greenwaste	0.8 T/week	1.6 T/week	6.5 T/week	1.7 T/week
	Non-comp. greenwaste	0.1 T/week	0.7 T/week	4.0 T/week	0.0 T/week
	Other organic	0.0 T/week	2.7 T/week	0.0 T/week	0.1 T/week
	Subtotal	0.9 T/week	13.1 T/week	10.8 T/week	3.5 T/week
Ferrous metals	Primarily ferrous	0.9 T/week	1.6 T/week	0.0 T/week	0.9 T/week
	Multi/other	0.1 T/week	2.6 T/week	0.0 T/week	1.7 T/week
	Subtotal	1.0 T/week	4.2 T/week	0.0 T/week	2.5 T/week
Non-ferrous metals		0.1 T/week	2.1 T/week	0.0 T/week	0.3 T/week
Glass	Recyclable	0.0 T/week	1.5 T/week	0.0 T/week	0.3 T/week
	Non-recyclable	0.3 T/week	2.8 T/week	0.0 T/week	0.6 T/week
	Subtotal	0.3 T/week	4.3 T/week	0.0 T/week	0.8 T/week
Textiles	Clothing/textile	0.0 T/week	3.3 T/week	0.0 T/week	2.4 T/week
	Multimaterial/other	2.0 T/week	10.4 T/week	0.0 T/week	5.4 T/week
	Subtotal	2.0 T/week	13.7 T/week	0.0 T/week	7.8 T/week
Sanitary paper		0.0 T/week	5.4 T/week	0.1 T/week	0.5 T/week
Rubble	Cleanfill	19.9 T/week	0.8 T/week	1.6 T/week	2.2 T/week
	New plasterboard	4.9 T/week	0.2 T/week	0.0 T/week	0.1 T/week
	Other	20.6 T/week	5.7 T/week	0.0 T/week	1.7 T/week
	Subtotal	45.4 T/week	6.7 T/week	1.6 T/week	4.0 T/week
Timber	Reusable	1.1 T/week	1.4 T/week	0.0 T/week	0.1 T/week
	Unpainted & untreated	3.4 T/week	2.4 T/week	0.0 T/week	0.8 T/week
	Non-recoverable	36.4 T/week	18.2 T/week	2.7 T/week	7.9 T/week
	Subtotal	40.8 T/week	22.0 T/week	2.7 T/week	8.8 T/week
Rubber		0.0 T/week	4.4 T/week	0.0 T/week	0.3 T/week
Potentially hazardous		0.0 T/week	2.3 T/week	0.0 T/week	0.1 T/week
TOTAL		98.2 T/week	118.2 T/week	15.5 T/week	34.6 T/week

Appendix 17 - All general waste - by vehicle type

All general waste to landfill - Otaihangā RRF & Otaki Transfer Station combined - By vehicle type - Excludes compactors 20 Aug. - 16 Sept. 2017		Cars	Front-loaders	Gantry trucks	Other trucks	Trailer
Paper	Recyclable	5.3%	5.2%	0.6%	0.0%	2.0%
	Cardboard	4.1%	8.0%	3.4%	0.0%	4.6%
	Non-recyclable	0.7%	1.1%	0.2%	0.0%	0.2%
	Subtotal	10.2%	14.3%	4.2%	0.0%	6.9%
Plastics	Recyclable	0.6%	1.1%	0.1%	0.0%	0.1%
	Non-recyclable	14.6%	20.5%	5.9%	1.4%	11.1%
	Subtotal	15.2%	21.6%	5.9%	1.4%	11.2%
Organics	Kitchen/food waste	18.2%	8.3%	0.4%	0.0%	0.8%
	Compostable greenwaste	7.9%	0.7%	6.6%	8.9%	3.0%
	Non-compostable greenwaste	1.2%	0.7%	0.6%	15.0%	0.3%
	Other organic	0.7%	3.1%	0.1%	0.0%	0.1%
	Subtotal	27.9%	12.8%	7.6%	23.9%	4.2%
Ferrous metals	Primarily ferrous	1.9%	1.3%	1.9%	0.0%	0.7%
	Multi/other	3.1%	2.4%	0.9%	1.8%	1.4%
	Subtotal	4.9%	3.6%	2.8%	1.8%	2.1%
Non-ferrous metals		0.9%	1.2%	0.2%	4.1%	0.3%
Glass	Recyclable	1.0%	1.4%	0.1%	0.0%	0.2%
	Non-recyclable	0.6%	2.0%	0.2%	4.1%	1.0%
	Subtotal	1.6%	3.4%	0.3%	4.1%	1.2%
Textiles	Clothing/textile	1.8%	3.5%	2.6%	0.0%	0.5%
	Multimaterial/other	7.2%	5.4%	6.7%	5.1%	9.0%
	Subtotal	8.9%	8.9%	9.3%	5.1%	9.5%
Sanitary paper		5.0%	5.6%	0.2%	0.0%	0.5%
Rubble	Cleanfill	1.3%	0.7%	12.0%	37.0%	7.8%
	New plasterboard	0.5%	0.0%	4.5%	0.0%	2.7%
	Other	4.1%	4.6%	17.4%	0.0%	14.5%
	Subtotal	5.9%	5.4%	33.9%	37.0%	25.0%
Timber	Reusable	0.5%	1.5%	0.3%	0.0%	1.5%
	Unpainted & untreated	0.4%	2.5%	1.0%	0.0%	5.0%
	Non-recoverable	17.3%	11.9%	34.0%	22.5%	32.3%
	Subtotal	18.2%	15.9%	35.3%	22.5%	38.8%
Rubber		0.6%	4.8%	0.2%	0.0%	0.1%
Potentially hazardous		0.6%	2.6%	0.1%	0.0%	0.1%
TOTAL		100.0%	100.0%	100.0%	100.0%	100.0%