



West Coast Regional Waste Minimisation and Management Plan

Prepared for
Buller, Grey and Westland District Council
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Table of contents

1	Part A – Strategy	1
2	Introduction	2
3	The waste situation	3
3.1	Infrastructure and services	3
3.1.1	Collection	3
3.1.2	Waste transfer, processing and disposal	5
3.1.3	Landfills	8
3.1.4	Costs for waste management	8
3.2	Volume and composition of waste and diverted materials	11
3.2.1	Waste composition	11
3.2.2	Kerbside and self haul waste quantities	13
3.2.3	Collection and drop-off system performance	14
3.3	Summary of district-specific issues	16
3.3.1	Waste Infrastructure - Issues Identified (Section 2.5 of the Waste Assessment)	16
3.3.2	Waste data - issues and constraints (Section 3.6 of the Waste Assessment)	16
4	Policies, plans and regulation	18
4.1	Summary of guiding policies, plans and legislation that affect the WMMP	18
4.2	Statutory requirements	18
5	Vision, goals, objectives and targets	19
5.1	Background	19
5.2	Vision, goals, objectives and targets	20
5.3	Council’s intended role	23
5.4	Protecting public health	23
6	Options for achieving effective and efficient waste management and minimisation	24
6.1	Introduction	24
6.2	Identifying options	24
6.3	Options for the future	25
7	Funding the plan	28
7.1	Plan implementation funding	28
7.2	Grants and advances of monies	28
7.3	Waste minimisation levy expenditure	28
8	Monitoring, evaluating and reporting progress	29
8.1	Monitoring and evaluation	29
8.2	Reporting	30
9	Part B – Action Plan	31
10	Introduction	32
11	Funding structure [see also Part A, section 6]	33
11.1	Grants and advances of monies	33
11.2	Waste minimisation levy expenditure	33
12	Targets and measurement	34
13	Action plan (See also Section 5.3)	37
13.1	Action planning tables	39
14	Applicability	44

Appendix A : West Coast Regional Waste Assessment (2018)

1 Part A – Strategy

2 Introduction

Purpose of the plan

This draft Waste Minimisation and Management Plan (WMMP) sets out how the Council will progress efficient and effective waste management and minimisation in the West Coast Region. It paves the way forward, considering current policy and the legal framework and West Coast Region vision, with an overarching suite of guiding goals and objectives.

This WMMP fulfils each Council's obligations under the Waste Minimisation Act (WMA) (2008). The plan uses the waste hierarchy (Figure 1) as a guide to prioritising activity, focussing on reducing waste before recycling or recovery of materials. Where materials cannot be recycled or recovered the focus is on safe treatment and disposal.

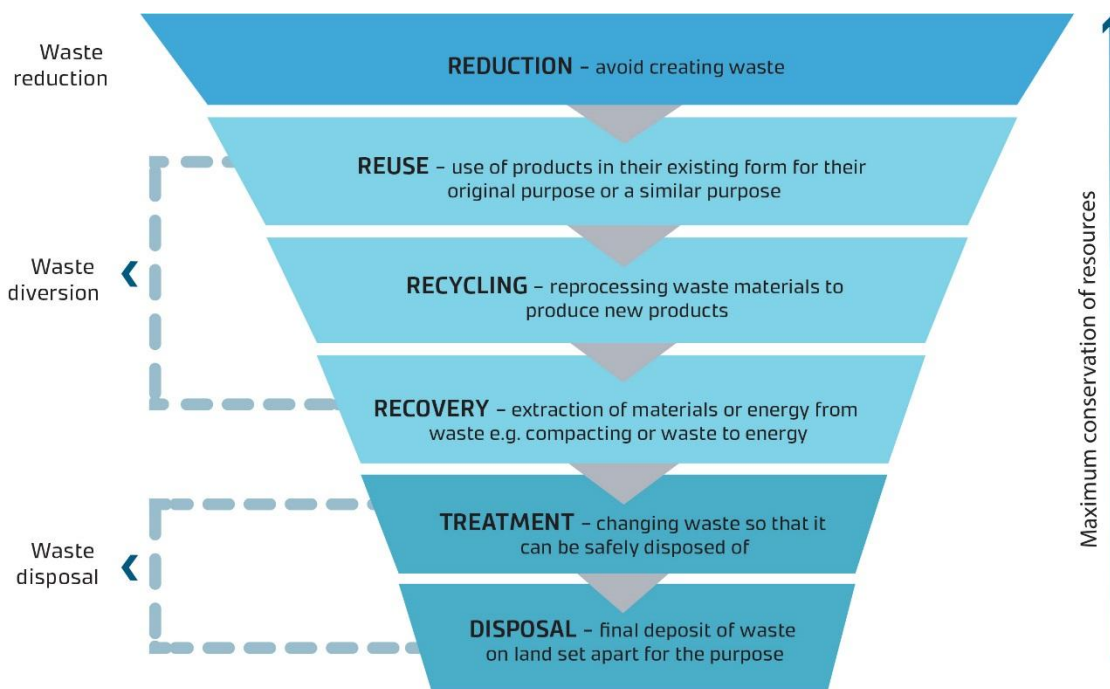


Figure 1: The Waste Hierarchy

Scope of plan

This draft WMMP and associated Waste Assessment covers solid waste generated in the West Coast Region.

Current status of plan

April 2018

This plan is the draft of a new plan developed to replace the three Council's 2012 WMMPs. This document will be revised and updated following public consultation prior to be adopted by Council as a framework and guide for waste minimisation and management activity in the West Coast Region from 2018 to 2024.

Plan Review

Once adopted this plan needs to be reviewed no later than 6 years from adoption. The plan will be review within this timeframe, earlier if a change circumstances provokes a review of the West Coast Region's waste minimisation and management policy framework.

3 The waste situation

3.1 Infrastructure and services

3.1.1 Collection

The collection system for each District is represented schematically in Error! Reference source not found., Error! Reference source not found. and Error! Reference source not found..

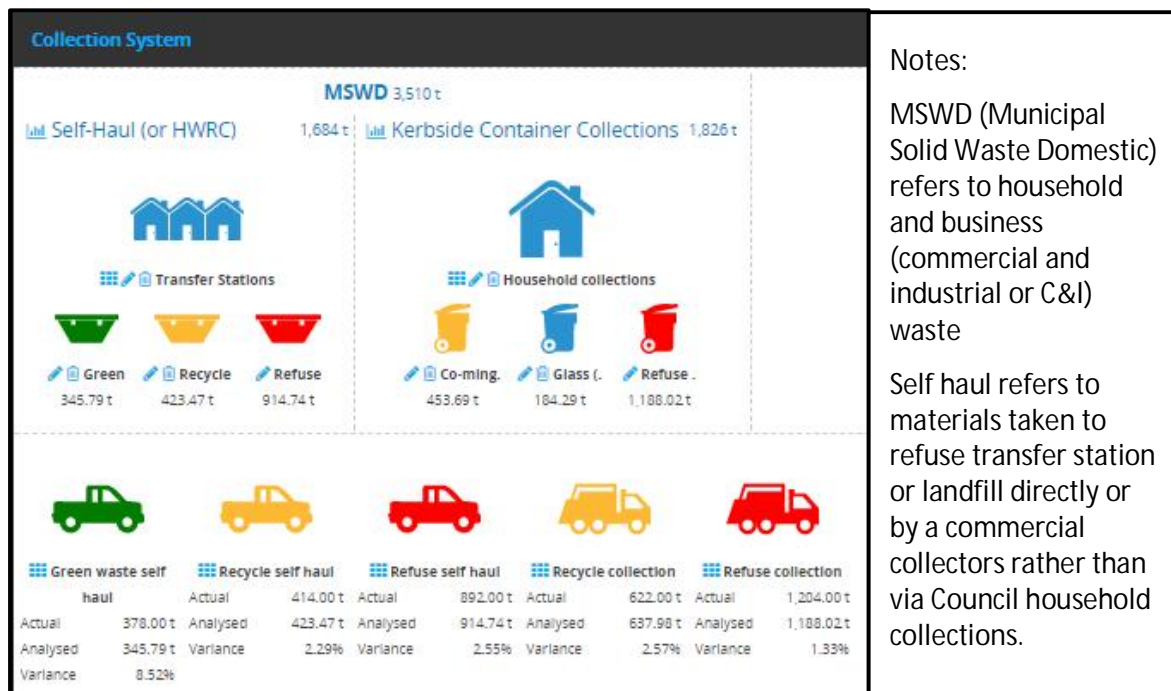


Figure 2: Buller District Waste Collection Systems

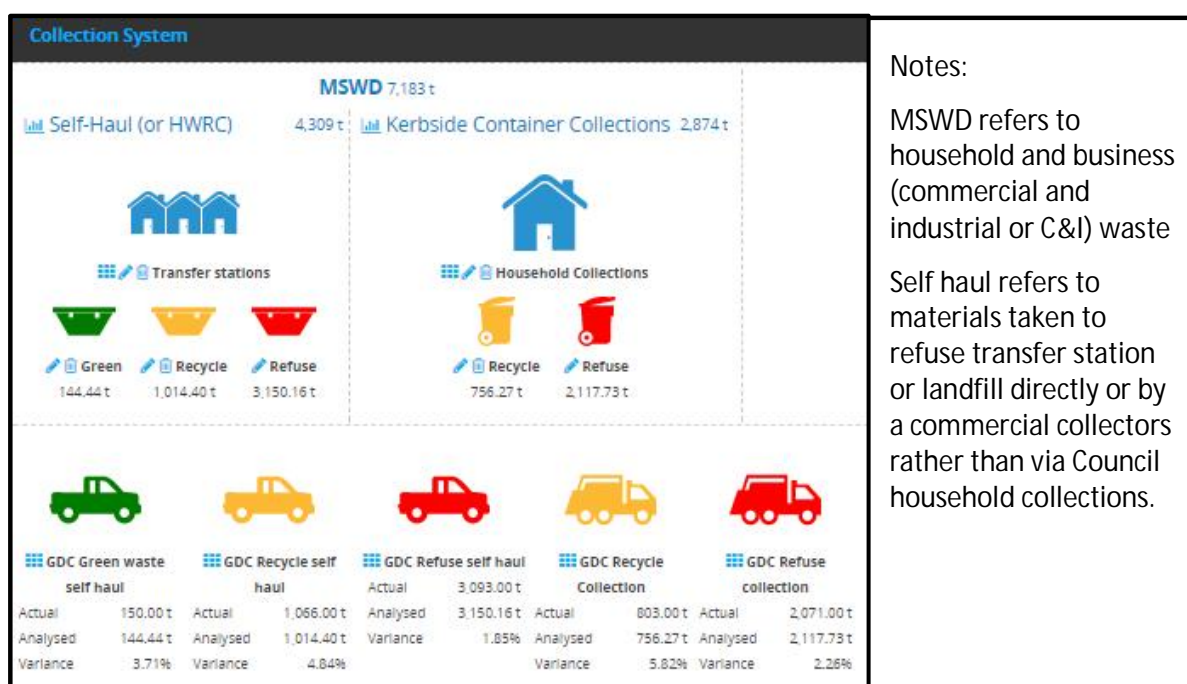
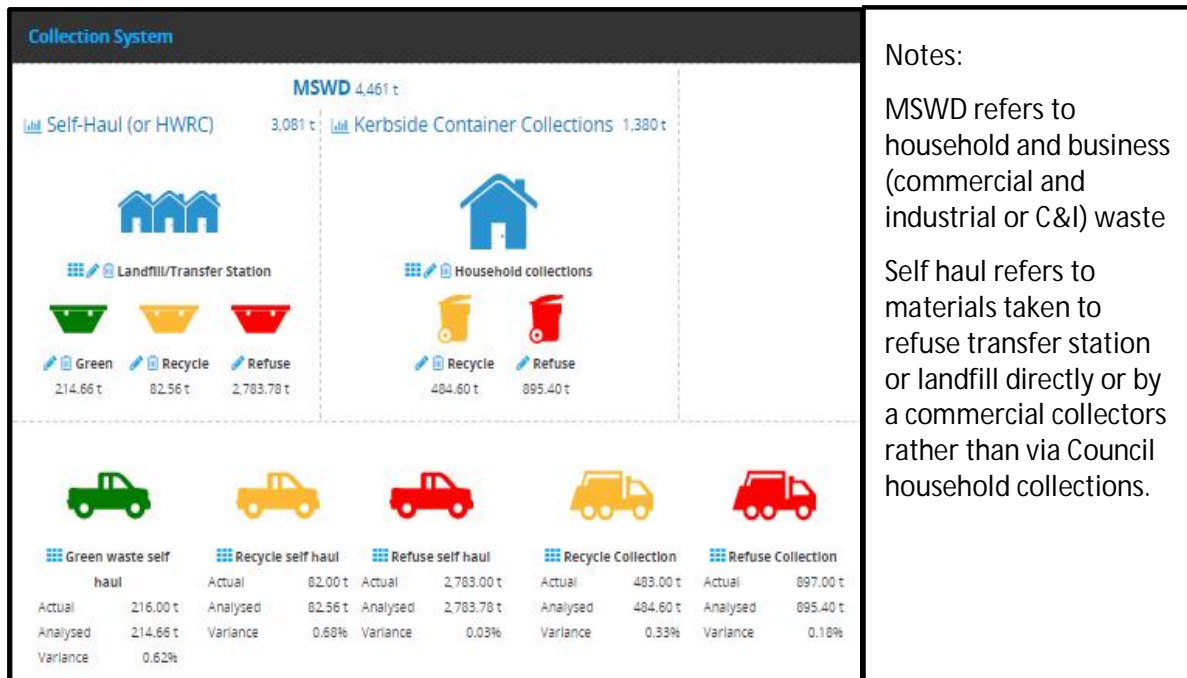


Figure 3: Grey District Waste Collection Systems



Notes:

MSWD refers to household and business (commercial and industrial or C&I) waste

Self haul refers to materials taken to refuse transfer station or landfill directly or by a commercial collectors rather than via Council household collections.

Figure 4: Westland District Waste Collection System

3.1.1.1 Waste from visitors to the region

The West Coast Region hosts a large number of international and domestic tourists. Self drive tourists are common (cars, campervans) as well as organised tours (coach, rail from Christchurch). In many areas tourism is the main driver of economic activity with an associated impact on waste generation. In addition to generating commercial waste (through hospitality businesses including restaurants and accommodation) many tourists make use of public place refuse and recycling facilities where available. There is some provision at nominated free camping locations but this is inconsistent across the Region.

3.1.1.2 Residential Collection

The three councils all provide residential collection services in parts of their districts with urban and many rural residents having access to both refuse and recycling collections at the roadside.

Kerbside refuse in Buller District is collected in compactor trucks and consolidated at the Westport Resource Recovery Park for transportation to Nelson. Households can use refuse bags (sold at a range of retail outlets) or use one of several commercial collection services. Council offer a two stream kerbside recycling service in all areas except Karamea and Maruia. Households have fortnightly collections of co-mingled materials (paper, cardboard, plastics and tins in a 240L MGB) and glass (in a 60L crate).

Kerbside refuse in the Grey District is collected in compactor trucks and disposed of at McLean's Landfill near Greymouth. Households in Greymouth and the surrounding area are provided with 120L MGB for refuse (collected fortnightly). The remainder of the district is supplied with 52 ties per year that can be used with any standard sized refuse bag. Council offer a single stream kerbside recycling service in Greymouth and surrounding areas. Households are supplied with a 240L MGB that is collected fortnightly. No kerbside recycling service is provided outside Greymouth and surrounds.

Kerbside refuse in the Westland District is collected in compactor trucks and disposed of at Butlers Landfill near Hokitika. Households in Hokitika, Kumara, Ross and connecting roads are provided with 120L MGB for refuse (collected fortnightly). Council offer a single stream kerbside recycling service (excluding glass) in the same areas. Households are supplied with a 240L MGB that is collected fortnightly. No kerbside recycling service is provided outside Hokitika, Kumara and Ross.

3.1.1.3 Commercial or Industrial Waste

Waste (both refuse and recycling) from commercial and industrial premises is currently collected and disposed of via the various Resource Centres, Resource Recovery Parks and transfer station across the region. For materials collected for recycling or treatment or disposal out of the region (e.g. paper/card or plastic film from retailers) no data is available. Many national businesses with a local presence have comprehensive waste management and recycling systems in place, for example Countdown, the Warehouse and Foodstuffs all operate waste management systems where some material is recovered and recycled (paper and cardboard), organic material (food waste) is diverted to animal feed with only residual waste disposed of at local Landfill.

3.1.1.4 Litter and Illegal Dumping

Litter bins are provided in the urban centres and popular visitors spots including nominated free camping locations throughout the Region. Litter bin collection is undertaken by contractors with some cross over with servicing of heavily used Department of Conservation (DoC) locations. There are examples of illegal dumping occurring and the relative remoteness of the Region makes it easy to find locations to dump material if businesses or households want to avoid disposal charges.

3.1.2 Waste transfer, processing and disposal

3.1.2.1 Transfer stations and recycling drop-off

Transfer stations, where waste can be dropped off by the public, are located at:

- Buller District: Transfer Stations at Westport, Reefton, Landfills at Karamea and Muruia.
- Grey District: McLean's Landfill and Recycling Centre with rural Resource Centres at BlackBall, Nelsons Creek and Moana.
- Westland District: Kumara, Hokitika, Ross, Harihari (all operated by EnviroWaste), Whataroa, Frans Josef, Fox Glacier and Haast Landfill (all operated by South Westland Rubbish Removal).

There are weighbridges at three transfer stations (Westport, Reefton and Hokitika) and McLean's Pit Landfill (Figure 9 drop off area). There are small landfills at Karamea (Buller District), Maruia (Buller District) and Haast (Westland District).

Recyclable materials are processed prior to shipping at materials recovery facilities (MRF) of varying complexity at Westport, McLean's Recycling Centre and Hokitika. Green waste is shredded at Westport (Figure 8), McLean's and Hokitika, with material blended with biosolids at Westport and stockpiled on the other two sites.

The West Coast regional waste management system and estimated quantities for 2016 are presented in Figure 5. Facility details are provided on the following pages. Figure 5 is a screenshot from a model of the West Coast regional waste management system, developed for this Waste Assessment. Figure 6 shows the locations of the sites noted above.

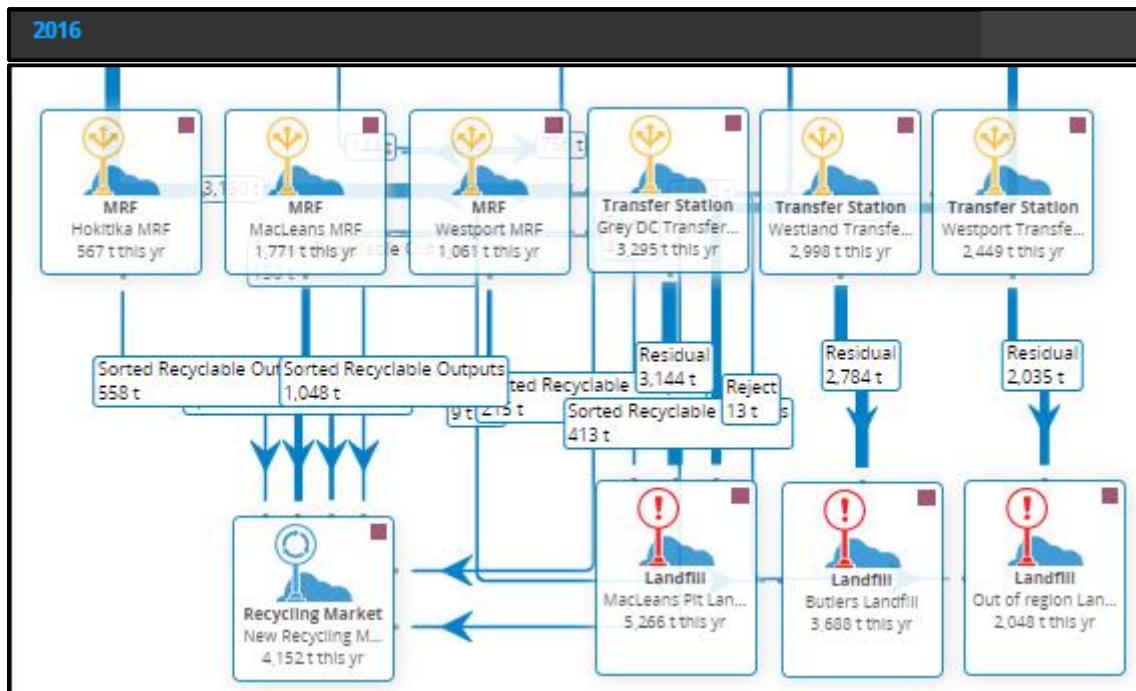


Figure 5: Waste Flow Diagram - Collection, Processing and Disposal (2015/16 figures)



Figure 6: Transfer Stations and landfills on the West Coast¹

¹ Image built in gis.westcoast.govt.nz with locations annotated using label tool.



Figure 7: Westport Transfer Station - Drop-off area and MRF

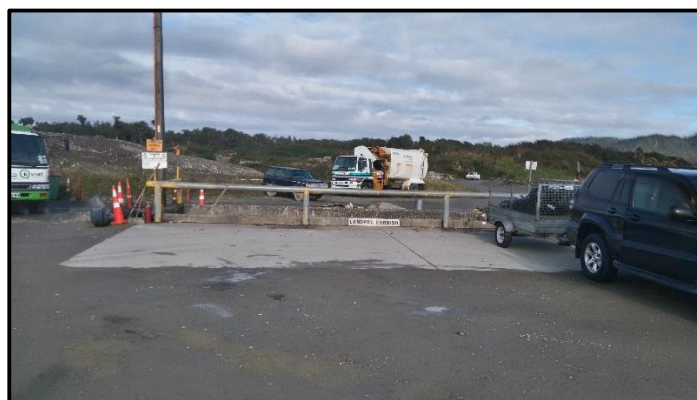


Figure 8: McLeans Pit Landfill - Public Drop-off area

3.1.2.2 Other Processing

There are no commercial composting operations of any scale in the West Coast Region. The Energy Efficiency and Conservation Authority (EECA) maintain an energy use database that provides some insight into the use of wood for energy, typically at wood processing sites. The most recent data (2011) suggests waste wood used for energy is around 20,000 T per year in the West Coast Region².

Proposed developments

At the time of writing (March 2018) there is a proposal to develop a 300,000 tonnes (approximate) per annum waste to energy plant in Westport. Early 2018 the proposal is working through feasibility evaluation, seeking potential sources of waste (South Island and lower North Island). Funding for the proposal is still uncertain.

² In 2011 the database records approx. 364 TJ of wood energy was used by the wood processing sector in the West Coast Region. Assuming 16 GJ/T of dry wood waste suggests over 20,000 T of wood waste is used each year. $364,000 / 16 = 22,750$ T/yr (<https://www.eeca.govt.nz/resources-and-tools/tools/energy-end-use-database/>)

3.1.2.3 Markets for recyclable materials

Paper, plastics and cans are consolidated and processed in New Zealand (cardboard, some plastics, and colour separated glass) or exported for re-processing (some plastics, some paper and scrap metals). International markets for recyclable materials are subject to periodic uncertainty with the most recent (late 2017, early 2018) being China's National Sword initiative, which seeks to improve the quality of recyclable materials imported into China.

At the time of writing (early 2018) a number of New Zealand local authorities are advocating strongly for a container deposit scheme similar to those in place in many states in Australia. Typical proposals target beverage containers with a small refund payable on their return to approved reception point. Introduction of this type of scheme is likely to have an impact on recyclable material markets with recovery rates likely to rise (increasing supply). In some cases kerbside recycling schemes are able to claim refunds for eligible materials i.e. the scheme could provide another source of revenue for kerbside recycling.

3.1.3 Landfills

The two main landfills in the West Coast Region are McLean's Pit Landfill near Greymouth and Butlers Landfill near Hokitika. There are several smaller sites that continue to operate to avoid transporting refuse long distances. These are located near Karamea, Maruia and Haast townships.

Refuse from Westport and Reefton (transfer stations and residential collections) is transported to Nelson's York Valley Landfill.

Karamea Landfill is a small site servicing Karamea and the surrounding area.

Maruia Landfill is a small site servicing the Maruia and Springs Junction areas.

McLean's Pit Landfill will start filling a new cell in 2018.

Butlers Landfill is a relatively new site with long term capacity for waste from the northern part of Westland District.

Haast Landfill is a relatively new site with capacity to accept waste from southern Westland District.

3.1.4 Costs for waste management

3.1.4.1 Council Funding

The 2015-25 Long Term Plans³ set the budgets for the waste management activity with provision to make amendments if required through the Annual Plan process. Funding for operations is through general rates, targeted rates and user charges (refuse bags in Buller District, transfer stations across the region). Funding for capital projects is from general rates. Expenditure is dominated by payments to contractors with finance costs and internal charges also featuring. This mix of funding and expenditure is projected in the Long Term Plans to continue to 2025.

In the Buller District refuse collection and transfer station services attract user charges. The user charges at rural transfer stations cover the full cost of providing the service (the sites are leased to Smart Environmental). The user charges for refuse collection (via bag and sticker sales) cover the full costs of providing the service. Kerbside recycling is covered by a targeted rate. There is provision for funding maintenance activities through general rates.

³ At the time of writing (early 2018) draft 2018 - 2028 LTP were out for consultation across the region.

In the Grey District refuse and recycling collection in Greymouth is funded by a targeted rate. In rural areas bag based refuse collection is funded by a targeted rate (bag tags provided by Council). Transfer station operations are part funded by user charges.

In Westland District refuse and recycling collection is funded by a targeted rate. Transfer station operations are part funded by user charges.

Table 1: Target rates for waste management

	Target Rate 2017/18	Service provided
Buller District Council Westport/Reefton	\$121.74	User pays refuse bags, \$4.60 each 240 L bin for paper, plastics, cans, 60L glass crate
Karamea, Maruia	\$70.43	No service
Grey District Greymouth	\$271.30	120L bin for refuse, 240L bin for recycling
Rural	\$195.10	Bag tags, roadside collection
Westland Hokitika	\$294.43	120L bin for refuse, 240L bin for recycling
Rural	\$267.66	120L bin for refuse, 240L bin for recycling

3.1.4.2 User Charges

Collection and transfer station services attract user charges. The user charges at Rural Transfer stations do not cover the full cost of providing the service with the shortfall covered from the targeted rate for waste management and/or general rates. The user charges for refuse collection (via bag and sticker sales) cover the full costs of providing the service. When compared with similar areas bag prices in Buller District are relatively high, most likely reflecting the rural nature of the District. The target rates are at the higher end of those in place for similar services around New Zealand. This reflects the largely rural nature of the region and relatively high disposal costs, in turn related to relatively small scale of disposal facilities.

User charges include (2017/18 figures) include:

- Buller District Council refuse bag (60 L): \$4.30 per bag (refer to Table 2 for comparison with selected refuse bag charges around New Zealand).
- Westport and Reefton Transfer Stations charges are presented in Figure 9.
- Grey District fees and charges are presented in Figure 10.
- Westland District fees and charges are presented in Figure 11.

Table 2: Refuse bag retail costs - selected New Zealand Councils

Area	Refuse Collection	Bag Charges
Whangarei	Council – bag	\$2.80/bag
Far North	Commercial - bag	\$3.00/bag
Kaipara	Council – bag	\$3.00/bag
Palmerston North	Council – bags	\$2.60/bag
Hastings	Council – bags	\$2.40/bag

Area	Refuse Collection	Bag Charges
Horowhenua (Levin)	Council – bags	\$4.00/bag ⁴
New Plymouth	Council – bags	\$3.30/bag
Porirua, Wellington, Lower Hutt	Council – bags	\$2.50/bag

WESTPORT PRICE LIST			REEFTON PRICE LIST		
 			 		
Purchase Official Rubbish Bags \$4.60 each \$23.00 per roll of 5			Purchase Official Rubbish Bags \$4.60 each \$23.00 per roll of 5		
Dump Official Rubbish Bags Free of Charge			Dump Official Rubbish Bags No Charge		
Refuse	General Rubbish	\$276.00 per tonne	Refuse/Rubbish		\$276.00 (Per Tonne)
Minimum Charge to	32kg	\$ 9.00	Minimum Charge to	32kg	\$ 9.00
	50kg	\$13.80		50kg	\$13.80
	100kg	\$27.60		100kg	\$27.60
Light Waste	Polystyrene	\$200.00 per m3	Light Waste	Polystyrene	\$200.00 per m3
Green Waste	Car	\$9.00 each	Recycling	Glass (Colour Sorted)	Free of Charge
	Single Axle Trailer	\$10.00 each		Under 5kgs (Domestic)	Free of Charge
	Tandem Axle Trailer	\$15.00 each		5kgs to 150kgs	\$6.00
	Truck (Over 500kg)	\$127.50 per tonne		Over 150kgs	\$6.00 + 0.05c per kg
Recycling	Glass (Colour Sorted)	Free of Charge	Paint	1 Litre Container	\$3.00
	Under 5kgs (Domestic)	Free of Charge		2 Litre Container	\$4.00
	5kgs to 150kgs	\$5.00		4 Litre Container	\$5.00
	Over 150kgs	\$5.00 + 0.04c per kg		10 or 20 Litre	\$7.00
Paint	1 Litre Container	\$3.00	Waste Oil	4 Litre Container	\$2.00
	2 Litre Container	\$4.00		20 Litre Container	\$4.00
	4 Litre Container	\$5.00	Whiteware	Fridge/Freezer (Degassed)	\$9.00 each
	10 or 20 Litre	\$7.00		Washing Machine	\$9.00 each
Waste Oil	4 Litre Container	\$2.00	Gas Bottle		\$9.00 each
	20 Litre Container	\$4.00	Tyres	Car	\$8.50 each
Whiteware	Fridge/Freezer (Degassed)	\$9.00 each		Truck	\$16.50 each
	Washing Machine	\$9.00 each		Tractor/Loader	\$47.50 each
Gas Bottle		\$9.00 each	Wood	Treated/Untreated	\$260.00 per tonne
Tyres	Car	\$8.50 each	Scrap Steel	Free of contaminants	Free of Charge
	Truck	\$16.50 each	Car Bodies	Prepared Only	\$50.00 each
	Tractor/Loader	\$47.50 each	Batteries	Motorbike, Car, Truck	Free of Charge
Wood	Treated/Untreated	\$260.00 per tonne			
Scrap Steel	Free of contaminants	Free of Charge			
Car Bodies	Prepared Only	\$50.00 each			
Batteries	Motorbike, Car, Truck	Free of Charge			

Figure 9: Westport and Reefton Fees and Charges

McLeans Landfill		
Refuse		
Commercial Refuse*	per tonne	\$289.00
Mixed Domestic Waste*	per tonne	\$289.00
Hardfill/Soil*	per tonne	\$289.00
TVs and ewaste*	per tonne	\$289.00
Refuse Bag with Council issued tie	per bag	Free
Refuse Bag without Council issued tie*	per bag	\$4.00
* minimum charge per weighbridge entrance (trip over weighbridge)		\$12.00
Tyres		
Car, Motorbike	per tyre	\$6.80
4WD	per tyre	\$6.80
Truck	per tyre	\$12.30
Tractor	per tyre	\$12.80
Specialist Industrial	per tyre	\$28.50
Other		
Unprepared Car Bodies	per car	\$54.70
Paint/Solvents	per litre	\$2.50

⁴ Includes \$1 per bag recycling levy - to fund kerbside recycling

Resource Centres (Moana/Blackball/Nelson Creek)		
Refuse Bag with Council issued tie	per bag	Free
Refuse Bag without Council issued tie	per bag	\$4.00
Car Boot	per load	\$25.50
Station wagon	per load	\$38.80
Utility Vehicle/Van	per load	\$38.80
Single axle trailer	per load	\$51.00
Tandem Trailer	per load	\$83.70
Truck under 5m ³ , uncompacted general waste	per load	\$183.60
Truck under 5m ³ , compacted general waste or dense material such as building waste.	per load	\$290.70
Other		
Refuse ties	each	\$3.00

Figure 10: Grey District Refuse Transfer station Fees and Charges

Hokitika Transfer Station Refuse Site Gate Fees		Hokitika Transfer Station Refuse Site Gate Fees	
General Waste		Uncompacted Green Waste	
Per tonne	\$475.00	Per Cubic Metre	\$10.00
60L bag	\$4.00	60L bag	\$0.50
Green Waste		Small Trailer /Ute (0.68m ³)	\$6.00
Green Waste per tonne	\$46.00	Medium Trailer (0.91m ³)	\$10.00
60L bag Green Waste uncompacted	\$0.50	All Sites: Other Items	
Accepted Recyclable Items* *Colour sorted glass will be accepted free of charge, unsorted glass will be charged at the general waste rate	Free	Whiteware (Fridges must be degassed, per item)	\$10.00
Non Weighbridge Sites		Tyres (Based on average weight of 7.5kg, per item)	\$3.50
Uncompacted General Waste		Cars Prepared (Conditions apply, per item)	\$45.00
Per Cubic Metre small loads < 0.5m ³	\$65.00		
Per Cubic Metre large loads > 0.5m ³	\$95.00		
60L bag	\$4.00		
120L Wheelie Bin	\$8.00		
240L Wheelie Bin	\$16.00		
Small Trailer /Ute (0.68m ³)	\$65.00		
Medium Trailer (0.91m ³)	\$90.00		
Cage or Large Trailer (2.7m ³)	\$260.00		
Accepted Recyclable Items* *Colour sorted glass will be accepted free of charge, unsorted glass will be charged at the general waste rate	Free		

Figure 11: Westland District Refuse Transfer station Fees and Charges

3.2 Volume and composition of waste and diverted materials

3.2.1 Waste composition

Waste composition audits provide information about the make-up of a waste stream, and can help identify materials that make up large or disproportionate parts of the waste stream to target when forming waste management and minimisation strategies. The information presented is sourced

from composition surveys completed in Buller and Grey Districts. The data is consistent with composition observed in similar areas in other parts of New Zealand.

Table 3: Waste composition

Primary Category	Proportion of total	
	Landfill	Collection
Paper	9%	9%
Plastic	20%	17%
Nappies	5%	12%
Glass	2%	4%
Putrescible	23%	49%
Textiles	6%	5%
Potential Hazardous	5%	1%
Ferrous Metals	3%	2%
Non-Ferrous Metals	1%	1%
Rubber	2%	0%
Timber	13%	0%
Rubble	11%	1%
TOTAL	100%	100%

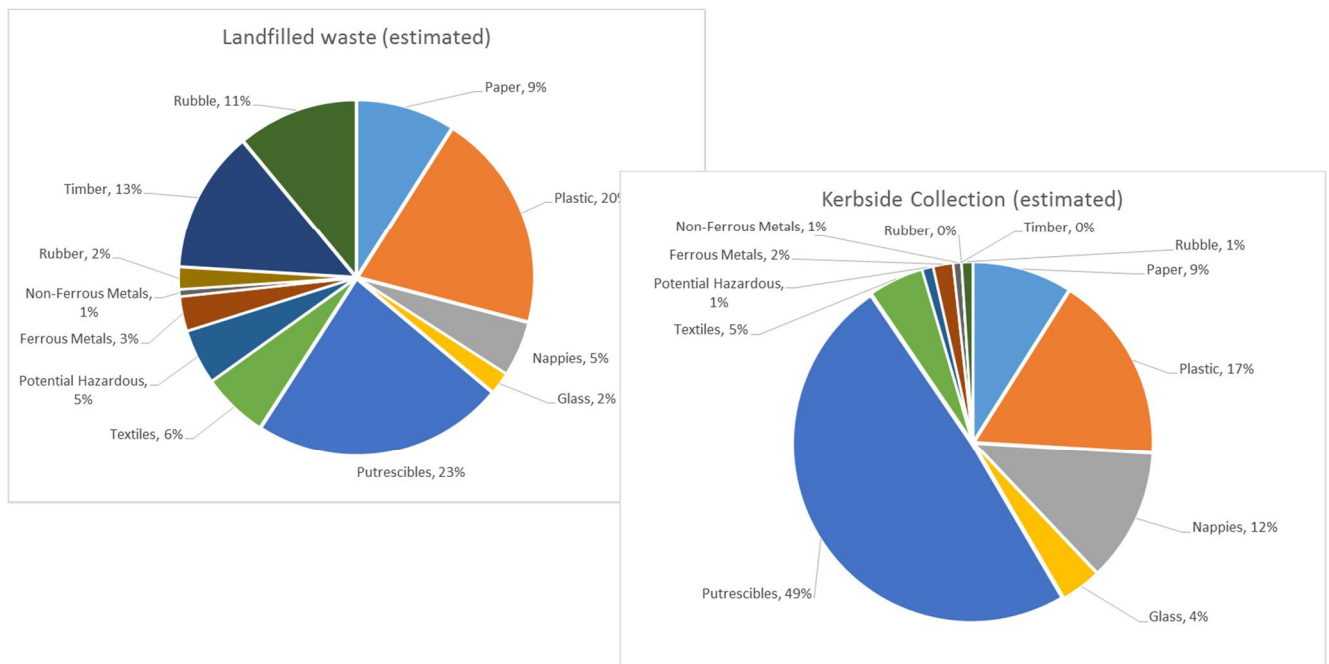


Figure 12: Estimate refuse Composition

Material taken directly to landfill or transfer station (self haul) material tends to have a larger proportion of bulky items (timber, rubble) and the putrescible fraction has a higher proportion of garden rather than food waste. This is reflected in the data presented here.

3.2.2 Kerbside and self haul waste quantities

3.2.2.1 Kerbside Waste Quantities

Table 4 provides a summary of materials collected from the kerbside across the West Coast Region.

Table 4: Kerbside waste quantities

	2012	2013	2014	2015	2016
Buller Kerbside Refuse Collection	1,829	1,500	1,370	1,261	1,204
Buller recycle collection	-	600	631	599	622
Recycling Rate (%)	0%	29%	32%	32%	34%
Grey Kerbside Refuse Collection	2,383	1,912	2,137	2,006	2,071
Grey recycle collection	-	-	201	888	782
Recycling Rate (%)	0%	0%	9%	31%	27%
Westland Kerbside Refuse Collection	-	-	-	897	897
Westland recycle collection	-	-	-	285	303
Recycling Rate (%)				24%	25%
Total kerbside refuse	4,212	3,412	3,507	4,164	4,172
Total kerbside recycling	-	600	832	1,772	1,707
Recycling Rate (% , West Coast)		15%	19%	30%	29%

3.2.2.2 Waste quantities at Refuse Transfer Stations and Landfill

In the Buller District waste in Karamea and Maruia is disposed of at small local landfills. Refuse from the rest of the District is consolidated before transport to Nelson for disposal at the York Valley Landfill. Materials are captured for recycling and transported with kerbside recyclable materials to Nelson.

In the Grey District all waste is disposed of at McLean's Landfill near Greymouth. There are Resource Centres at Blackball, Moana and Nelson Creek. Materials are captured for disposal and recycling at each site.

In the Westland District waste is disposed of at Butlers Landfill near Hokitika or Haast Landfill. There are transfer station stations at Kumara, Hokitika, Ross, Harihari, Whataroa, Franz Josef and Fox Glacier. A range of materials are captured for recycling at each site including metals, glass, paint, used oil, whiteware and green waste.

Table 5 summarises the quantity of materials managed through the region's transfer stations and landfills.

Table 5: West Coast Region - Estimated Waste Quantities via transfer stations or direct to landfill⁵

	2012	2013	2014	2015	2016
Refuse to Karamea and Maruia	67	111	78	105	89
Refuse to Westport and Reefton transfer stations	1,219	1,000	913	841	803
Recycle at Buller transfer stations	378	618	630	618	792
Total waste to transfer stations and landfill	1,664	1,729	1,621	1,564	1,684
Recycling rate (%)	23%	36%	39%	40%	47%
Refuse to McLeans Landfill	4,273	3,813	3,766	4,092	3,093
Recycle at transfer stations	664	680	877	1,148	1,216
Total waste to transfer stations and landfill	4,937	4,493	4,643	5,240	4,309
Recycling rate (%)	13%	15%	19%	22%	28%
Refuse to Haast (estimate)	100	100	100	100	100
Refuse to Butlers Landfill	-	-	-	2,840	2,783
Recycle at transfer stations	-	-	-	622	478
Total waste to transfer stations and landfill	100	100	100	3,562	3,361
Recycling rate (%)	0%	0%	0%	17%	14%
Recycling rate (% , West Coast)	18%	26%	31%	30%	27%
Total waste landfilled (collections and via transfer stations)	9,871	8,436	8,364	12,142	11,039
Total waste recycled	1,042	2,099	3,026	4,054	4,214
Recycling rate (% , West Coast)	10%	20%	27%	25%	28%

3.2.2.3 Unquantified Waste

There are several waste streams that are known to exist but are difficult to quantify. Examples include rural waste managed on farms, materials captured as part of commercial activity (e.g. scrap metal, industrial by-products, commercial recycling) and waste materials managed within manufacturing operations (e.g. biosolids from food processing operations applied to land, coal cleaning residues). This means that both waste disposed to landfill and waste diverted/recovered are likely to be underestimated.

There is an increasing level of interest in rural waste across New Zealand. As the rural sector considers the implications of current waste management approaches it is likely that increasing quantities of materials from farming activities will enter the three Council's system, either via the transfer station network or through commercial on-farm collections.

3.2.3 Collection and drop-off system performance

Combining the waste composition data with data on the quantity of waste disposed of to landfill and recycled provides a basis for determining the capture of various materials 'available' in the waste

⁵ Data sourced from waste collection and transfer station contract reporting.

stream⁶. A summary assessment drawing on estimated quantities and composition is presented in Table 6.

Table 6: West Coast Region Waste Management System Performance

	Bags/Bins		General		Regional Recovery	
	Composition	Tonnes/yr	Composition	Tonnes/yr	Tonnes/yr	Recovery %
Total	100.0%	4,172	100.0%	6,867	4,214	27.6%
Paper	13.8%	575	10.2%	699	2,098	62.2%
Plastic	20.3%	848	21.3%	1,463	508	18.0%
Organics ⁷	49.0%	2,045	11.2%	766	744	20.9%
Ferrous ⁸	1.8%	75	3.1%	216	251	46.3%
Non Ferrous ⁸	0.8%	32	0.6%	44	142	65.2%
Glass ⁷	3.7%	153	1.2%	84	473	66.7%
Timber ⁹	2.8%	118	14.8%	1,017	-	0.0%
Other	7.8%	326	37.5%	2,578	-	0.0%

The available data suggests there are opportunities to capture additional recyclable material through the transfer stations and kerbside collections including organic material, timber, metals, paper, plastics and glass. Specifically:

- While paper/cardboard recovery is reasonable it should be possible to increase the capture of paper and cardboard at both kerbside and transfer stations.
- Plastic recovery is low, again it should be possible to increase the capture of materials at both kerbside and transfer stations.
- Organic waste recovery is relatively low and there is a significant amount of material that could be targeted.
- Metals recovery is difficult to accurately estimate, further detail is required.
- Glass recovery is at a good level particularly given low recovery in Westland District.

As noted in Table 5, recovery via landfill and transfer stations across the West Coast is around 27%. Buller District is achieving well over 40%, supported by green waste diversion. Grey District is achieving 28% and Westland District a lower rate of around 14%.

There are other materials present in the waste stream that require careful management to avoid negative impacts. These include:

- Hazardous waste (chemicals, e-waste, used oil, asbestos).
- Difficult or special waste (tyres, bulk waste, dead animals).
- General waste (household and commercial waste).

⁶ From Table 3, Table 4 and Table 5.

⁷ This figure includes a conservative estimate of material captured at McLean's i.e. recovery T and % are underestimates.

⁸ This figure does not include materials handled by scrap metal dealers i.e. recovery T and % are underestimates.

⁹ No West Coast specific data, some material captured at transfer stations.

Waste from certain sources can also present challenges or opportunities and is worthy of consideration. Examples include:

- Rural waste - waste from the business of farming including agricultural plastics (wrap and chemical containers), unwanted chemicals, timber and machinery (including maintenance related waste, for example used oil).
- Waste from major processing sites - examples include waste treatment residuals (for example sludge), packaging (pallet wrap, broken pallets) and containers (cleaners, ingredients, maintenance products).

3.3 Summary of district-specific issues

3.3.1 Waste Infrastructure - Issues Identified (Section 2.5 of the Waste Assessment)

In collating and considering information about the delivery of waste services in the West Coast Region a number of issues were identified. These issues represent challenges in delivering effective services and achieving the aims of the NZ Waste Strategy - reducing environmental harm and maximising resource efficiency. In many cases the issues also present opportunities for Councils, the community and/or the private sector to improve waste minimisation and management in the Region.

The issues identified include:

- Transfer stations - there are variable services across the Region.
- There is a lack of consistency in services for visitors to the Region.
- There are 3 MRFs in the Region sorting similar materials.
- The two major landfills in the Region are close to each other.
- Costs are relatively high, but likely reasonable in light of scale and transport distances.
- There are limited services for commercial and construction waste, with limited information available regarding diversion activity focussed on these waste streams.
- Lack of collections for glass in Westland District and issues with glass contamination in Grey District.

3.3.2 Waste data - issues and constraints (Section 3.6 of the Waste Assessment)

While there is some information available about the quantity and composition of waste generated in the West Coast Region the data is incomplete. The available data needs to be interpreted considering that:

- There is a mix of volume based estimates and measured weights.
- The source of waste is not always clear.
- There is limited data on coverage, set out rate or participation rates for kerbside collection.
- The data regarding quantity of waste collected or processed is not complete. For example:
 - The quantity of waste collected from commercial premises for recycling has not been quantified
 - The quantity of waste generated on rural properties and processed or disposed on site has not been quantified.

There are by-laws in place (refer Section 4) that provides for collection of data on collection services including quantities of material collected, destination for disposal or processing and coverage, set out and participation rates. Implementation of the by-law in close consultation with collection and

processing companies operating in the West Coast Region will improve the availability and quality of data available.

There is also potential to improve the reporting of waste materials handled by contractors on behalf of the Councils. Reporting on activity as part of contract obligations should include appropriately detailed reporting on waste source, quantity and destination.

4 Policies, plans and regulation

4.1 Summary of guiding policies, plans and legislation that affect the WMMP

There is wide a range of statutory documents and associated policy that impacts on waste minimisation and management in the West Coast Region. These are summarised in Table 7, further detail is provided in the West Coast Regional Waste Assessment (2018).

Table 7: Selected Relevant Policy for waste in West Coast Region (Table 1 from the WA)

National	Regional	Local
Waste Minimisation Act 2008	West Coast Regional Policy Statement	Long Term Plans 2015-2025
NZ Waste Strategy 2010	West Coast Regional Air Quality Plan	District Plans
Resource Management Act 1991	West Coast Regional Coastal Plan	Bylaws
Local Government Act 2002	West Coast Regional Land and Water Plan	Asset Management Plans
Climate Change Response Act 2002	Regional Waste Strategy for the West Coast	Solid waste management policies and plans
Health Act 1956	West Coast Visitor Waste Management Strategy	
NZ Emissions Trading Scheme		

4.2 Statutory requirements

A WMMP must contain a summary of Council's objectives, policies and targets for waste management and minimisation. The plan should clearly communicate how each Council will deliver on these objectives.

Section 43 of the WMA states that a WMMP must provide for:

- a *objectives and policies for achieving effective and efficient waste management and minimisation within the territorial authority's district*
- b *methods for achieving effective and efficient waste management and minimisation within the territorial authority's district, including -*
 - i *collection, recovery, recycling, treatment, and disposal services for the district to meet its current and future waste management and minimisation needs (whether provided by the territorial authority or otherwise); and*
 - ii *any waste management and minimisation facilities provided, or to be provided, by the territorial authority; and*
 - iii *any waste management and minimisation activities, including any educational or public awareness activities, provided, or to be provided, by the territorial authority*
- c *how implementing the plan is to be funded*
- d *if the territorial authority wishes to make grants or advances of money in accordance with section 47, the framework for doing so.*

A WMMP must have regard to the waste hierarchy, the New Zealand Waste Strategy, and the most recent Waste Assessment.

5 Vision, goals, objectives and targets

5.1 Background

The preparation of this Waste Assessment has included review of the Vision - Goals Objectives framework set out in the previous WMMP. The relationship between Vision, Goals and Objectives is illustrated in Figure 13¹⁰ and defined in Table 8¹⁰.

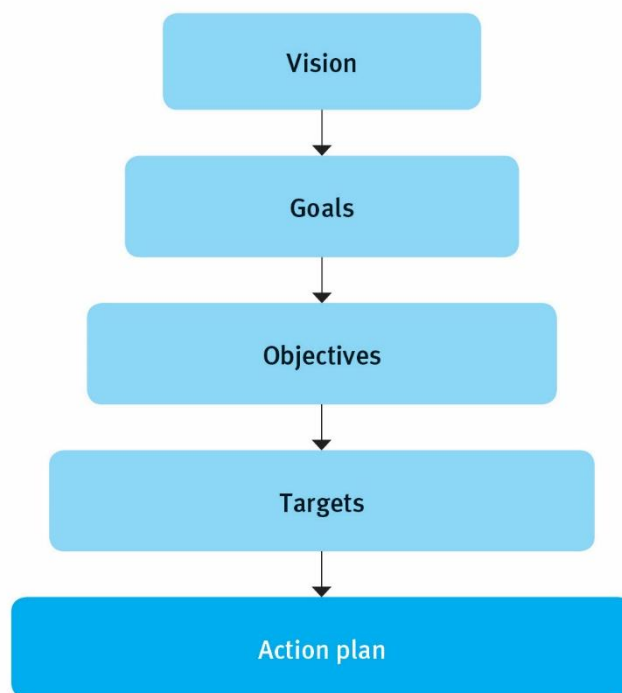


Figure 13: Vision, goals, objectives and targets

Table 8 provides definitions for vision, goals, objectives and targets.

Table 8: Definitions for vision, goals, objectives and targets (adapted from MfE 2015)

Vision	The aspirational outcome for the West Coast Region - providing an overall direction and focus.
Goal	What the Councils want to achieve through the WMMP. The goal is not aspirational; it is achievable. It is a major step in achieving Council's vision for the WMMP.
Objective	The specific strategies and policies to support the achievement of the goals. Objectives are 'SMART' (specific, measurable, achievable, relevant and timely).
Target	A clear and measurable way to determine how well the Council is achieving its goals. Targets should also be SMART.

¹⁰ Sourced from Waste Assessments and Waste Management and Minimisation Planning – A Guide for Territorial Authorities, MfE 2015.

5.2 Vision, goals, objectives and targets

The vision for waste minimisation and management in the West Coast Region is¹¹:

To deliver community benefits and reduce waste. West Coast businesses and households will be provided with efficient and effective waste minimisation and management services.

The goals for waste minimisation and management in the West Coast Region are to:

- 1 Avoid and reduce waste where we can
- 2 Manage waste responsibly
- 3 Maximise community benefit

The objectives for waste minimisation and management in the West Coast Region are:

- 1 To avoid creating waste
- 2 To make it easy to recycle
- 3 To ensure visitors, households and businesses have access to safe disposal of residual waste
- 4 To reduce illegal dumping and litter
- 5 To create opportunities for West Coast - community partnerships, jobs, innovation and efficient business
- 6 To improve community understanding of issues and opportunities for waste management on the West Coast
- 7 Councils work with others to improve waste minimisation and management in New Zealand

Table 9 provides a summary of the Vision - Goals and Objectives presented above and associated targets for waste minimisation and management in the West Coast Region.

¹¹ This vision has been developed in workshops with Councillors and staff from the three District councils.

Table 9: Vision - Goals - Objectives - Targets

Vision:	<i>To deliver community benefits and reduce waste. West Coast businesses and households will be provided with efficient and effective waste minimisation and management services.</i>	
Objective	Relevant Goal(s)	Target(s)
1. To avoid creating waste	<ul style="list-style-type: none"> 1. Avoid and reduce waste where we can. 3. Maximise community benefits - employment, reuse of materials for economic benefit, cost effective services. 	<p>1.1 To maintain or reduce the total quantity of waste disposed of to landfill from the West Coast on a per capita basis. The current figure is 340 kg per person. Waste disposed to landfill < 300 kg per person each year</p>
2. To make it easy to recycle	<ul style="list-style-type: none"> 1. Avoid and reduce waste where we can. 2. Manage waste responsibly - make it easy to recycle and safely dispose of the materials that can't be recycled. 3. Maximise community benefits - employment, reuse of materials for economic benefit, cost effective services. 	<p>2.1 <i>Increase in the proportion of material captured for recycling at kerbside and transfer stations. The current figures are 29% and 27% respectively.</i> <i>Kerbside recycling > 35% by 2025</i> <i>Recycling at Refuse Transfer stations > 50% by 2025</i></p> <p>2.2 <i>Establish simple and effective recycling services for visitors to the West Coast Region.</i> <i>Establish 5 refuse and recycling depots at key visitor locations on the West Coast by 2022. Pilot with 2 facilities in Buller District followed by the remainder of the Region.</i></p>
3. To ensure visitors, households and businesses have access to safe disposal of residual waste	<ul style="list-style-type: none"> 2. Manage waste responsibly - make it easy to recycle and safely dispose of the materials that can't be recycled. 3. Maximise community benefits - employment, reuse of materials for economic benefit, cost effective services. 	<p>3.1 <i>Satisfaction with kerbside refuse and transfer station services.</i> <i>Resident and visitor satisfaction > 85%</i> <i>Establish 5 refuse and recycling depots at key visitor locations on the West Coast by 2022</i></p>

Vision:	<i>To deliver community benefits and reduce waste. West Coast businesses and households will be provided with efficient and effective waste minimisation and management services.</i>	
Objective	Relevant Goal(s)	Target(s)
4. To reduce illegal dumping and litter	2. Manage waste responsibly - make it easy to recycle and safely dispose of the materials that can't be recycled.	4.1 Reduction in illegal dumping incidents and quantity of material illegally dumped in the West Coast Region. (Establishing refuse recycle and waste stations). Quantity of illegally dumped waste < 2016/17 figure The number of illegal dumping incidents is < 2016/17 figure.
5. To create opportunities for West Coast - community partnerships, jobs, innovation and efficient business	3. Maximise community benefits - employment, reuse of materials for economic benefit, cost effective services.	5.1 To publish a summary of available data on waste generation and management with each annual report. <i>Summary data published in Annual Report</i> <i>To create a grant scheme to support new initiatives to reduce waste</i>
6. To improve community understanding of issues and opportunities for waste management on the West Coast.	1. Avoid and reduce waste where we can. 2. Manage waste responsibly - make it easy to recycle and safely dispose of the materials that can't be recycled. 3. Maximise community benefits - employment, reuse of materials for economic benefit, cost effective services.	6.1 Schools programmes supported by Council Support the Enviroschools programme each year. 6.2 Council (or contractors) promote waste minimisation at events in the Region. <i>Councils promote waste minimisation at > five events in the Region each year.</i> 6.3 Inform and support West Coast residents and businesses on waste minimisation opportunities. Information made available and regularly updated on Council websites.
7. Councils work with others to improve waste minimisation and management in New Zealand.	1. Avoid and reduce waste where we can. 3. Maximise community benefits - employment, reuse of materials for economic benefit, cost effective services.	7.1 Work with others to influence national policy and action on waste minimisation and management.

5.3 Council's intended role

Councils will continue to adopt a mixed user pays, general rate and targeted funded approach to delivery of waste transfer and disposal services in their District. Where there are services with a public good component Councils will provide funding in whole or in part. Examples include kerbside recycling, rural transfer stations, servicing of litter bins, cleaning up illegal dumping and the management of closed landfills.

Councils will continue to own and support the operation of some key infrastructure for waste minimisation and management in each District. This includes the transfer station network, Materials Recovery Facilities and landfills (Karamea, Maruia, McLean's, Butlers and Haast).

Councils will provide information on waste minimisation and management to the households and businesses and make staff available for education purposes. Councils will also work closely with other promoters of effective waste minimisation and management including the West Coast Regional Council and the WasteMINZ Behaviour Change Sector Group.

Councils recognise that many local waste management issues are more effectively managed through coordinated activity at a national level. Councils will collaborate with central government, local government organisations, non government organisations (NGO) and other key stakeholders to progress national activity on resource efficiency and waste management issues. This may include advocating for product stewardship schemes for challenging waste streams (e-waste, tyres, packaging, rural waste), highlighting the role of other national policy including application of the waste levy and regulation of waste management activity.

5.4 Protecting public health

Waste, particularly putrescible and hazardous waste, has the potential to be detrimental to health. Therefore, a key objective of any waste minimisation and management system is to protect public health. The risk of public health impacts can be significantly reduced by avoiding, where possible, and carefully managing, where not, contact with waste. In practice this means:

- Containing waste effectively, including:
 - Providing appropriate containers at point of generation e.g. workspace, kitchen, etc.
 - Providing appropriate containers for storing waste prior to collection - these may be reusable (wheelie bins) or single use (rubbish bags).
 - Providing dedicated public drop off areas at transfer stations and landfills.
 - Regular collection and disposal.
 - Suitable collection and transport vehicles.
 - Disposal at well constructed and operated landfills including provision of appropriate barrier systems such as base liner and adequate daily, intermediate and final cover.
- Excluding as far as possible vermin¹² that may spread waste or associated contaminants.

The measures proposed in the WMMP have been developed with public health objectives at the forefront.

¹² For example rodents, other stray animals, insects (flies, wasps).

6 Options for achieving effective and efficient waste management and minimisation

6.1 Introduction

Section 51 of the WMA requires that a Waste Assessment contain a statement of options available to meet the forecast demands of the district with an assessment of the suitability of each option.

This section summarises the identification and evaluation of options to meet the forecast demands of the district and to meet the goals set out in Section 5. The preferred options from this assessment will be incorporated into the WMMP as methods and feature in the Action Plan.

For the West Coast Region the total quantity of waste generated is forecast to increase over the life of this plan in line with population and economic activity. Infrastructure planning needs to take account of this growth.

The available data suggests that there is potential to increase the diversion of material from the current estimate of almost 30% across the waste management system. There are also ongoing issues with illegal dumping, challenges with obtaining robust data on waste and recycling activity and the potential for increasing quantities of materials entering the waste stream from rural properties. The focus of option identification and evaluation has been addressing these issues alongside meeting forecast demands.

6.2 Identifying options

There are a wide range of approaches to providing waste minimisation and management services and programmes that could be adopted in the West Coast Region. A useful way to consider options is the model set out in Figure 14. Simply put, effective waste minimisation and management relies on a combination of infrastructure (including collection), education/information and regulation or policy. These are supported by having the right data to inform strategic and operational decision making.

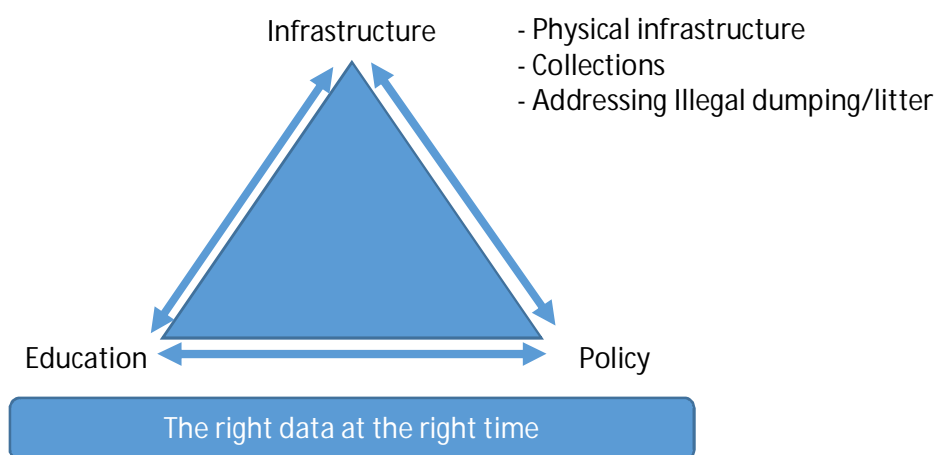


Figure 14: Effective Waste Minimisation and Management

For this waste assessment options have been identified by considering key challenges for waste minimisation and management in the West Coast Region (Refer Section 3.3), referencing approaches

adopted elsewhere and looking for new solutions where appropriate. Options have also been considered with reference to the current recovery rates of key materials¹³ (see Section 3.2.3).

Based on the model set out in Figure 14 options considered can be grouped as follows.

Infrastructure

- Providing collection services - collection of waste, recyclable materials (at kerbside or transfer station), organic waste and/or bulky items, litter bins.
- Providing physical infrastructure - fixed location or mobile drop off facilities, waste sorting, waste processing and/or disposal facilities.
- Managing the negative impacts of waste - litter/illegal dumping clean-up, closed landfills.

Education

- Changing behaviour - education programmes targeting schools, businesses and/or households.
- Support infrastructure - information on how to use collection and drop-off services to maximise recovery and maintain the quality of recovered materials (to maximise their value).
- Contributing to national education/information programmes.

Policy

- Implementation of licensing provisions in the existing by-law (funding, service level, litter, data provision).
- Data collection via licensing of waste operators (as above).
- Targeted data collection, for example waste surveys.
- Making information on waste issues and opportunities available.
- Grant co-funding for projects that deliver on the goals and objectives for waste minimisation and management.
- Working with Councils and other stakeholders to progress national debate on waste issues and policy.

These options focus on the priority waste streams identified through the review of the current situation in Section 3.2.3 and summarised in Table 10.

Table 10: Priority wastes and waste sources

Recyclable materials	Other materials requiring active management include:	Waste sources
• Visitor's waste	• Hazardous waste	• Rural waste
• Organic Waste	• Difficult or special waste	• Industrial processing
• Glass	• General waste	
• Paper/Cardboard	• E-waste	
• Plastics		
• Timber		

6.3 Options for the future

Based on the analysis and discussion presented in the Waste Assessment (Appendix A) the following options should be included in an action plan for the West Coast Region WMMP.

¹³ Key materials include paper/card, plastics, glass, organic waste, metals, glass and timber

Infrastructure actions

- Investigate and maintain a watch on wheelie bin based user pays technology for refuse collection.
- Investigate a transition to two stream (co-mingle recyclables + separate glass) for kerbside recycling services across the Region.
- Investigate¹⁴ a periodic garden waste collection service (most likely combined with a bulky waste collection service).
- Investigate¹⁴ optimising services for bulky household waste including the role of the regional transfer station network and potential bulky waste collections (scheduled for all households or on demand).
- Implement recycle/waste stations at tourism hotspots across the West Coast - trail the approach in Buller District (North Beach, Punakaiki) and then roll out to other locations.
- Investigate/Trial¹⁵ dry waste (construction waste, commercial waste) sorting including the use of charging to incentivise semi-sorted loads at key transfer stations.
- Implement processing of shredded green waste and sludge in Greymouth, Hokitika (and potentially Reefton).
- Investigate consolidating MRF operations and options for glass (local processing and beneficial use).
- Investigate combining Grey District and northern Westland District refuse disposal in the medium term (as cells at Butlers and/or McLean's Landfills are completed).
- Maintain a watch on the proposal Westport waste to energy proposal.

Education actions

- Continue to update and maintain information on waste and recycling collection and drop off services in the West Coast Region on Council websites and information for visitors.
- Disseminate information on waste minimisation and management to all residents (including holiday makers/temporary residents) including national programmes like Love Food Hate Waste.
- Maintaining school education programme, support existing environmental education activities for schools, homes and businesses.

Policy Actions

- Develop criteria for making grants available from Council's allocation of Waste Levy funds. Provisionally criteria will be based on contribution to the Vision, Goals and Objectives for waste minimisation and management with consideration of co-funding. Applications for funding should also be assessed for their ability to deliver the promised benefits i.e. due diligence on organisation capability, governance and accountability.
- Develop a regional solid waste bylaw and associated implementation plan targeting implementation of a licencing regime in 2019.
- Continue to report on progress against the targets in the WMMP in Annual Reports.

¹⁴ Detailed analysis of options considering cost of service, diversion of materials, fairness/equity, safety and protection of the environment (illegal dumping).

¹⁵ Look at Westport, Reefton, McLeans and Hokitika transfer stations, detailed analysis of options considering cost of service, diversion of materials, fairness/equity, safety and protection of the environment (illegal dumping).

- Collaborate with central government, local government organisations, non government organisations (NGO) and other key stakeholders to progress national activity on waste minimisation and management policy¹⁶.
- Continue to actively address illegal dumping activity including where possible identifying perpetrators and if required undertaking clean-up activity.

¹⁶ Including policy and analysis relating to tourism waste

7 Funding the plan

7.1 Plan implementation funding

The funding of the implementation of this WMMP will come from user charges, rate payer funds and levy payments returned to the Council.

User charges will fund kerbside refuse collection (in Buller District, to be considered using RFID technology in Grey District and Westland District), disposal of materials at landfill and the disposal or management of materials at Transfer Stations.

Ratepayer funds will provide public good focussed services. Examples include kerbside recycling collection, tourist hot spot recycle/waste stations, supporting transfer station operations where user charges are not adequate to cover the full cost of operation, illegal dumping clean-ups, litter bin servicing, licensing implementation, education activities and reporting on plan implementation.

Levy payments will fund waste education and selected recycling and recovery activities at transfer stations i.e. activities that promote or achieve the Goals and Objectives of this WMMP.

Details of funding sources, quantities and allocation can be found in each Council's Long Term Plan and Annual Plan updates to the Long Term Plan.

7.2 Grants and advances of monies

As part of the implementation of the WMMP the Councils will develop criteria for making grants available from each Council's allocation of Waste Levy funds. The amount of money available for grants will be determined as part of the Annual Plan process but is expected to be in the order of 15% of the levy funding received by each Council.

Criteria will be based on the funded activities contribution to promoting and achieving the Vision, Goals and Objectives for waste minimisation and management. Activities with co-funding will be preferred with 50% or more contribution from partners other than Council expected.

Applications for funding will also be assessed for their ability to deliver the promised benefits. Specific areas for assessment will include organisation capability to deliver the project, governance arrangements, accountability and track record in delivering similar projects.

7.3 Waste minimisation levy expenditure

Waste minimisation levy funds will continue to be spent supporting waste minimisation activities including environmental education, contributing to recycling at transfer stations, information for residents and businesses and targeted investigations into new waste minimisation initiatives.

8 Monitoring, evaluating and reporting progress

This WMMP will only have an impact in the West Coast Region if appropriate action is taken to achieve the Vision - Goals - Objectives. The Targets (Section 5.2) provide high level measures of progress. Monitoring, evaluation and reporting will focus on gathering data to assess progress against these targets.

8.1 Monitoring and evaluation

The assessment of the current situation highlighted gaps in information about waste generation, collection, processing and management in the West Coast Region. In some cases information exists but is not available to council¹⁷ while in others, data is not currently available¹⁸.

Progress in achieving the Vision - Goals - Objectives of this WMMP will be monitored by collecting the data outlined in Table 11.

Table 11: Data source and description

Data Source	Information	Comment
Council contractors	Illegal dumping Litter (bins, clean-up) Kerbside refuse Kerbside recycling Transfer station refuse Transfer station recycling/recover Recycling station recycling Landfill refuse	Contract reporting
Other collectors	Kerbside/Business refuse	By-law data requirements
Waste processor	Materials processed	By-law data requirements
Council contact database	Illegal dumping incidents	
Customer Surveys	Residents satisfaction	
Council Activity Reporting (Annual Report)	By-law implementation (licensing) Data summary	
Targeted data collection	Solid Waste Analysis Protocol Surveys (waste composition) Kerbside collection surveys (participation, set out rates) Recycling contamination survey	Contract requirement or targeted survey

Some of the activities in the Action Plan are focussed on securing the information noted in Table 11. For example ongoing implementation of licensing (based on the existing by-laws) and improving reporting under existing and future council contracts.

Evaluation of the data collected will focus on measuring progress against the targets set out in Section 5.2. The periodic review of the Action Plan (see Section 10 of the Action Plan) will consider how effective the actions underway or completed have been in achieving the Vision - Goals - Objectives of this Plan.

¹⁷ For example regarding private sector collection services.

¹⁸ For example regarding the number of households participating in the kerbside recycling collection service.

8.2 Reporting

Progress on implementing this WMMP will be reporting in the each of the Council's Annual Reports each year. Reporting will note current performance against the targets based on available information. In the early stages of the Plan implementation it is likely that there will be significant gaps in the available data limited Council's ability to quantify progress.

9 Part B – Action Plan

10 Introduction

This Action Plan sets out the programme of action for achieving the Vision - Goals - Objectives and targets of the WMMP, as described in Part A – Strategy (Section 5), and should be considered in conjunction with the full WMMP.

This Action Plan covers the full life (six years) of the WMMP but provides more detail for years one and two. The Action plan sets out actions with operational and financial implications for each Council.

Consistent with each Council's operational planning obligations under the Local Government Act 2002 activities set out in this Action Plan will need to be reflected in the relevant Long Term Plan and Annual Plan¹⁹. This means the plan should be reviewed as part of the annual planning process (with a focus on 12-18 months of future activity) and Long Term Planning process (with a focus on a 3-5 year horizon).

The operational planning and funding implications of the activities set out in this Action Plan are noted in the Action Planning tables.

¹⁹ Currently 2018-2028 Long Term Plan and 2017/18 Annual Plan

11 Funding structure [see also Part A, section 6]

(Repeat of Section 7)

The funding of the implementation of this WMMP will come from user charges, rate payer funds and levy payments returned to the Council.

User charges will fund kerbside refuse collection (in Buller District, to be considered using Rfid technology in Grey District and Westland District), disposal of materials at landfill and the disposal or management of materials at Transfer Stations.

Ratepayer funds will provide public good focussed services. Examples include kerbside recycling collection, tourist hot spot recycle/waste stations, supporting transfer station operations where user charges are not adequate to cover the full cost of operation, illegal dumping clean-ups, litter bin servicing, licensing implementation, education activities and reporting on plan implementation.

Levy payments will fund waste education and selected recycling and recovery activities at transfer stations i.e. activities that promote or achieve the Goals and Objectives of this WMMP.

Details of funding sources, quantities and allocation can be found in each Council's Long Term Plan and Annual Plan updates to the Long Term Plan.

11.1 Grants and advances of monies

As part of the implementation of the WMMP the Councils will develop criteria for making grants available from each Council's allocation of Waste Levy funds. The amount of money available for grants will be determined as part of the Annual Plan process, but is expected to be in the order of 15% of the levy funding received by each Council.

Criteria will be based on the funded activities contribution to promoting and achieving the Vision, Goals and Objectives for waste minimisation and management. Activities with co-funding will be preferred with 50% or more contribution from partners other than council expected.

Applications for funding will also be assessed for their ability to deliver the promised benefits. Specific areas for assessment will include organisation capability to deliver the project, governance arrangements, accountability and track record in delivering similar projects.

11.2 Waste minimisation levy expenditure

Waste minimisation levy funds will continue to be spent supporting waste minimisation activities including environmental education, contributing to recycling at transfer stations, information for residents and businesses and targeted investigations into new waste minimisation initiatives.

12 Targets and measurement

The targets set out in Section 5.2 of Part A of this WMMP provide a high level measure of progress. Monitoring, evaluation and reporting will focus on gathering data to assess progress against these targets, inform refinement of existing actions and development of future actions.

Progress in achieving the Vision - Goals - Objectives of this WMMP will be monitored by collecting the data outlined in Table 12 (repeating Table 11 from Section 8 Monitoring, evaluating and reporting progress).

Table 12: Data source and description

Data Source	Information	Comment
Council contractors	Illegal dumping Litter (bins, clean-up) Kerbside refuse Kerbside recycling Transfer station refuse Transfer station recycling/recover Recycling station recycling Landfill refuse	Contract reporting
Other collectors	Kerbside/Business refuse	By-law data requirements
Waste processor	Materials processed	By-law data requirements
Council contact database	Illegal dumping incidents	
Customer Surveys	Residents satisfaction	
Council Activity Reporting (Annual Report)	By-law implementation (licensing) Data summary	
Targeted data collection	Solid Waste Analysis Protocol Surveys (waste composition) Kerbside collection surveys (participation, set out rates) Recycling contamination survey	Contract requirement or targeted survey

Some of the activities in this Action Plan are focussed on securing the information noted in Table 12. For example ongoing implementation of licensing (based on the existing by-law) and improving reporting under existing and future council contracts.

Periodic review of the Action Plan (see Section 10 of the Action Plan) will consider how effective the actions underway or completed have been in achieving the Vision - Goals - Objectives of this Plan. Table 13 links Targets to measures noted in Table 12. Table 14 provides definitions for key measures.

Table 13: Measuring progress against targets

Target	Measure
1.1 To maintain or reduce the total quantity of waste disposed of to landfill from the West Coast on a per capita basis. The current figure is approximately 340 kg per person. Waste disposed of to landfill < 300 kg per person each year	T of waste disposed of to landfill per capita
2.1 Increase in the proportion of material captured for recycling at kerbside and transfer stations. The current figures are 29% and 27% respectively. Kerbside recycling > 35% by 2025, Recycling at Refuse Transfer stations > 50% by 2025	% of waste recycled per year
2.2 Establish simple and effective recycling services for visitors to the West Coast Region Establish 5 refuse and recycling depots at key visitor locations on the West Coast by 2022	
3.1 Satisfaction with kerbside refuse and transfer station services. Resident and visitor satisfaction > 85% Establish 5 refuse and recycling depots at key visitor locations on the West Coast by 2022. Pilot with 2 facilities in Buller District followed by the remainder of the Region.	Residents satisfaction survey results Number of refuse and recycling depots established.
4.1 Reduction in illegal dumping incidents and quantity of material illegally dumped in the West Coast Region. (Refer also establishing refuse recycle and waste stations). Quantity of illegally dumped waste < 2016/17 figure. The number of illegal dumping incidents is < 2016/17 figure.	Number of incidents and quantity of illegally dumped material.
5.1 To publish a summary of available data on waste generation and management with each annual report. Summary data published in Annual Report To create a grant scheme to support new initiatives to reduce waste	Summary reporting on WMMP in each Annual Report. Grant applications invited.
6.1 Schools programmes delivered by Council. Support the EnviroSchools programme each year.	Number of school in education programmes.
6.2 Council (or contractors) promote waste minimisation at events in the Region. Councils promote waste minimisation at > five events in the Region each year.	Number of events with waste minimisation plans and reporting.
6.3 Inform and support West Coast residents and businesses on waste minimisation opportunities. Information made available and regularly updated on Council websites.	Information available to residents and business.
7.1 Work with others to influence national policy and action on waste minimisation and management.	

Table 14: Measure definitions

Measure	Definition
T of waste disposed of to landfill per capita	Total quantity of waste disposed of to landfill (from contract and by-law reporting) divided by West Coast Region usually Resident Population.
T of waste recycled per year	Total quantity of waste recycled or recovered (from contract and by-law reporting) divided by Total quantity of waste disposed of to landfill (from contract and by-law reporting).
Residents satisfaction	[Measure as defined in LTP 2015-2025] or later LTP.
T of illegal dumped material	Total quantity of illegally dumped material picked up by West Coast Region contractors per year.

13 Action plan (See also Section 5.3)

The action plan as set out in the following pages has been developed to enable the West Coast Region Councils and community to work towards achieving the Vision - Goals - Objectives set out in the Regional WMMP. The Action Plan provides a detailed plan of action for years one and two, with long term actions mentioned but not detailed. Where actions have operational or financial implications they need to be confirmed in the Councils core planning documents - the Long Term Plan and Annual Plan.

The Waste Assessment recommended the following options be included in an action plan for the West Coast Region Council WMMP.

Infrastructure actions

- Investigate and maintain a watch on wheelie bin based user pays technology for refuse collection.
- Investigate a transition to two stream (co-mingle recyclables + separate glass) for kerbside recycling services across the Region.
- Investigate²⁰ a periodic garden waste collection service (most likely combined with a bulky waste collection service).
- Investigate¹⁴ optimising services for bulky household waste including the role of the regional transfer station network and potential bulky waste collections (scheduled for all households or on demand).
- Implement recycle/waste stations at tourism hotspots across the West Coast - trail the approach in Buller District (North Beach, Punakaiki) and then roll out to other locations.
- Investigate/Trial²¹ dry waste (construction waste, commercial waste) sorting including the use of charging to incentivise semi-sorted loads at key transfer stations.
- Implement processing of shredded green waste and sludge in Greymouth, Hokitika (and potentially Reefton).
- Investigate consolidating MRF operations and options for glass (local processing and beneficial use).
- Investigate combining Grey District and northern Westland District refuse disposal in the medium term (as cells at Butlers and/or McLean's Landfills are completed).
- Maintain a watch on the proposal Westport waste to energy proposal.

Education actions

- Continue to update and maintain information on waste and recycling collection and drop off services in the West Coast Region on Council websites and information for visitors.
- Disseminate information on waste minimisation and management to all residents (including holiday makers/temporary residents) including national programmes like Love Food Hate Waste.
- Maintaining school education programme, support existing environmental education activities for schools, homes and businesses.

²⁰ Detailed analysis of options considering cost of service, diversion of materials, fairness/equity, safety and protection of the environment (illegal dumping).

²¹ Look at Westport, Reefton, McLeans and Hokitika transfer stations, detailed analysis of options considering cost of service, diversion of materials, fairness/equity, safety and protection of the environment (illegal dumping).

Policy Actions

- Develop criteria for making grants available from Council's allocation of Waste Levy funds. Provisionally criteria will be based on contribution to the Vision, Goals and Objectives for waste minimisation and management with consideration of co-funding. Applications for funding should also be assessed for their ability to deliver the promised benefits i.e. due diligence on organisation capability, governance and accountability.
- Develop a regional solid waste bylaw and associated implementation plan targeting implementation of a licencing regime in 2019.
- Continue to report on progress against the targets in the WMMP in Annual Reports.
- Collaborate with central government, local government organisations, non government organisations (NGO) and other key stakeholders to progress national activity on waste minimisation and management policy²².
- Continue to actively address illegal dumping activity including where possible identifying perpetrators and if required undertaking clean-up activity.

²² Including policy and analysis relating to tourism waste

13.1 Action planning tables

Table 15: Infrastructure actions

Action (Infrastructure)	Timeline	Funding	Objective(s)	Target(s)
a. Investigate and maintain a watch on wheelie bin based user pays technology for refuse collection.	Ongoing, contract rollover	Rates (existing)	3	3.1
b. Investigate a transition to two stream (co-mingle recyclables + separate glass) for kerbside recycling services across the Region.	July 2019 Contract rollover for Westland	Rates (new)	2	2.1
c. Investigate ²³ a periodic garden waste collection service (most likely combined with a bulky waste collection service).	June 2020	Rates (existing)	1, 2, 3	1.1, 2.1, 2.2, 3.1
d. Investigate ¹⁴ optimising services for bulky household waste including the role of the regional transfer station network and potential bulky waste collections (scheduled for all households or on demand).	June 2020	Rates (existing)	1, 2, 3	1.1, 2.1, 2.2, 3.1
e. Implement recycle/waste stations at tourism hotspots across the West Coast - trail the approach in Buller District (North Beach, Punakaiki) and then roll out to other locations.	From July 2018 Buller by June 2019, West Coast 2021	Rates (new)	1, 2, 3, 4	1.1, 2.1, 2.2, 3.1, 4.1
f. Investigate/trial ²⁴ dry waste (construction waste, commercial waste) sorting including the use of charging to incentivise semi-sorted loads at key transfer stations.	June 2020	Rates (new) and user charges	1, 2, 3	1.1, 2.1, 2.2, 3.1
g. Implement processing of shredded green waste and sludge in Greymouth, Hokitika (and potentially Reefton).	June 2020	Rates (new)	1, 2, 3	1.1, 2.1, 2.2, 3.1
h. Investigate consolidating MRF operations.	Dec 2018	Rates (existing)	1, 2	1.1, 2.1, 2.2

²³ Detailed analysis of options considering cost of service, diversion of materials, fairness/equity, safety and protection of the environment (illegal dumping).

²⁴ Look at Westport, Reefton, McLeans and Hokitika transfer stations, detailed analysis of options considering cost of service, diversion of materials, fairness/equity, safety and protection of the environment (illegal dumping).

Action (Infrastructure)	Timeline	Funding	Objective(s)	Target(s)
i. Investigate combining Grey District and northern Westland District refuse disposal in the medium term (as cells at Butlers and/or McLeans Landfills are completed).	On cell completion.	Rates (existing)	3	
j. Maintain a watch on the proposal Westport waste to energy proposal.	Ongoing	Rates (existing)	3	

Table 16: Education actions

Actions (Education)	Timeline	Funding	Objective(s)	Target(s)
k. Continue to update and maintain information on the Council website regarding waste and recycling collection and drop off services in the West Coast Region.	Ongoing	Rates (existing)	1, 2, 3, 6	1.1, 2.1, 2.2, 3.1, 6.2, 6.3
l. Provide clear information and education to promote the effective use of private sector (for example farm plastics, soft plastics recycling, Paintwise) and Council operated recycling services.	Ongoing	Rates (existing)	1, 2, 3, 6	1.1, 2.1, 2.2, 3.1, 6.3
m. Disseminate information on waste reduction to all residents (including holiday makers/temporary residents) including national programmes like Love Food Hate Waste.	Ongoing	Rates (existing)	1, 6, 7	1.1, 6.3, 7.1
n. Maintaining school education programme, support environmental education activities for schools, homes and businesses.	Ongoing	Rates (existing)	6	6.1
o. Provide information to the community about the negative impact of illegal dumping and alternatives available to the community (kerbside collection, commercial skip bins and transfer stations).	Ongoing	Rates (existing)	5, 6	5.1, 5.2, 6.3

Table 17: Policy actions

Actions (Policy)	Timeline	Funding	Objective(s)	Target(s)
p. Develop criteria for making grants available from Council's allocation of Waste Levy funds. Provisionally criteria will be based on contribution to the Vision, Goals and Objectives for waste minimisation and management with consideration of co-funding. Applications for funding should also be assessed for their ability to deliver the promised benefits i.e. due diligence on organisation capability, governance and accountability. Consideration also needs to be given to ensuring that funding supports new or expanded activities rather than supporting the status quo.	June 2019	Waste levy	5	5.1
q. Develop a regional solid waste bylaw and associated implementation plan targeting implementation of a licencing regime in 2019. Review and amend the existing Solid Waste Bylaws (Grey District and Westland District). This will focus on licensing, provision of recycling and consider limiting receptacle size ²⁵ . With a small number of collection providers operating in the Region Councils are in a position to develop pragmatic but effective approach. This will require consultation with the collection providers prior to formally notifying any proposed changes. The target implementation for the updated bylaw is December 2019.	Dec 2019	Rates (existing)	1, 2, 3	1.1, 2.1, 3.1
r. Continue to report on progress against the targets in the WMMP in Annual Reports.	June 2018 and ongoing	Rates (existing)	5	5.1
s. Collaborate with local government organisations, non government organisations (NGO) and other key stakeholders to progress national activity on waste minimisation and management policy.	Ongoing	Rates (existing)	7	7.1
t. Continue to actively address illegal dumping activity including where possible identifying perpetrators and if required undertaking clean-up activity.	Ongoing	Rates (existing)	4	4.1

²⁵ The bylaw could limit size of new containers (120-140 L is common for Council provided collections or where limits have been introduced elsewhere). For existing containers collection frequency could be limited to provide similar weekly capacity e.g. fortnightly collection of 240L wheelie bin.

Table 18: Timeline

2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Infrastructure					
Services					
Existing					
Refuse Collection	Refuse Collection	Refuse Collection	Refuse Collection	Refuse Collection	Refuse Collection
Kerbside Recycling	Kerbside Recycling	Kerbside Recycling	Kerbside Recycling	Kerbside Recycling	Kerbside Recycling
Transfer Stations	Transfer Stations	Transfer Stations	Transfer Stations	Transfer Stations	Transfer Stations
<i>Potential new services:</i>					
			<i>Refuse bin RFID/User pays</i>		
			<i>Westland District glass recycling</i>		
				<i>Tender and appoint organic waste and/or Bulky waste service</i>	<i>Organic and/or Bulky waste service</i>
<i>Buller recycle/waste stations at North Beach and Punekaiki</i>		<i>Northern and central Buller, Grey and Westland Districts recycle/waste stations</i>			
	<i>Processing of shredded green waste and sludge in Greymouth, Hokitika (and potentially Reefton)</i>				
	<i>Collaborate with product owners on problem products e.g. e-waste</i>				<i>Tender/Appoint dry waste sorting (new or varied transfer station contracts)</i>
Investigations					
<i>Complete investigation on MRF consolidation</i>	<i>Complete study on garden waste and bulky waste collection.</i>		<i>LTP Proposal for bulky and/or organic waste</i>		
<i>Complete investigations into two stream collection options.</i>	<i>Complete study on dry waste sorting</i>		<i>LTP proposal on dry waste sorting</i>		

2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Education / Information					
Green waste and food waste services	Green waste and food waste services	Green waste and food waste services	Green waste and food waste services	Green waste and food waste services	Green waste and food waste services
Council services	Council services	Council services	Council services	Council services	Council services
For holidaymakers	For holidaymakers	For holidaymakers	For holidaymakers	For holidaymakers	For holidaymakers
Schools	Schools	Schools	Schools	Schools	Schools
Illegal dumping	Illegal dumping	Illegal dumping	Illegal dumping	Illegal dumping	Illegal dumping
Policy					
Develop grant funding criteria	Grant funding round	Grant funding round	Grant funding round	Grant funding round	Grant funding round
By-law amendment	By-law implementation	By-law implementation	By-law implementation	By-law implementation	By-law implementation
Report on progress in 2017/18 Annual Report.	Report on progress in 2018/19 Annual Report.	Report on progress in 2019/20 Annual Report.	Report on progress in 2020/21 Annual Report.	Report on progress in 2021/22 Annual Report.	Report on progress in 2022/23 Annual Report.
Collaborate with others national activity and policy.	Collaborate with others national activity and policy.	Collaborate with others national activity and policy.	Collaborate with others national activity and policy.	Collaborate with others national activity and policy.	Collaborate with others national activity and policy.
Illegal dumping investigation and enforcement activity	Illegal dumping investigation and enforcement activity	Illegal dumping investigation and enforcement activity	Illegal dumping investigation and enforcement activity	Illegal dumping investigation and enforcement activity	Illegal dumping investigation and enforcement activity
Indicative Budget ²⁶					
3.4M	3.7M	3.7M	4.6M	4.6M	5.6M
Status quo	Add Buller recycle/waste stations, investigations	Add green waste + sewage solids processing	Add RFiD refuse bins and Westland District glass collection		Add organic and bulky waste collection.

²⁶ Based on current budgets across 3 Councils and estimated cost of proposed initiatives. Further detail of the basis for cost estimates is contained in the option evaluation sections in the Regional Waste Assessment.

14 Applicability

This report has been prepared for the exclusive use of our clients Buller, Grey and Westland District Councils, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

Tonkin & Taylor Ltd

Report prepared by:

Authorised for Tonkin & Taylor Ltd by:

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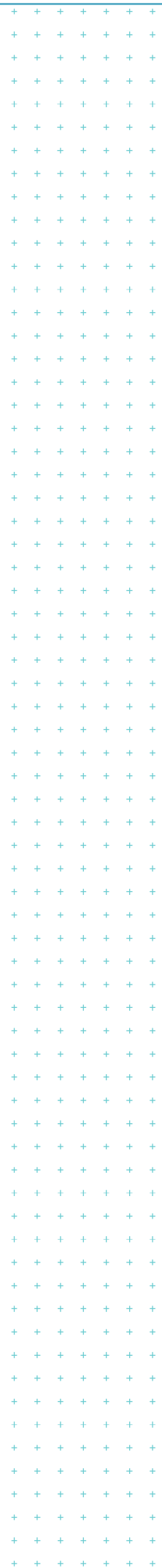
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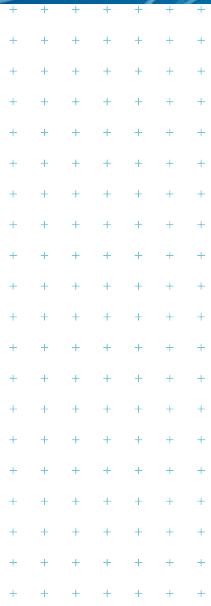
Appendix A: West Coast Regional Waste
Assessment (2018)





West Coast Regional Waste Assessment

Prepared for
Westland, Grey and Buller District Council
Prepared by
Tonkin & Taylor Ltd
Date
June 2018
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Distribution:

Westland, Grey and Buller District Council

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Table of contents

1	Policy context	4
1.1	National Policy	5
1.1.1	Waste Minimisation Act 2008	5
1.1.2	The New Zealand Waste Strategy 2010	6
1.1.3	Other National Policy	6
1.2	Regional Policy	8
1.2.1	West Coast Regional Policy Statement	8
1.2.2	West Coast Regional Plans	8
1.2.3	Regional Waste Management Strategies	9
1.3	Local Policy	9
2	Waste infrastructure and services	11
2.1	Collection	11
2.1.1	Waste from visitors to the region	12
2.1.2	Residential Collection	12
2.1.3	Commercial or Industrial Waste	13
2.1.4	Litter and Illegal Dumping	13
2.2	Waste Transfer and Processing	13
2.2.1	Transfer stations and recycling drop-off	13
2.2.2	Other Processing	15
2.2.3	Markets for recyclable materials	16
2.3	Landfills	16
2.4	Costs for Waste Management	16
2.4.1	Council Funding	16
2.4.2	User Charges	17
2.5	Waste Infrastructure - Issues Identified	19
3	Waste Quantity and Composition	21
3.1	Timeframe	21
3.2	Population	21
3.3	Waste Composition	22
3.4	Waste Quantities	23
3.4.1	Kerbside Waste Quantities	23
3.4.2	Waste quantities at Refuse Transfer Stations and Landfill	23
3.4.3	Unquantified Waste	24
3.5	Collection and drop off system performance	24
3.6	Waste quantity and composition data - issues and constraints	26
4	Delivery of Waste Minimisation and Management Services	27
5	Forecast of future demand	28
PART 2 - WHERE DO WE WANT TO BE?		30
6	Where do we want to be?	31
6.1	Background	31
6.2	Vision, goals, objectives and targets	32
6.3	Council's intended role	35
6.4	Protecting public health	35
PART 3 - HOW ARE WE GOING TO GET THERE?		36
7	Options Identification and Analysis	37
7.1	Introduction	37
7.2	Identifying options	37

7.2.1	Collection Options	38
7.2.2	Physical Infrastructure Options	41
7.2.3	Options to manage the negative impacts of waste	45
7.2.4	Education Options	46
7.2.5	Policy Options	46
7.3	Assessing options	48
7.3.1	Assessment Criteria	48
7.3.2	Long List Options Assessment	48
7.3.3	Detailed Options Evaluation	54
7.4	Preferred options	61
8	Statement of proposals	67
9	Consultation with the Medical Officer of Health	70
10	Applicability	71
10.1	Buller District Council	1
10.2	Grey District Council	3
10.3	Westland District Council	6

Appendix A : Letter/Comments from Community and Public Health

Appendix B : Individual Council Data

Acknowledgements

This document is based on the template set out in the Ministry for the Environment's document Waste Assessment and Waste Minimisation and Management Planning, A Guide for Local Authorities.

This document could not have been prepared with input from staff across the three Councils (Grey District, Westland District and Buller District) and input from other stakeholders including:

- Council contractors
- The West Coast Regional Council
- Regional Public Health

Introduction

This Waste Assessment establishes the planning foundations for a Regional Waste Minimisation and Management Plan (WMMP) for Westland, Grey and Buller Districts (the West Coast Region) by describing the waste situation, setting the vision, goals objectives and targets for the region, and developing options for meeting future demand. Much of the information presented in this Waste Assessment will be summarised in the final WMMP.

This Waste Assessment contains three parts:

- Part 1 – where are we now?

This covers policy context, the current waste situation, including waste flows, waste infrastructure and services, and forecast of future demand. This will be summarised in the WMMP.

- Part 2 – where do we want to be?

Part 2 includes the vision, goals, objectives and targets for the waste assessment, which will form part the WMMP.

- Part 3 – how are we going to get there?

Part 3 identifies options and assesses the suitability of each option (as required by Section 51 of the Waste Management Act 2008 (WMA)) and includes a summary of the outcome of consultation with the Medical Officer of Health. The preferred options from the Part 3 assessment will be presented in the WMMP.

Purpose of the Waste Assessment

This draft Waste Assessment and associated draft Waste Minimisation and Management Plan summarises the current situation for waste minimisation and management in the West Coast Region and sets out how the Westland, Grey and Buller District Councils will progress efficient and effective waste management and minimisation. It paves the way forward, considering current policy and the legal framework and each District's vision, with an overarching suite of guiding goals and objectives.

This Waste Minimisation and Management Plan fulfils each Council's obligations under the Waste Minimisation Act (WMA) (2008). The plan uses the waste hierarchy (Figure 1) as a guide to prioritising activity, focussing on reducing waste before recycling or recovery of materials. Where materials cannot be recycled or recovered the focus is on safe treatment and disposal.

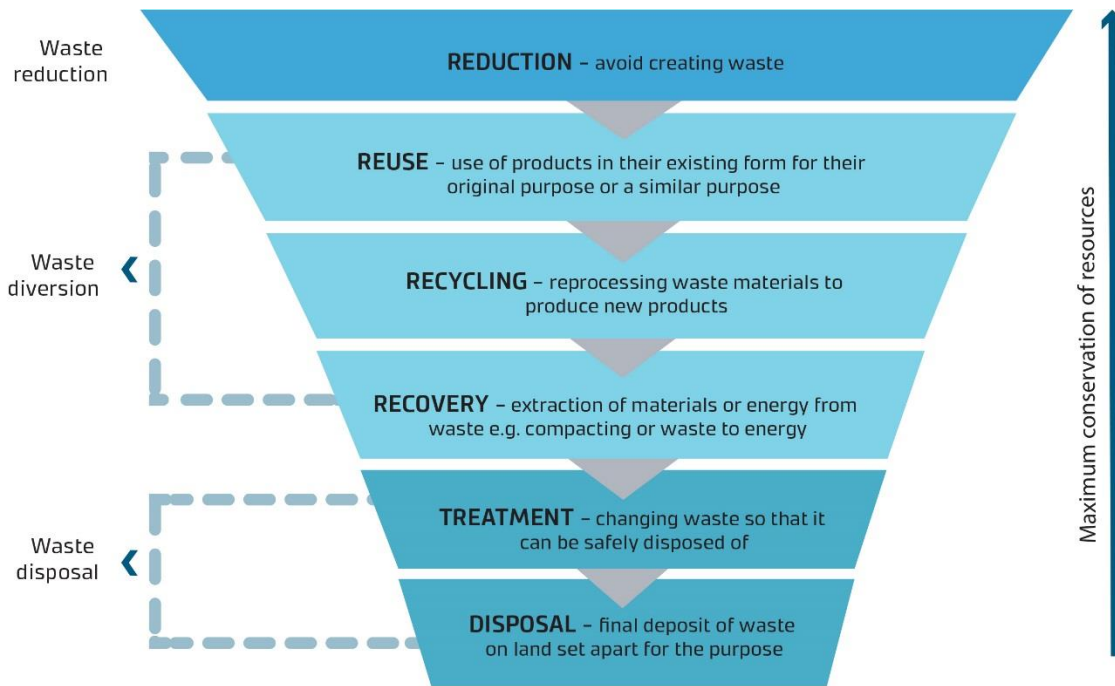


Figure 1: The Waste Hierarchy

Scope

This Waste Assessment and the associated Waste Minimisation and Management Plan covers solid waste generated in the West Coast Region. The focus is on materials entering the waste management system (collection, processing and disposal). Other materials are relevant but not specifically addressed including wastewater treatment solids, industrial by-products and materials re-used on site.

PART 1 - THE WASTE SITUATION

1 Policy context

The New Zealand Waste Strategy¹ (NZWS) provides a useful summary of the New Zealand policy context for waste minimisation and management. A diagram from the NZWS laying out the policy context is reproduced as Figure 2.

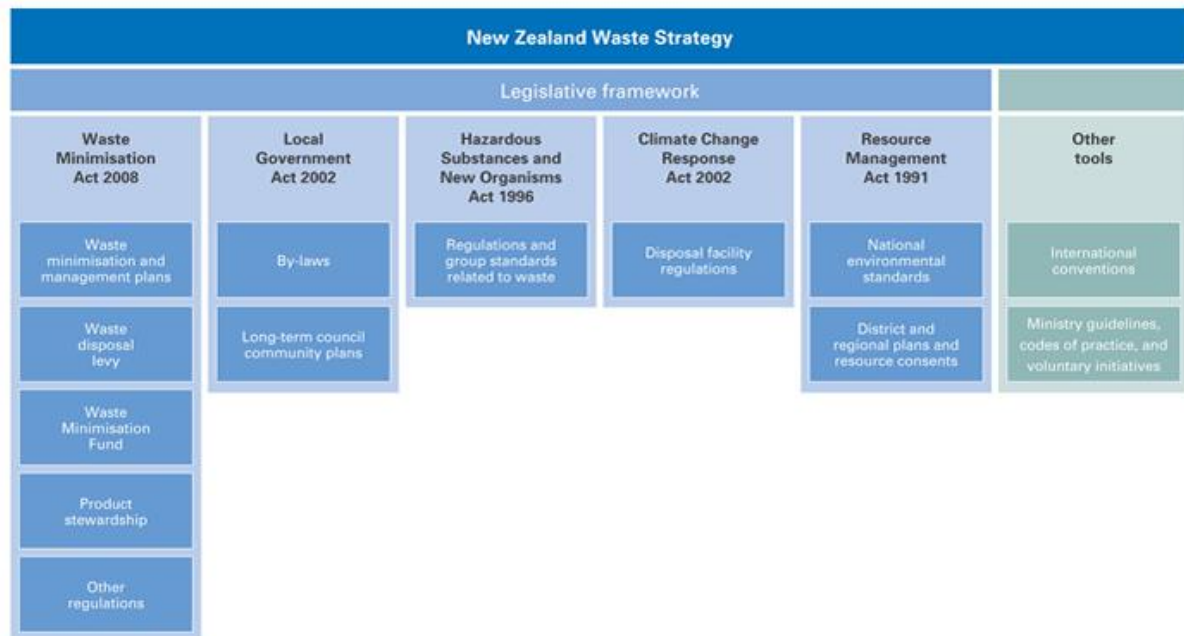


Figure 2: Policy Context for Waste minimisation and management in New Zealand¹

There is wide a range of statutory documents and associated policy that impacts on waste minimisation and management in the West Coast Region. These are summarised in Table 1 and the remainder of Section 1 below.

Table 1: Selected relevant policy for waste in the West Coast Region

National	Regional	Local
Waste Minimisation Act 2008	West Coast Regional Policy Statement	Long Term Plans 2015-2025
NZ Waste Strategy 2010	West Coast Regional Air Quality Plan	District Plans
Resource Management Act 1991	West Coast Regional Coastal Plan	Bylaws
Hazardous Substances and New Organisms Act 1996	West Coast Regional Land and Water Plan	Asset Management Plans
Local Government Act 2002	Regional Waste Strategy for the West Coast	Solid waste management policies and plans
Climate Change Response Act 2002	West Coast Visitor Waste Management Strategy	
Health Act 1956		
NZ Emissions Trading Scheme		

¹ The New Zealand Waste Strategy: Reducing harm, improving efficiency (ME1027), 2010.

1.1 National Policy

1.1.1 Waste Minimisation Act 2008

The Waste Minimisation Act 2008 (WMA (2008)) sets a framework to encourage a reduction in the amount of waste generated and disposed of in New Zealand, minimising the environmental harm of waste and providing economic, social and cultural benefits for New Zealand.

The main elements of this Act include;

- A levy imposed on all waste that is landfilled;
- Product stewardship schemes for businesses and organisations;
- Allows local authorities to create bylaws relating to waste management and minimisation;
- Requires waste operators to undertake waste reporting; and
- Establishes a Waste Advisory Board to give independent advice to the Minister for the Environment on related issues.

Territorial authorities, such as Westland, Buller and Grey District Councils, are required by the WMA (2008) to promote waste management and minimisation within the territorial authority's district. Part of this responsibility involves the creation and adoption of a Waste Management and Minimisation Plan (WMMP), updated every six years, which details current and planned objectives and policies, methods and funding for achieving effective and efficient waste management and minimisation. This plan must also have regard for the New Zealand Waste Strategy (1.1.2). The Plan must also consider the following methods of waste management and minimisation (listed in descending order of importance):

- Reduction;
- Reuse;
- Recycling;
- Recovery;
- Treatment; and
- Disposal.

1.1.1.1 Statutory requirements for Waste Assessment and WMMP

This Waste Assessment establishes the planning foundations for any WMMP by describing the waste situation, setting the vision, goals objectives and targets for the region, and developing options for meeting future demand.

A WMMP must contain a summary of the Council's objectives, policies and targets for waste management and minimisation. The plan should clearly communicate how the Councils will deliver on these objectives.

Section 43 of the WMA states that a WMMP must provide for:

- a *objectives and policies for achieving effective and efficient waste management and minimisation within the territorial authority's district*
- b *methods for achieving effective and efficient waste management and minimisation within the territorial authority's district, including -*
 - i *collection, recovery, recycling, treatment, and disposal services for the district to meet its current and future waste management and minimisation needs (whether provided by the territorial authority or otherwise); and*
 - ii *any waste management and minimisation facilities provided, or to be provided, by the territorial authority; and*

- iii *any waste management and minimisation activities, including any educational or public awareness activities, provided, or to be provided, by the territorial authority*
- c *how implementing the plan is to be funded*
- d *if the territorial authority wishes to make grants or advances of money in accordance with section 47, the framework for doing so.*

A WMMP must have regard to the waste hierarchy, the New Zealand Waste Strategy, and a Council's most recent Waste Assessment.

1.1.2 The New Zealand Waste Strategy 2010

While the WMA (2008) outlines the regulatory requirements of businesses and organisations, the New Zealand Waste Strategy provides high-level strategic direction around where to focus effort to manage waste, and ways in which this can be achieved. The key aim of the Strategy is 'Reducing Harm, Improving Efficiency'. This aim is further defined as

- Reducing the harmful effects of waste on both the environment and human health; and
- Improving the efficiency of resource use to reduce the impact on the environment and human health and gain any potential economic benefits.

The strategy highlights other tools and legislative requirements that businesses and organisations should consider when reviewing waste management.

1.1.3 Other National Policy

As noted in Table 1 there are several other policy documents of relevance to waste minimisation and management in the West Coast region. These are noted below with content drawn from the Ministry for the Environment (MfE) Guide for Waste Minimisation and Management Planning².

1.1.3.1 Resource Management Act 1991

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

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

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

² Waste Assessments and Waste Management and Minimisation Planning – A Guide for Territorial Authorities, MfE 2015.

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

In addition, the RMA provides for the development of National Policy Statements (NPS) and for the setting of National Environmental Standards (NES). There is currently one enacted NES that directly influences the management of waste in New Zealand – the Resource Management (National Environmental Standards for Air Quality) Regulations 2004. This NES requires certain landfills (those with a capacity of more than 1 million tonnes of waste) to collect landfill gases and either flare them or use them as fuel for generating electricity. Unless exemption criteria are met, the NES for Air Quality also prohibits the lighting of fires and burning of wastes at landfills, the burning of tyres, bitumen burning for road maintenance, burning coated wire or oil, and operating high-temperature hazardous waste incinerators. These prohibitions aim to protect air quality.

1.1.3.2 Hazardous Substances and New Organisms Act 1996

The purpose of the Hazardous Substances and New Organisms Act 1996 (HSNO) is to ‘protect the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances and new organisms’. The Environmental Protection Authority (EPA) assesses and decides on applications to introduce hazardous substances or new organisms into New Zealand.

From a solid waste perspective HSNO controls the management of waste hazardous substances, for example unwanted agrichemicals. The focus of HSNO is on materials that are manufactured that have hazardous properties. This means that wastes that are not manufactured substances are covered by HSNO, for example mixtures of substances or contaminated soil.

1.1.3.3 Local Government Act 2002

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

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

1.1.3.4 Climate Change Response Act 2002, New Zealand ETS

The Climate Change Response Act 2002 and associated regulations is the Government’s principal response to manage climate change. A key mechanism for this is the New Zealand Emissions Trading Scheme (NZ ETS). The NZ ETS puts a price on greenhouse gas emissions, providing an incentive for people to reduce emissions and plant forests to absorb carbon dioxide.

Certain sectors, including landfill operators, are required to acquire and surrender emission units to account for their direct greenhouse gas emissions, or the emissions associated with their products. Landfills that are subject to the waste disposal levy are required to surrender emission units to cover methane emissions generated from landfill. These disposal facilities are required to report the tonnages landfilled annually to calculate their emission unit surrender obligations.

1.1.3.5 Litter Act 1979

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

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

Council's powers under the Litter Act can be used to address illegal dumping issues that may be included in the scope of a Council's WMMP.

1.1.3.6 Health Act 1956

The Health Act 1956 places obligations on Councils (if required by the Minister of Health) to provide sanitary works for the collection and disposal of refuse, for the purpose of public health protection (Part 2 – Powers and duties of local authorities, Section 25). The Act specifically identifies certain waste management practices as nuisances (Section 29) and offensive trades (Third Schedule). The Health Act enables Councils to raise loans for certain sanitary works and/or to receive government grants and subsidies, where available.

1.2 Regional Policy

1.2.1 West Coast Regional Policy Statement

The Proposed West Coast Regional Policy Statement (RPS) (dated March 2015) provides a broad overview of resource management issues within the region, and identifies policies and methods for achieving integrated management of natural and physical resources.

There are no specific policies or methods relating to waste management within the RPS, however the document does refer to managing impacts of land use on water quality and air quality, both of which relate to how waste is disposed of.

1.2.2 West Coast Regional Plans

There are currently three Regional Plans operating in the West Coast Region; the Regional Air Quality Plan, West Coast Regional Coastal Plan and Regional Land and Water Plan. A summary of the policies and rules within these plans which relate directly to waste management is provided below.

The Regional Air Quality Plan became operative in 2001. It considers the use, development and protection of the air resource of the West Coast and issues associated with that use, development and protection. Areas of the plan specific to waste management include:

- The plan includes a policy of promoting the reduction of emissions of greenhouse gases (Policy 9.4.2), and protection of human health and the environment from the adverse effects of discharges of products of combustion (Policies 8.4.1 to 8.4.3). With regard to greenhouse gases, this follows through into the methods which include promoting waste management practices that reduce greenhouse gas emissions (with specific mention of landfill gas), and provisions in other plans around landfill gas management. With regard to products of combustion, this follows through to several rules regarding combustion activities.
- Discharges to air from the disposal of waste on production land is a permitted activity (subject to certain requirements). Discharges from the burning of waste on production land is specifically excluded from this rule.

- The combustion of organic waste (including from both trade and domestic sources) is a permitted activity (subject to certain requirements).
- Landfills, composting operations and hazardous waste incinerators are discretionary activities under the plan.
- Combustion of wastes (excluding organic wastes) is a prohibited activity under the plan.

The Regional Land and Water Plan became operative in 2014. The Plan gives specific consideration to wastes from agricultural sources, and the disposal of waste via composting and landfilling.

- The following waste related activities are permitted (do not require resource consent), subject to a number of requirements; disposal of silage wrap via burning, burial on production land or at a landfill, disposal to land of solid waste generated on a property, and composting on production or residential land.
- There are no specific rules regarding landfills or waste disposal to land in the Plan. Any discharge of contaminants into or onto land not provided for by a permitted or controlled activity rule in the Plan is a discretionary activity.

The Proposed West Coast Regional Coastal Plan was released in January 2016 for public consultation. There are no specific policies or rules in the Coastal Plan in relation to waste management.

1.2.3 Regional Waste Management Strategies

WCRC has two regional waste strategy documents. The main strategy was adopted by WCRC and the three district council in 2004. The strategy has three objectives:

- 1 To identify opportunities for the improved management of solid and hazardous wastes in the West Coast region.
- 2 To identify where a joint approach to waste management delivers better outcomes for the community and the environment in the West Coast region.
- 3 To provide a sound economic analysis of the proposed regional waste minimisation and management actions.

A separate strategy for the management of visitor waste was developed in 2006.

1.3 Local Policy

The local policy documents relevant to waste management for each of the three councils are summarised in Table 1.2.

Table 1.2: Summary of local solid waste policy

	Long Term Plan	Solid waste management plans and policy	Solid waste bylaw
Buller District Council	<p>Long Term Plan 2015-2025</p> <ul style="list-style-type: none"> Waste management and minimisation are listed as key aspects for achieving the community's goal of a "Sustainable Environment". Council is committed to this goal through the facilitation of the collection and disposal of refuse in a safe, efficient and sustainable manner, and encouraging and educating the community around waste care and minimisation. Capital funding has been allowed in the Plan for replacement of existing assets over the life of the Plan. No specific detail is provided on what assets this relates to. 	<p>Waste Management and Minimisation Plan 2012-2018</p> <p>Vision: To encourage waste reduction, reuse and recycling to support health of the community and environment we live in and encourage the sustainable use of our natural resources.</p> <p>Goals:</p> <ul style="list-style-type: none"> Improving the efficiency of resource use Reducing the harmful effects of waste 	<p>No solid waste bylaw in place</p>
Grey District Council	<p>Long Term Plan 2015-2025</p> <ul style="list-style-type: none"> Key contributions in terms of waste management are stated as being the provision of waste and recycling collection, storage and disposal (including management of the McLean's Landfill and McLean's Recycling Centre), the provision of waste minimisation processes and education, and the provision of litter management services and education. Solid waste infrastructure within the District includes: <ul style="list-style-type: none"> McLean's Landfill and Recycling Centre Resource and Recovery Centres at Moana, Blackball and Nelson Creek. Four key issues for waste management are identified for the District including the need for a new cell at the McLean's Landfill as the current cell was projected to reach capacity in 2016 (now 2018), the need for increased waste minimisation, the financial impact of the ETS, and increasing volumes of demolition waste from the demolishing of earthquake prone buildings. Options for addressing these key issues are outlined in the plan, along with funding projections to provide for them. 	<p>Waste Management and Minimisation Plan 2012-2018</p> <p>Vision: The Grey District will be a progressive, sustainable area where people want to live, work and play</p> <p>Goals:</p> <ul style="list-style-type: none"> Improving the efficiency of resource use Reducing the harmful effects of waste <p>Refuse and Recycling Kerbside Collection Policy (2012)</p> <ul style="list-style-type: none"> This policy sets out the criteria for acceptance of kerbside refuse and recycling, and procedures in the event that refuse or recycling does not comply with these criteria. 	<p>Solid Waste Bylaw 2012</p> <ul style="list-style-type: none"> The purpose of the bylaw is to ensure refuse is collected and disposed of in the interested of public health in an efficient and cost effective manner and at the same time ensuring that any obstruction of streets is kept to a minimum. The bylaw focuses on provisions around kerbside waste collection and management of council disposal sites, and also includes provisions for managing non-compliance with the requirements of the bylaw.
Westland District Council	<p>Our Way Forward - Council's Long Term Plan 2015-2025</p> <ul style="list-style-type: none"> Solid waste infrastructure within the District includes: <ul style="list-style-type: none"> Seven transfer stations (Hokitika, Ross, Kumara, Harihari, Haast, Whataroa and Fox Glacier). Two landfills (Butlers and Haast). Three closed landfills (Kumara, Franz Josef and Hokitika). Key issues associated with solid waste management are identified as waste minimisation, waste charges, reducing waste tonnage to landfill, communication with the community, and transfer station opening hours. Closed landfill capping projects and legislation changes are also identified as key issues. Funding has been allocated for several capital projects including works at the closed landfill at Hokitika, and capping and new cell construction at Bulters and Haast landfills. 	<p>Waste Management and Minimisation Plan 2012-2018</p> <p>Vision: To make Westland a better place to live for its residents and ratepayers.</p> <p>Principles:</p> <ul style="list-style-type: none"> Kaitiakitanga/Stewardship Minimising harm from waste Full cost pricing Effective and efficient waste management and minimisation Polluter pays principle Precautionary principle 	<p>Refuse Bylaw 1992</p> <ul style="list-style-type: none"> The Refuse Bylaw is very brief and focuses on the requirements for kerbside refuse collection with some conditions regarding the disposal of waste at the refuse disposal sites within the district.

2 Waste infrastructure and services

2.1 Collection

The collection system for each District is represented schematically in Figure 3, Figure 4 and Figure 5.

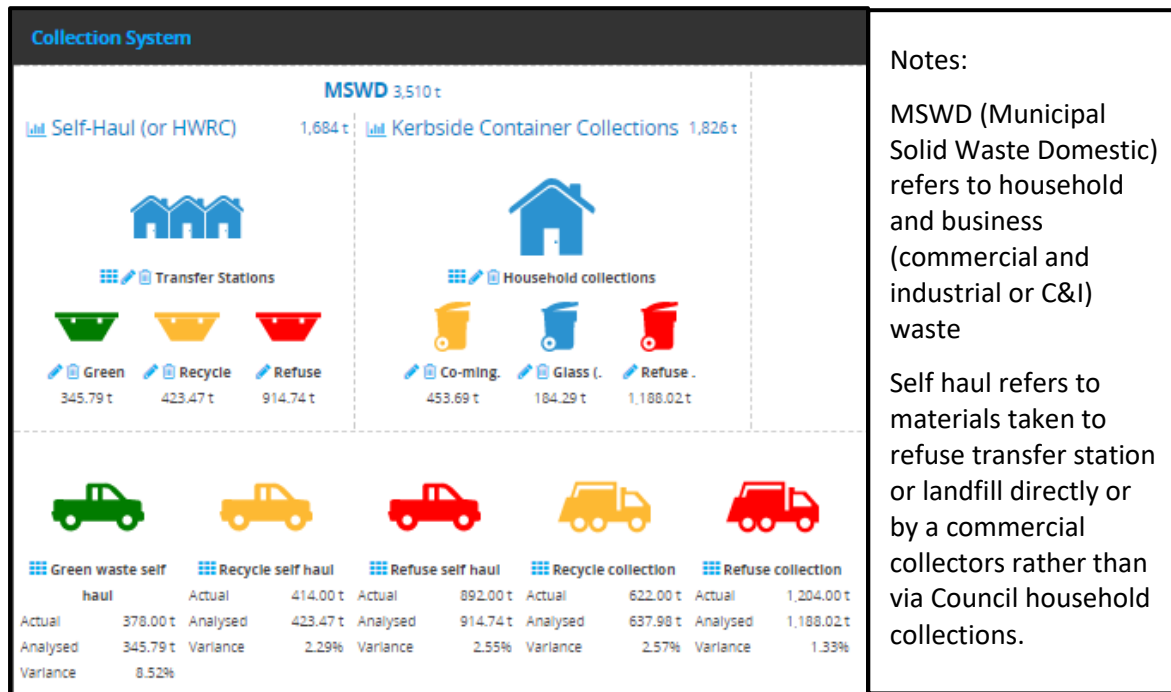


Figure 3: Buller District Waste Collection Systems

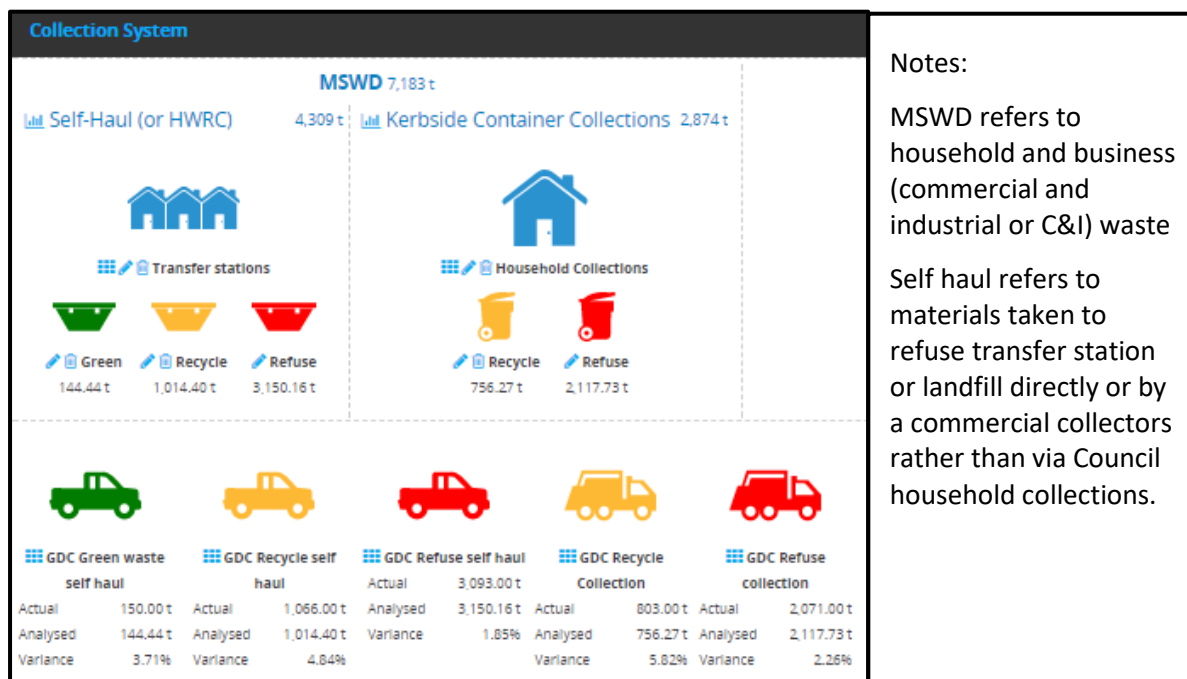
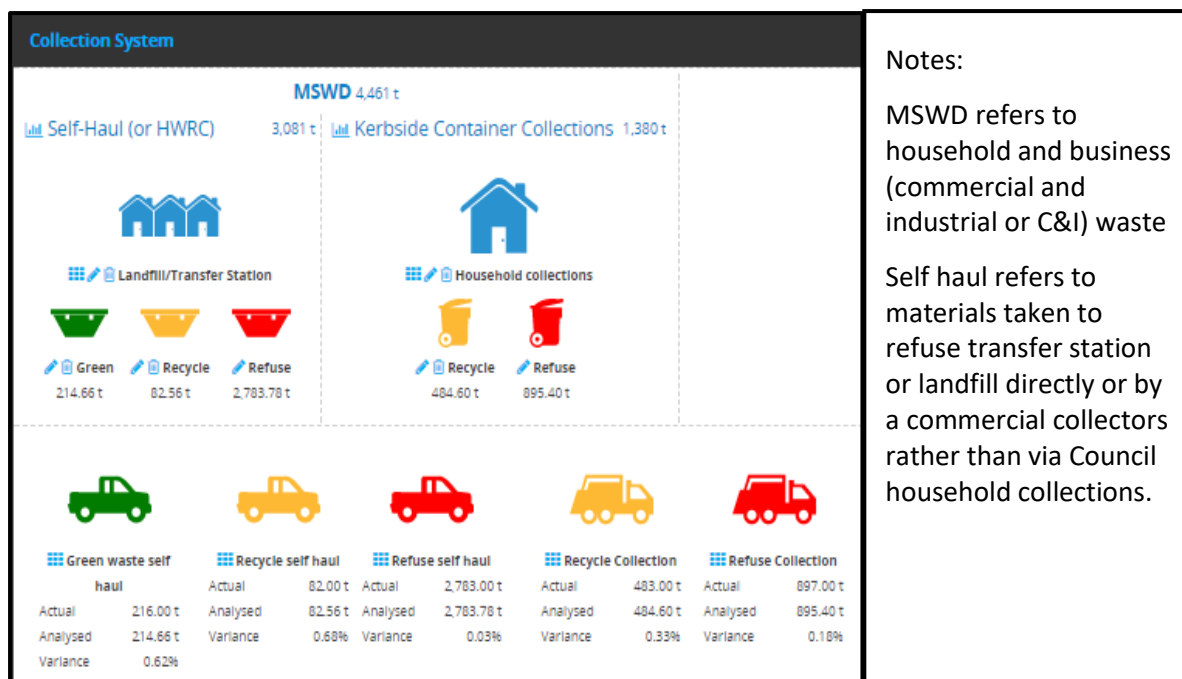


Figure 4: Grey District Waste Collection Systems



Notes:
 MSWD refers to household and business (commercial and industrial or C&I) waste
 Self haul refers to materials taken to refuse transfer station or landfill directly or by a commercial collectors rather than via Council household collections.

Figure 5: Westland District Waste Collection System

2.1.1 Waste from visitors to the region

The West Coast Region hosts a large number of international and domestic tourists. Self drive tourists are common (cars, campervans) as well as organised tours (coach, rail from Christchurch). In many areas tourism is the main driver of economic activity with an associated impact on waste generation. In addition to generating commercial waste (through hospitality businesses including restaurants and accommodation) many tourists make use of public place refuse and recycling facilities where available. There is some provision at nominated free camping locations but this is inconsistent across the Region.

2.1.2 Residential Collection

The three councils all provide residential collection services in parts of their districts with urban and many rural residents having access to both refuse and recycling collections at the roadside.

Kerbside refuse in **Buller District** is collected in compactor trucks and consolidated at the Westport Resource Recovery Park for transportation to Nelson. Households can use refuse bags (sold at a range of retail outlets) or use one of several commercial collection services. Council offer a two stream kerbside recycling service in all areas except Karamea and Maruia. Households have fortnightly collections of co-mingled materials (paper, cardboard, plastics and tins in a 240L MGB) and glass (in a 60L crate).

Kerbside refuse in the **Grey District** is collected in compactor trucks and disposed of at McLean’s Landfill near Greymouth. Households in Greymouth and the surrounding area are provided with 120L MGB for refuse (collected fortnightly). The remainder of the district is supplied with 52 ties per year that can be used with any standard sized refuse bag. Council offer a single stream kerbside recycling service in Greymouth and surrounding areas. Households are supplied with a 240L MGB that is collected fortnightly. No kerbside recycling service is provided outside Greymouth and surrounds.

Kerbside refuse in the **Westland District** is collected in compactor trucks and disposed of at Butlers Landfill near Hokitika. Households in Hokitika, Kumara, Ross and connecting roads are provided with 120L MGB for refuse (collected fortnightly). Council offer a single stream kerbside recycling service (excluding glass) in the same areas. Households are supplied with a 240L MGB that is collected fortnightly. No kerbside recycling service is provided outside Hokitika, Kumara and Ross.

2.1.3 Commercial or Industrial Waste

Waste (both refuse and recycling) from commercial and industrial premises is currently collected and disposed of via the various Resource Centres, Resource Recovery Parks and transfer station across the region. For materials collected for recycling or treatment or disposal out of the region (e.g. paper/card or plastic film from retailers) no data is available. Many national businesses with a local presence have comprehensive waste management and recycling systems in place, for example Countdown, the Warehouse and Foodstuffs all operate waste management systems where some material is recovered and recycled (paper and cardboard), organic material (food waste) is diverted to animal feed with only residual waste disposed of at local Landfill.

2.1.4 Litter and Illegal Dumping

Litter bins are provided in the urban centres and popular visitors spots including nominated free camping locations throughout the Region. Litter bin collection is undertaken by contractors with some cross over with servicing of heavily used Department of Conservation (DoC) locations. There are examples of illegal dumping occurring and the relative remoteness of the Region makes it easy to find locations to dump material if businesses or households want to avoid disposal charges.

2.2 Waste Transfer and Processing

2.2.1 Transfer stations and recycling drop-off

Transfer stations, where waste can be dropped off by the public, are located at:

- Buller District: Transfer Stations at Westport, Reefton, Landfills at Karamea and Muruia.
- Grey District: McLean's Landfill and Recycling Centre with rural Resource Centres at BlackBall, Nelsons Creek and Moana.
- Westland District: Kumara, Hokitika, Ross, Harihari (all operated by EnviroWaste), Whataroa, Frans Josef, Fox Glacier and Haast Landfill (all operated by South Westland Rubbish Removal).

There are weighbridges at three transfer stations (Westport, Reefton and Hokitika) and McLean's Pit Landfill (Figure 9 drop off area). There are small landfills at Karamea (Buller District), Maruia (Buller District) and Haast (Westland District).

Recyclable materials are processed prior to shipping at materials recovery facilities (MRF) of varying complexity at Westport, McLean's Recycling Centre and Hokitika. Green waste is shredded at Westport (Figure 8), McLean's and Hokitika with material blended with biosolids at Westport and stockpiled on the other two sites.

The West Coast regional waste management system and estimated quantities for 2016 are presented in Figure 6. Facility details are provided on the following pages. Figure 6 is a screen shot from a model of the West Coast regional waste management system developed for this Waste Assessment. Figure 7 shows the locations of the sites noted above.

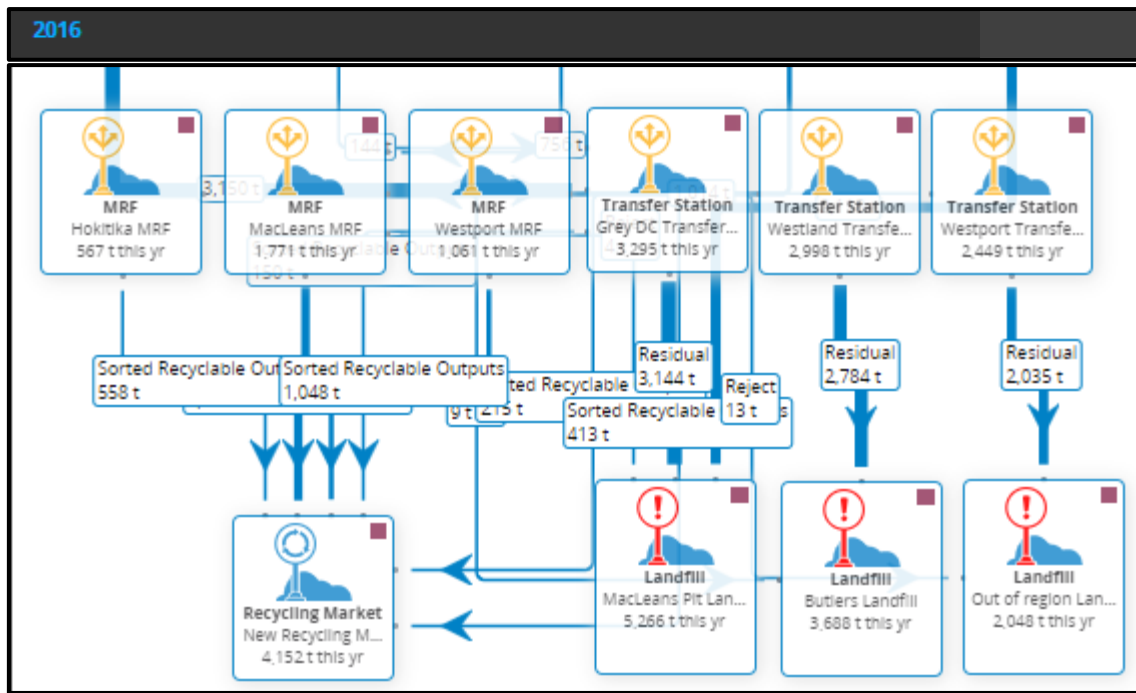


Figure 6: Waste Flow Diagram - Collection, Processing and Disposal (2015/16 figures)



Figure 7: Transfer Stations and landfills on the West Coast³

³ Image built in gis.westcoast.govt.nz with locations annotated using label tool.



Figure 8: Westport Transfer Station - Drop-off area and MRF



Figure 9: McLean's Pit Landfill - Public Drop-off area

2.2.2 Other Processing

There are no commercial composting operations of any scale in the West Coast Region. The Energy Efficiency and Conservation Authority (EECA) maintain an energy use database that provides some insight into the use of wood for energy, typically at wood processing sites. The most recent data (2011) suggests waste wood used for energy is around 20,000 T per year in the West Coast Region⁴.

Proposed developments

At the time of writing (March 2018) there is a proposal to develop an approximately 300,000 tonnes per annum waste to energy plant in Westport. In early 2018 the proposal is working through feasibility evaluation looking at potential sources of waste (South Island and lower North Island). Funding for the proposal is still uncertain.

⁴ In 2011 the database records approx. 364 TJ of wood energy was used by the wood processing sector in the West Coast Region. Assuming 16 GJ/T of dry wood waste suggests over 20,000 T of wood waste is used each year. $364,000 / 16 = 22,750 \text{ T/yr}$ (<https://www.eeca.govt.nz/resources-and-tools/tools/energy-end-use-database/>)

2.2.3 Markets for recyclable materials

Paper, plastics and cans are consolidated and processed in New Zealand (cardboard, some plastics, and colour separated glass) or exported for re-processing (some plastics, some paper, scrap metals). International markets for recyclable materials are subject to periodic uncertainty with the most recent (late 2017, early 2018) being the China's National Sword initiative that seeks to improve the quality of recyclable materials imported into China.

At the time of writing (early 2018) a number of New Zealand local authorities are advocating strongly for a container deposit scheme similar to those in place in many states in Australia. Typical proposals target beverage containers with a small refund payable on their return to approved reception point. Introduction of this type of scheme is likely to have an impact on recyclable material markets with recovery rates likely rise (increasing supply). In some cases kerbside recycling schemes are able to claim refunds for eligible materials i.e. the scheme could provide another source of revenue for kerbside recycling.

2.3 Landfills

The two main landfills in the West Region are McLean's Pit Landfill near Greymouth and Butlers Landfill near Hokitika. There are several smaller sites that continue to operate to avoid transporting refuse long distances. These are located near Karamea, Maruia and Haast townships.

Refuse from Westport and Reefton (transfer stations and residential collections) is transported to Nelson's York Valley Landfill.

Karamea Landfill is a small site servicing Karamea and the surrounding area.

Maruia Landfill is a small site servicing the Maruia and Springs Junction areas.

McLean's Pit Landfill will start filling a new cell in 2018.

Butlers Landfill is a relatively new site with long term capacity for waste from the northern part of Westland District.

Haast Landfill is also a relatively new site with capacity to accepted waste from southern Westland District.

2.4 Costs for Waste Management

2.4.1 Council Funding

The 2015-25 Long Term Plans⁵ set the budgets for the waste management activity with provision to make amendments if required through the Annual Plan process. Funding for operations is through general rates, targeted rates and user charges (refuse bags in the Buller District, transfer stations across the region. Funding for capital projects is from general rates. Expenditure is dominated by payments to contractors with finance costs and internal charges also featuring. This mix of funding and expenditure is projected in the Long Term Plans to continue to 2025.

In the **Buller District** refuse collection and transfer station services attract user charges. The user charges at rural transfer stations cover the full cost of providing the service (the sites are leased to Smart Environmental). The user charges for refuse collection (via bag and sticker sales) cover the full costs of providing the service. Kerbside recycling is covered by a targeted rate. There is provision for funding maintenance activities through general rates.

⁵ At the time of writing (early 2018) draft 2018 - 2028 LTP were out for consultation across the region.

In the **Grey District** refuse and recycling collection in Greymouth is funded by a targeted rate. In rural areas bag based refuse collection is funded by a targeted rate (bag tags provided by Council). Transfer station operations are part funded by user charges.

In the **Westland District** refuse and recycling collection is funded by a targeted rate. Transfer station operations are part funded by user charges.

Table 3: Target rates for waste management

	Target Rate 2017/18	Service provided
Buller District Council Westport/Reefton	\$121.74	User pays refuse bags, \$4.60 each 240 L bin for paper, plastics, cans, 60L glass crate
Karamea, Maruia	\$70.43	No service
Grey District Greymouth	\$271.30	120L bin for refuse, 240L bin for recycling
Rural	\$195.10	Bag tags, roadside collection
Westland Hokitika	\$294.43	120L bin for refuse, 240L bin for recycling
Rural	\$267.66	120L bin for refuse, 240L bin for recycling

2.4.2 User Charges

Collection and transfer station services attract user charges. The user charges at Rural Transfer stations do not cover the full cost of providing the service with the shortfall covered from the targeted rate for waste management and/or general rates. The user charges for refuse collection (via bag and sticker sales) cover the full costs of providing the service. When compared with similar areas bag prices in Buller District are relatively high, most likely reflecting the rural nature of the District. The target rates are at the higher end of those in place for similar services around New Zealand. This reflects the largely rural nature of the region and relatively high disposal costs, in turn related to relatively small scale of disposal facilities.

User charges include (2017/18 figures) include:

- Buller District Council refuse bag (60 L): \$4.30 per bag (refer to Table 4 for comparison with selected refuse bag charges around New Zealand).
- Westport and Reefton Transfer Stations charges are presented in Figure 10.
- Grey District fees and charges are presented in Figure 11.
- Westland District fees and charges are presented in Figure 12.

Table 4: Refuse bag retail costs - selected New Zealand Councils

Area	Refuse Collection	Bag Charges
Whangarei	Council – bag	\$2.80/bag
Far North	Commercial - bag	\$3.00/bag
Kaipara	Council – bag	\$3.00/bag
Palmerston North	Council – bags	\$2.60/bag
Hastings	Council – bags	\$2.40/bag

Horowhenua (Levin)	Council – bags	\$4.00/bag ⁶
New Plymouth	Council – bags	\$3.30/bag
Porirua, Wellington, Lower Hutt	Council – bags	\$2.50/bag


WESTPORT PRICE LIST		REEFTON PRICE LIST	
			
Purchase Official Rubbish Bags \$4.60 each \$23.00 per roll of 5		Purchase Official Rubbish Bags \$4.60 each \$23.00 per roll of 5	
Dump Official Rubbish Bags Free of Charge		Dump Official Rubbish Bags No Charge	
Refuse General Rubbish \$276.00 per tonne Minimum Charge to 32kg \$ 9.00 50kg \$13.80 100kg \$27.60		Refuse/Rubbish \$276.00 (Per Tonne) Minimum Charge to 32kg \$ 9.00 50kg \$13.80 100kg \$27.60	
Light Waste Polystyrene \$200.00 per m3		Light Waste Polystyrene \$200.00 per m3	
Green Waste Car \$9.00 each Single Axle Trailer \$10.00 each Tandem Axle Trailer \$15.00 each Truck (Over 500kg) \$127.50 per tonne		Recycling Glass (Colour Sorted) Free of Charge Under 5kgs (Domestic) Free of Charge 5kgs to 150kgs \$5.00 Over 150kgs \$5.00 + 0.04c per kg	
Recycling Glass (Colour Sorted) Free of Charge Under 5kgs (Domestic) Free of Charge 5kgs to 150kgs \$5.00 Over 150kgs \$5.00 + 0.04c per kg		Paint 1 Litre Container \$3.00 2 Litre Container \$4.00 4 Litre Container \$5.00 10 or 20 Litre \$7.00	
Paint 1 Litre Container \$3.00 2 Litre Container \$4.00 4 Litre Container \$5.00 10 or 20 Litre \$7.00		Waste Oil 4 Litre Container \$2.00 20 Litre Container \$4.00	
Waste Oil 4 Litre Container \$2.00 20 Litre Container \$4.00		Whiteware Fridge/Freezer (Degassed) \$9.00 each Washing Machine \$9.00 each	
Whiteware Fridge/Freezer (Degassed) \$9.00 each Washing Machine \$9.00 each		Gas Bottle \$9.00 each	
Gas Bottle \$9.00 each		Tyres Car \$8.50 each Truck \$16.50 each Tractor/Loader \$47.50 each	
Tyres Car \$8.50 each Truck \$16.50 each Tractor/Loader \$47.50 each		Wood Treated/Untreated \$276.00 per tonne	
Wood Treated/Untreated \$260.00 per tonne		Scrap Steel Free of contaminants Free of Charge	
Scrap Steel Free of contaminants Free of Charge		Car Bodies Prepared Only \$50.00 each	
Car Bodies Prepared Only \$50.00 each		Batteries Motorbike, Car, Truck Free of Charge	
Batteries Motorbike, Car, Truck Free of Charge			
As at 1 July 2017		Prices as at 1 July 2017	

Figure 10: Westport and Reefton fees and charges

McLeans Landfill		
Refuse		
Commercial Refuse*	per tonne	\$289.00
Mixed Domestic Waste*	per tonne	\$289.00
Hardfill/Soil*	per tonne	\$289.00
TVs and ewaste*	per tonne	\$289.00
Refuse Bag with Council issued tie	per bag	Free
Refuse Bag without Council issued tie*	per bag	\$4.00
* minimum charge per weighbridge entrance (trip over weighbridge)		\$12.00
Tyres		
Car, Motorbike	per tyre	\$6.80
4WD	per tyre	\$6.80
Truck	per tyre	\$12.30
Tractor	per tyre	\$12.80
Specialist Industrial	per tyre	\$28.50
Other		
Unprepared Car Bodies	per car	\$54.70
Paint/Solvents	per litre	\$2.50

⁶ Includes \$1 per bag recycling levy - to fund kerbside recycling

Resource Centres (Moana/Blackball/Nelson Creek)		
Refuse Bag with Council issued tie	per bag	Free
Refuse Bag without Council issued tie	per bag	\$4.00
Car Boot	per load	\$25.50
Station wagon	per load	\$38.80
Utility Vehicle/Van	per load	\$38.80
Single axle trailer	per load	\$51.00
Tandem Trailer	per load	\$83.70
Truck under 5m ² , uncompacted general waste	per load	\$183.60
Truck under 5m ² , compacted general waste or dense material such as building waste.	per load	\$290.70
Other		
Refuse ties	each	\$3.00

Figure 11: Grey refuse transfer station fees and charges

Hokitika Transfer Station Refuse Site Gate Fees		Hokitika Transfer Station Refuse Site Gate Fees	
General Waste		Uncompacted Green Waste	
Per tonne	\$475.00	Per Cubic Metre	\$10.00
60L bag	\$4.00	60L bag	\$0.50
Green Waste		Small Trailer /Ute (0.68m ³)	\$6.00
Green Waste per tonne	\$46.00	Medium Trailer (0.91m ³)	\$10.00
60L bag Green Waste uncompacted	\$0.50	All Sites: Other Items	
Accepted Recyclable Items* *Colour sorted glass will be accepted free of charge, unsorted glass will be charged at the general waste rate	Free	Whiteware (Fridges must be degassed, per item)	\$10.00
Non Weighbridge Sites		Tyres (Based on average weight of 7.5kg, per item)	\$3.50
Uncompacted General Waste		Cars Prepared (Conditions apply, per item)	\$45.00
Per Cubic Metre small loads < 0.5m ³	\$65.00		
Per Cubic Metre large loads > 0.5m ³	\$95.00		
60L bag	\$4.00		
120L Wheelie Bin	\$8.00		
240L Wheelie Bin	\$16.00		
Small Trailer /Ute (0.68m ³)	\$65.00		
Medium Trailer (0.91m ³)	\$90.00		
Cage or Large Trailer (2.7m ³)	\$260.00		
Accepted Recyclable Items* *Colour sorted glass will be accepted free of charge, unsorted glass will be charged at the general waste rate	Free		

Figure 12: Westland District Refuse Transfer station fees and charges

2.5 Waste Infrastructure - Issues Identified

In collating and considering information about the delivery of waste services in the West Coast Region a number of issues were identified. These issues represent challenges in delivering effective services and achieving the aims of the NZ Waste Strategy - reducing environmental harm and maximising resource efficiency. In many cases the issues also present opportunities for Councils, the

community and/or the private sector to improve waste minimisation and management in the Region.

The issues identified include:

- Transfer stations - there are variable services across the region.
- There is a lack of consistency in services for visitors to the Region.
- There are 3 Materials Recovery Facilities (MRF) in the Region sorting similar materials.
- The two major landfills in the Region are close to each other.
- Costs are relatively high, but likely reasonable in light of scale and transport distances.
- There are limited services for commercial and construction waste with limited information available regarding diversion activity focussed on these waste streams.
- Lack of collections for glass in the Westland District and issues with glass contamination in Grey.

3 Waste Quantity and Composition

3.1 Timeframe

This document focuses primarily on the period between 2012 and 2017. Waste quantities, composition and flows prior to this period are detailed in the three Council's previous Waste Minimisation and Management Plans. Where appropriate, comparison has been made between the quantities and predictions made in this report and what has actually happened.

3.2 Population

West Coast Region is home to a population of 33,190 people (2016/17 estimate). This projected to reduce to 30600 by 2043⁷. Tourism numbers are around 1M per year, projected to reach 1.2 M per year in 2021. Regional and global tourism growth is projected at around 5% per year.

Looking at the population characteristics, The West Coast District Health Board note that⁸:

- West Coast's population tends to be older than the national average.
- West Coast has a lower proportion of Māori living there compared to the national average and almost no Pacific people.
- West Coast has proportionally more people in the more deprived sections of the population than the national average.

It is also important to note that population projections suggest the regional population is approximately static with high and low projects suggesting small growth and significantly decline respectively. There is considerable uncertainty for long term population change with economic activity on in the Region likely to be a significant factor. Shifts in key sectors including mining, tourism and agriculture all have the potential to result in changes in future population trends.

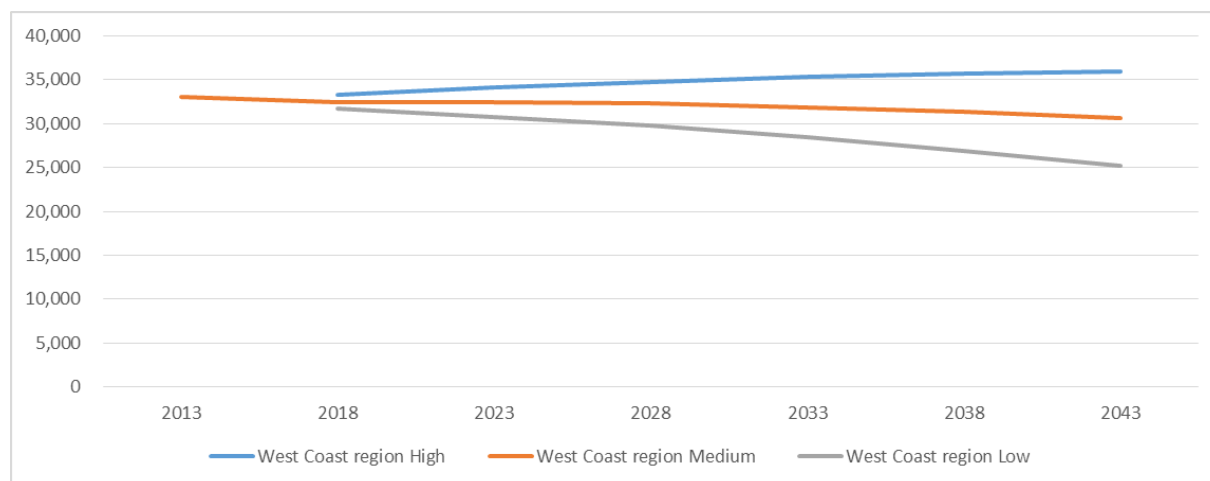


Figure 13: Projected population (2013 base, updated Feb 17)

⁷ Statistics NZ medium projection, the low growth estimate suggests a 2043 population of 25,200 and high growth estimate projects a 2043 population of 36,000.

(http://archive.stats.govt.nz/browse_for_stats/population/estimates_and_projections/subnational-population-projections-info-releases.aspx)

⁸ <https://www.health.govt.nz/new-zealand-health-system/my-dhb/west-coast-dhb/population-west-coast-dhb>

3.3 Waste Composition

Waste composition audits provide information about the make-up of a waste stream, and can help identify materials that make up large or disproportionate parts of the waste stream to target when forming waste management and minimisation strategies. The information presented is sourced from composition surveys completed in Buller and Grey Districts. The data is consistent with composition observed in similar areas in other parts of New Zealand.

Table 5: Waste composition

Primary Category	Proportion of total	
	Landfill	Collection
Paper	9%	9%
Plastic	20%	17%
Nappies	5%	12%
Glass	2%	4%
Putrescible	23%	49%
Textiles	6%	5%
Potential Hazardous	5%	1%
Ferrous Metals	3%	2%
Non-Ferrous Metals	1%	1%
Rubber	2%	0%
Timber	13%	0%
Rubble	11%	1%
TOTAL	100%	100%

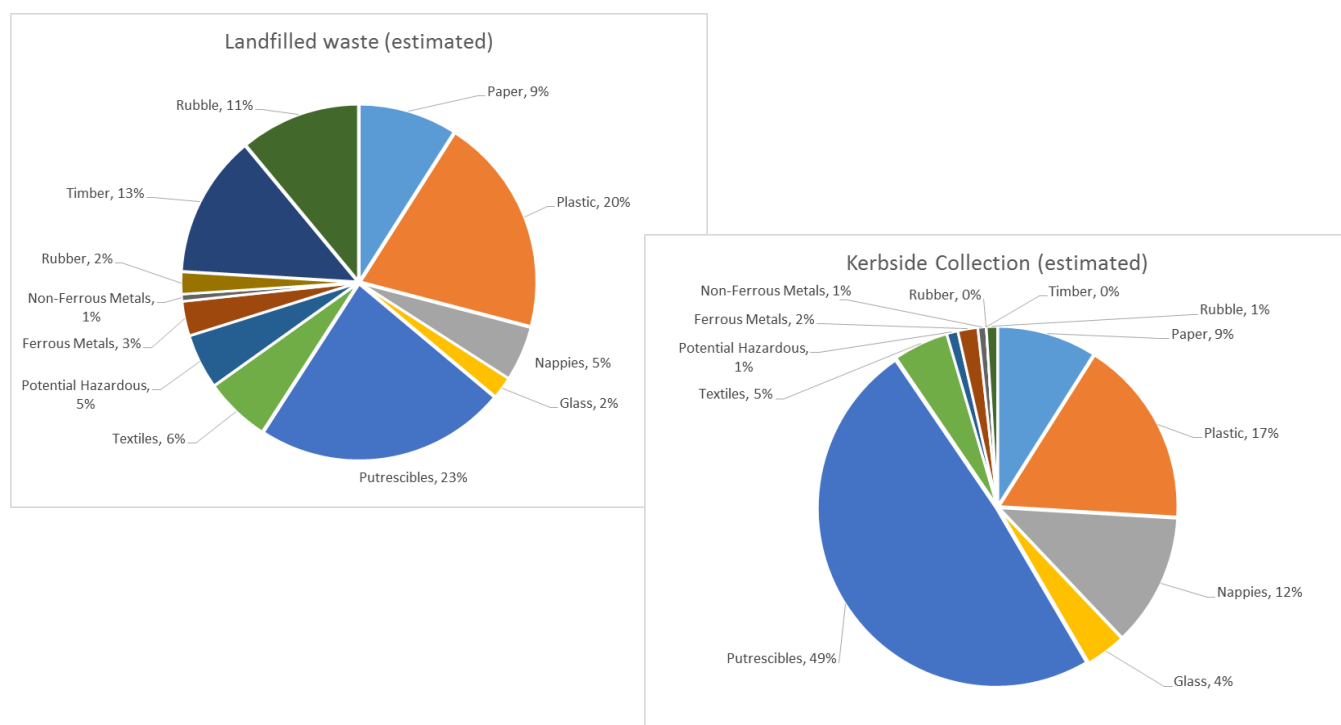


Figure 14: Estimate refuse composition

Material taken directly to landfill or transfer station (self haul) material tends to have a larger proportion of bulky items (timber, rubble) and the putrescible fraction has a higher proportion of garden rather than food waste. This is reflected in the data presented here.

3.4 Waste Quantities

3.4.1 Kerbside Waste Quantities

Table 6 provides a summary of materials collected from the kerbside across the West Coast Region.

Table 6: Kerbside waste quantities

	2012	2013	2014	2015	2016
Buller Kerbside Refuse Collection	1,829	1,500	1,370	1,261	1,204
Buller recycle collection	-	600	631	599	622
Recycling Rate (%)	0%	29%	32%	32%	34%
Grey Kerbside Refuse Collection	2,383	1,912	2,137	2,006	2,071
Grey recycle collection	-	-	201	888	782
Recycling Rate (%)	0%	0%	9%	31%	27%
Westland Kerbside Refuse Collection	-	-	-	897	897
Westland recycle collection	-	-	-	285	303
Recycling Rate (%)				24%	25%
Total kerbside refuse	4,212	3,412	3,507	4,164	4,172
Total kerbside recycling	-	600	832	1,772	1,707
Recycling Rate (% , West Coast)		15%	19%	30%	29%

3.4.2 Waste quantities at Refuse Transfer Stations and Landfill

In the **Buller District** waste in Karamea and Maruia is disposed of at small local landfills. Refuse from the rest of the District is consolidated before transport to Nelson for disposal at the York Valley Landfill. Materials are captured for recycling and transported with kerbside recyclable materials to Nelson.

In the **Grey District** all waste is disposed of at McLean's Landfill near Greymouth. There are Resource Centres at Blackball, Moana and Nelson Creek. Materials are captured for disposal and recycling at each site.

In the **Westland District** waste is disposed of at Butlers Landfill near Hokitika or Haast Landfill. There are transfer station stations at Kumara, Hokitika, Ross, Harihari, Whataroa, Franz Josef and Fox Glacier. A range of materials are captured for recycling at each site including metals, glass, paint, used oil, whiteware and green waste.

Table 7 summarises the quantity of materials managed through the region's transfer stations and landfills.

Table 7: West Coast Region - Estimated Waste Quantities via transfer stations or direct to landfill⁹

	2012	2013	2014	2015	2016
Refuse to Karamea and Maruia	67	111	78	105	89
Refuse to Westport and Reefton transfer stations	1,219	1,000	913	841	803
Recycle at Buller transfer stations	378	618	630	618	792
Total waste to transfer stations and landfill	1,664	1,729	1,621	1,564	1,684
Recycling rate (%)	23%	36%	39%	40%	47%
Refuse to McLean's Landfill	4,273	3,813	3,766	4,092	3,093
Recycle at transfer stations	664	680	877	1,148	1,216
Total waste to transfer stations and landfill	4,937	4,493	4,643	5,240	4,309
Recycling rate (%)	13%	15%	19%	22%	28%
Refuse to Haast (estimate)	100	100	100	100	100
Refuse to Butlers Landfill	-	-	-	2,840	2,783
Recycle at transfer stations	-	-	-	622	478
Total waste to transfer stations and landfill	100	100	100	3,562	3,361
Recycling rate (%)	0%	0%	0%	17%	14%
Recycling rate (% , West Coast)	18%	26%	31%	30%	27%
Total waste landfilled (collections and via transfer stations)	9,871	8,436	8,364	12,142	11,039
Total waste recycled	1,042	2,099	3,026	4,054	4,214
Recycling rate (% , West Coast)	10%	20%	27%	25%	28%

3.4.3 Unquantified Waste

There are several waste streams that are known to exist but are difficult to quantify. Examples include rural waste managed on farms, materials captured as part of commercial activity (e.g. scrap metal, industrial by-products, commercial recycling) and waste materials managed within manufacturing operations (e.g. biosolids from food processing operations applied to land, coal cleaning residues). This means that both waste disposed to landfill and waste diverted/recovered are likely to be underestimated.

There is an increasing level of interest in rural waste across New Zealand. As the rural sector considers the implications of current waste management approaches it is likely that increasing quantities of materials from farming activities will enter the three Council's system, either via the transfer station network or through commercial on-farm collections.

3.5 Collection and drop off system performance

Combining the waste composition data with data on the quantity of waste disposed of to landfill and recycled provides a basis for determining the capture of various materials 'available' in the waste

⁹ Data sourced from waste collection and transfer station contract reporting.

stream¹⁰. A summary assessment drawing on estimated quantities and composition is presented in Table 8.

Table 8: West Coast Region Waste Management System Performance

	Bags/Bins		General		Regional Recovery	
	Composition	Tonnes/yr	Composition	Tonnes/yr	Tonnes/yr	Recovery %
Total	100.0%	4,172	100.0%	6,867	4,214	27.6%
Paper	13.8%	575	10.2%	699	2,098	62.2%
Plastic	20.3%	848	21.3%	1,463	508	18.0%
Organics¹¹	49.0%	2,045	11.2%	766	744	20.9%
Ferrous¹²	1.8%	75	3.1%	216	251	46.3%
Non Ferrous¹²	0.8%	32	0.6%	44	142	65.2%
Glass⁷	3.7%	153	1.2%	84	473	66.7%
Timber¹³	2.8%	118	14.8%	1,017	-	0.0%
Other	7.8%	326	37.5%	2,578	-	0.0%

The available data suggests there are opportunities to capture additional recyclable material through the transfer stations and kerbside collections including organic material, timber, metals, paper, plastics and glass. Specifically:

- While **paper/cardboard** recovery is reasonable it should be possible to increase the capture of paper and cardboard at both kerbside and transfer stations.
- **Plastic** recovery is low, again it should be possible to increase the capture of materials at both kerbside and transfer stations.
- **Organic** waste recovery estimated as relatively low and there is a significant amount of material that could be targeted.
- **Metals** recovery is difficult to accurately estimate, further detail is required.
- **Glass** recovery is at a good level particularly given low recovery in the Westland District.

As noted in Table 7, recovery via landfill and transfer stations across the West Coast is around 27 %. Buller District is achieving well over 40%, supported by green waste diversion. Grey is achieving 28% and Westland District a lower rate of around 14%.

There are other materials present in the waste stream that require careful management to avoid negative impacts. These include:

- Hazardous waste (chemicals, e-waste, used oil, asbestos)
- Difficult or special waste (tyres, bulk waste, dead animals)
- General waste (household and commercial waste)

¹⁰ From Table 5, Table 6 and Table 7.

¹¹ This figure includes a conservative estimate of material captured at McLean's i.e. recovery T and % are underestimates.

¹² This figure does not include materials handled by scrap metal dealers i.e. recovery T and % are underestimates.

¹³ No West Coast specific data, some material captured at transfer stations

Waste from certain sources can also present challenges or opportunities and is worthy of consideration. Examples include:

- **Rural waste** - waste from the business of farming including agricultural plastics (wrap and chemical containers), unwanted chemicals, timber and machinery (including maintenance related waste like used oil).
- Waste from **major processing sites** - examples include waste treatment residuals (for example sludge), packaging (pallet wrap, broken pallets) and containers (cleaners, ingredients, maintenance products).

3.6 Waste quantity and composition data - issues and constraints

While there is some information available about the quantity and composition of waste generated in the West Coast Region the data is incomplete. The available data needs to be interpreted considering that:

- There is a mix of volume based estimates and measured weights.
- The source of waste is not always clear.
- There is limited data on coverage, set out rate or participation rates for kerbside collection.
- The data regarding quantity of waste collected or processed is not complete. For example:
 - The quantity of waste collected from commercial premises for recycling has not been quantified
 - The quantity of waste generated on rural properties and processed or disposed on site has not been quantified.

There are by-laws in place (refer Section 1.3) that provides for collection of data on collection services including quantities of material collected, destination for disposal or processing and coverage, set out and participation rates. Implementation of the by-law in close consultation with collection and processing companies operating in the West Coast Region will improve the availability and quality of data available.

There is also potential to improve the reporting of waste materials handled by contractors on behalf of the Councils. Reporting on activity as part of contract obligations should include appropriately detailed reporting on waste source, quantity and destination.

4 Delivery of Waste Minimisation and Management Services

The Councils have adopted a mixed user pays and rates funding approach to delivery of waste minimisation and management services in each district. Where there is a community desire for specific service but difficulty in making the service fully commercial viable Council has provided supporting funding. Services with a public good component are funded by Council, for example kerbside recycling, servicing of litter bins, cleaning up illegal dumping, and the management of closed landfills.

Councils own some of the key infrastructure for waste minimisation and management in the Region. This includes the landfills, transfer stations and litter collection bins. In the Buller District Smart Environmental have leased the transfer stations with Council retaining control over charging. In Grey District and Westland District contractors run facilities on Council's behalf.

Council provides information on waste minimisation and management on their website and contracts educational services for schools.

5 Forecast of future demand

Forecasts of waste ‘generated’ have been developed using population projections, historic waste quantities and the emerging factors such as the increasing participation of rural properties in the kerbside collection service. In this context waste generation refers to material entering the waste management system i.e. collected or taken to transfer stations.

There are several factors which point towards significant uncertainty in the forecasts, these need to be factored into any decisions made based on forecast demands. These factors include:

- The impact of the current (regional and national) focus on rural waste, it is possible there will be a resulting significant increase in commercial quantities of rural waste such as plastic wrap, chemical containers and treated timber (fencing/construction).
- Transport of waste out of the District
- The impact of varying economic activity - forestry, dairy, sheep and beef, refining.

Figure 15 provides a summary of forecast waste generation. Figure 16 and Figure 17 shows waste flows and projected quantities based on the projections in Figure 15 and the existing waste management infrastructure.

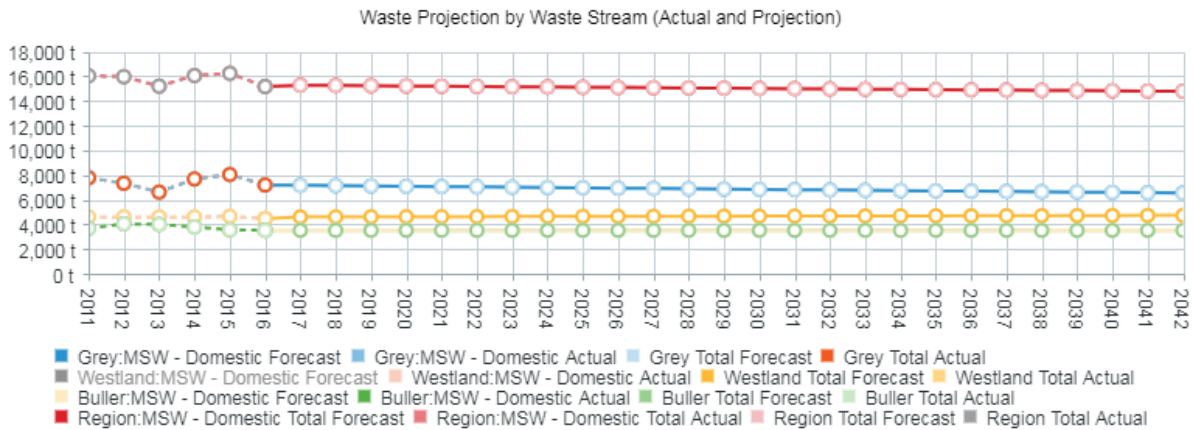


Figure 15: Forecast Waste Generation (Kerbside, Self Haul)

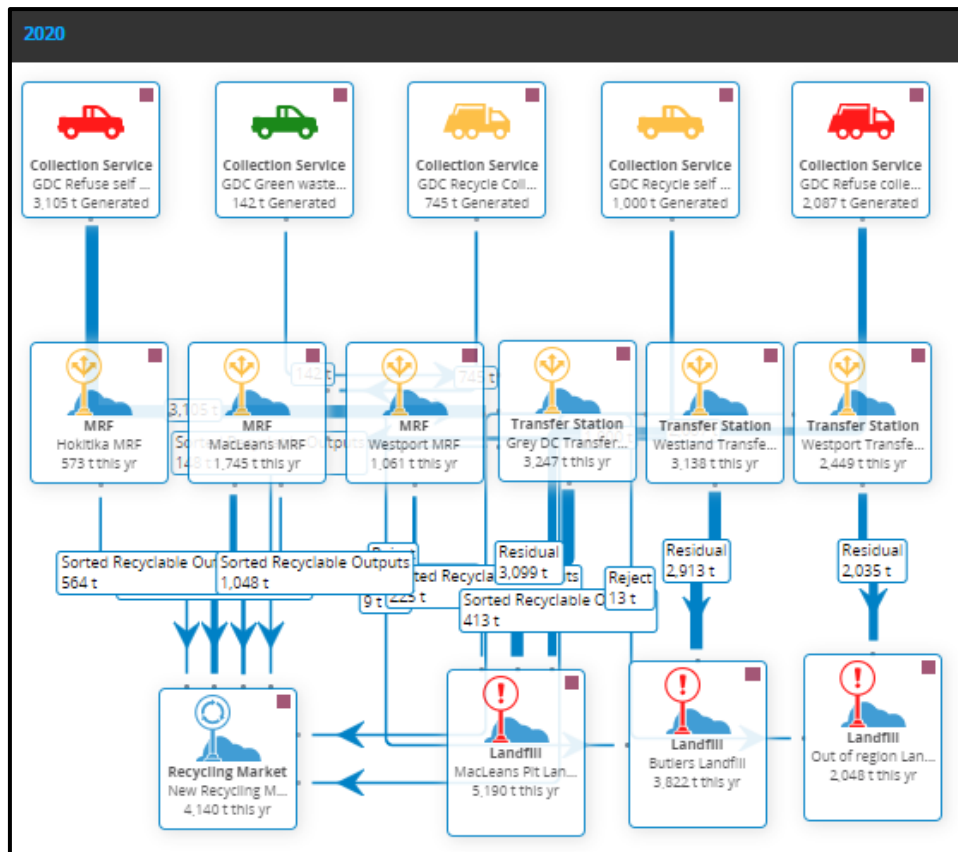


Figure 16: Forecast Waste Flow in 2020

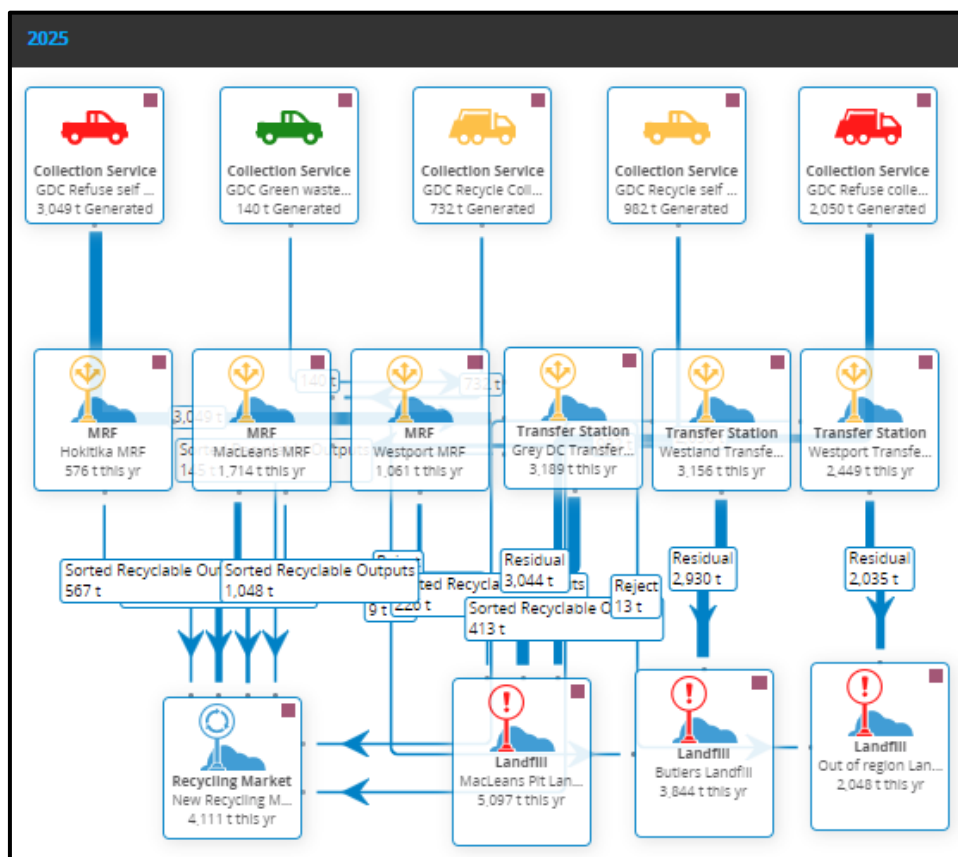


Figure 17: Forecast Waste Flow in 2025/26

PART 2 - WHERE DO WE WANT TO BE?

6 Where do we want to be?

6.1 Background

The preparation of this Waste Assessment has included review of the Vision - Goals Objectives framework set out in the previous Waste Minimisation and Management Plan. The relationship between Vision, Goals and Objectives is illustrated in Figure 18¹⁴ and defined in Table 9¹⁴.

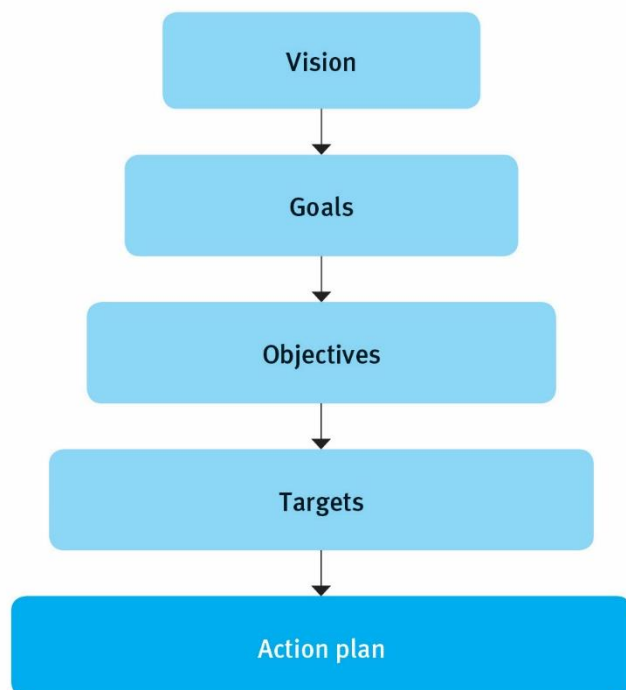


Figure 18: Vision, goals, objectives and targets

Table 9 provides definitions for vision, goals, objectives and targets.

Table 9: Definitions for vision, goals, objectives and targets (adapted from MfE 2015)

Vision	The aspirational outcome for Westland, Grey and Buller Districts - providing an overall direction and focus.
Goal	What the Councils want to achieve through the WMMP. The goal is not aspirational; it is achievable. It is a major step in achieving Council's vision for the WMMP.
Objective	The specific strategies and policies to support the achievement of the goals. Objectives are 'SMART' (specific, measurable, achievable, relevant and timely).
Target	A clear and measurable way to determine how well the Council is achieving its goals. Targets should also be SMART.

¹⁴ Sourced from Waste Assessments and Waste Management and Minimisation Planning – A Guide for Territorial Authorities, MfE 2015.

6.2 Vision, goals, objectives and targets

The vision for waste minimisation and management in the West Coast Region is¹⁵:

To deliver community benefits and reduce waste. West Coast businesses and households will be provided with efficient and effective waste minimisation and management services.

The goals for waste minimisation and management in the West Coast Region are to:

- 1 Avoid and reduce waste where we can
- 2 Manage waste responsibly
- 3 Maximise community benefit

The objectives for waste minimisation and management in the West Coast Region District are:

- 1 To avoid creating waste
- 2 To make it easy to recycle
- 3 To ensure visitors, households and businesses have access to safe disposal of residual waste
- 4 To reduce illegal dumping and litter
- 5 To create opportunities for West Coast - community partnerships, jobs, innovation and efficient business
- 6 To improve community understanding of issues and opportunities for waste management on the West Coast.
- 7 Councils work with others to improve waste minimisation and management in New Zealand.

Table 10 provides a summary of the Vision - Goals and Objectives presented above and associated targets for waste minimisation and management in the West Coast Region.

¹⁵ This vision has been developed in workshops with Buller, Grey and Westland District Councillors and staff.

Table 10: Vision - Goals - Objectives - Targets

Vision:	<i>To deliver community benefits and reduce waste. West Coast businesses and households will be provided with efficient and effective waste minimisation and management services.</i>	
Objective	Relevant Goal(s)	Target(s)
1. To avoid creating waste	<ul style="list-style-type: none"> 1. Avoid and reduce waste where we can. 3. Maximise community benefits - employment, reuse of materials for economic benefit, cost effective services. 	<p>1.1 To maintain or reduce the total quantity of waste disposed of to landfill from the West Coast on a per capita basis. The current figure is <i>340 kg per person</i>. Waste disposed to landfill < 300 kg per person each year</p>
2. To make it easy to recycle	<ul style="list-style-type: none"> 1. Avoid and reduce waste where we can. 2. Manage waste responsibly - make it easy to recycle and safely dispose of the materials that can't be recycled. 3. Maximise community benefits - employment, reuse of materials for economic benefit, cost effective services. 	<p>2.1 <i>Increase in the proportion of material captured for recycling at kerbside and transfer stations. The current figures are 29% and 27% respectively.</i> Kerbside recycling > 35% by 2025 Recycling at Refuse Transfer stations > 50% by 2025</p> <p>2.2 <i>Establish simple and effective recycling services for visitors to the West Coast Region</i> Establish 5 refuse and recycling depots at key visitor locations on the West Coast by 2022. Pilot with 2 facilities in Buller District followed by the remainder of the Region.</p>
3. To ensure visitors, households and businesses have access to safe disposal of residual waste	<ul style="list-style-type: none"> 2. Manage waste responsibly - make it easy to recycle and safely dispose of the materials that can't be recycled. 3. Maximise community benefits - employment, reuse of materials for economic benefit, cost effective services. 	<p>3.1 <i>Satisfaction with kerbside refuse and transfer station services. .</i> Resident and visitor satisfaction > 85% Establish 5 refuse and recycling depots at key visitor locations on the West Coast by 2022</p>

Vision:	<i>To deliver community benefits and reduce waste. West Coast businesses and households will be provided with efficient and effective waste minimisation and management services.</i>	
Objective	Relevant Goal(s)	Target(s)
4. To reduce illegal dumping and litter	2. Manage waste responsibly - make it easy to recycle and safely dispose of the materials that can't be recycled.	4.1 Reduction in illegal dumping incidents and quantity of material illegally dumped in the West Coast Region. (Refer also establishing refuse recycle and waste stations) Quantity of illegally dumped waste < 2016/17 figure The number of illegal dumping incidents is < 2016/17 figure.
5. To create opportunities for West Coast - community partnerships, jobs, innovation and efficient business	3. Maximise community benefits - employment, reuse of materials for economic benefit, cost effective services.	5.1 To publish a summary of available data on waste generation and management with each annual report. Summary data published in Annual Report To create a grant scheme to support new initiatives to reduce waste
6. To improve community understanding of issues and opportunities for waste management on the West Coast.	1. Avoid and reduce waste where we can. 2. Manage waste responsibly - make it easy to recycle and safely dispose of the materials that can't be recycled. 3. Maximise community benefits - employment, reuse of materials for economic benefit, cost effective services.	6.1 Schools programmes supported by Council Support the EnviroSchools programme each year. 6.2 Council (or contractors) promote waste minimisation at events in the Region. Councils promote waste minimisation at > five events in the Region each year. 6.3 Inform and support West Coast residents and businesses on waste minimisation opportunities. Information made available and regularly updated on Council websites.
7. Councils work with others to improve waste minimisation and management in New Zealand.	1. Avoid and reduce waste where we can. 3. Maximise community benefits - employment, reuse of materials for economic benefit, cost effective services.	7.1 Work with others to influence national policy and action on waste minimisation and management

6.3 Council's intended role

Councils will continue to adopt a mixed user pays, general rate and targeted funded approach to delivery of waste transfer and disposal services in their District. Where there are services with a public good component Councils will provide funding in whole or in part. Examples include kerbside recycling, rural transfer stations, servicing of litter bins, cleaning up illegal dumping, and the management of closed landfills.

Councils will continue to own and support the operation of some key infrastructure for waste minimisation and management in each District. This includes the transfer station network, Materials Recovery Facilities and landfills (Karamea, Maruia, McLean's, Butlers and Haast).

Councils will provide information on waste minimisation and management to the households and businesses and make staff available for education purposes. Councils will also work closely with other promoters of effective waste minimisation and management including the West Coast Regional Council and the WasteMINZ Behaviour Change Sector Group.

Councils recognise that many local waste management issues are more effectively managed through coordinated activity at a national level. Councils will collaborate with central government, local government organisations, non government organisations (NGO) and other key stakeholders to progress national activity on resource efficiency and waste management issues. This may include advocating for product stewardship schemes for challenging waste streams (e-waste, tyres, packaging, rural waste), highlighting the role of other national policy including application of the waste levy and regulation of waste management activity.

6.4 Protecting public health

Waste, particularly putrescible and hazardous waste, has the potential to be detrimental to health. Therefore, a key objective of any waste minimisation and management system is to protect public health. The risk of public health impacts can be significantly reduced by avoiding, where possible, and carefully managing, where not, contact with waste. In practice this means:

- Containing waste effectively, including:
 - Providing appropriate containers at point of generation e.g. workspace, kitchen, etc.
 - Providing appropriate containers for storing waste prior to collection - these may be reusable (wheelie bins) or single use (rubbish bags).
 - Providing dedicated public drop off areas at transfer stations and landfills
 - Regular collection and disposal.
 - Suitable collection and transport vehicles.
 - Disposal at well constructed and operated landfills including provision of appropriate barrier systems such as base liner and adequate daily, intermediate and final cover.
 - Providing for collection and treatment of problem waste streams such as unwanted chemicals, e-waste and tyres.
- Excluding as far as possible vermin¹⁶ that may spread waste or associated contaminants.

The measures proposed in the WMMP have been developed with public health objectives at the forefront.

¹⁶ For example rodents, other stray animals, insects (flies, wasps).

PART 3 - HOW ARE WE GOING TO GET THERE?

7 Options Identification and Analysis

7.1 Introduction

Section 51 of the WMA requires that a Waste Assessment contain a statement of options available to meet the forecast demands of the district with an assessment of the suitability of each option.

This section summarises the identification and evaluation of options to meet the forecast demands of the region and to meet the goals set out in Section 6. The preferred options from this assessment will be incorporated into the WMMP as methods and feature in the Action Plan.

For the West Coast Region, the total quantity of waste generated is forecast to decrease over the life of this plan in line with population and economic activity. Infrastructure planning needs to take account of this growth.

The available data suggests that there is potential to increase the diversion of material from the current estimate of almost 30% across the waste management system. There are also ongoing issues with illegal dumping, challenges with obtaining robust data on waste and recycling activity and the potential for increasing quantities of materials entering the waste stream from rural properties. The focus of option identification and evaluation has been addressing these issues alongside meeting forecast demands.

7.2 Identifying options

There are a wide range of approaches to providing waste minimisation and management services and programmes that could be adopted. A useful way to consider options is the model set out in Figure 19.

Effective waste minimisation and management relies on a combination of infrastructure (including collection), education/information and regulation or policy, with the right data informing strategic and operational decision making.

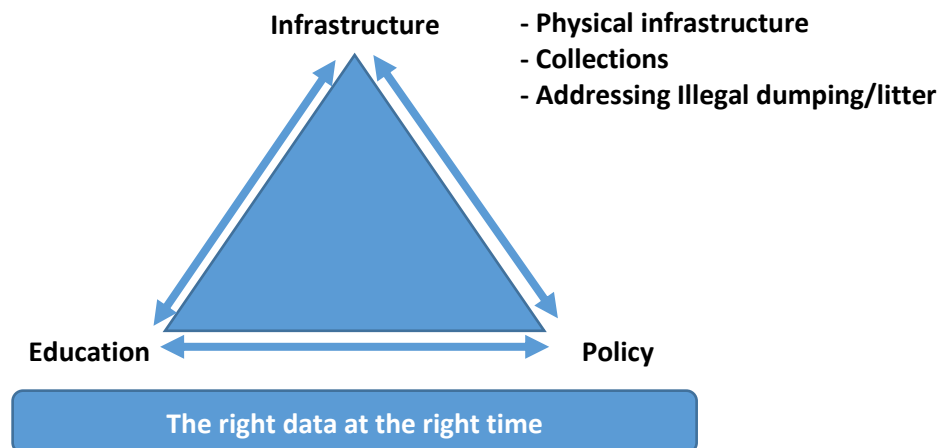


Figure 19: Effective Waste Minimisation and Management

For this waste assessment, options have been identified by considering key challenges for waste minimisation and management in the West Coast Region (Refer Sections 2.5 and 3.6), referencing approaches adopted elsewhere and looking for new solutions where appropriate. Options have also been considered with reference to the current recovery rates of key materials¹⁷ (see Section 3.5).

¹⁷ Key materials include paper/card, plastics, glass, organic waste, metals, glass and timber

Based on the model set out in Figure 19 options considered can be grouped as follows.

Infrastructure

- Providing **collection** services - collection of waste, recyclable materials (at kerbside or transfer station), organic waste and/or bulky items, litter bins;
- Providing **physical infrastructure** - fixed location or mobile drop off facilities, waste sorting, waste processing and/or disposal facilities;
- **Managing the negative impacts of waste** - litter/illegal dumping clean-up, closed landfills.

Education

- Changing behaviour - **education** programmes targeting schools, visitors, businesses and/or households;
- Contributing to national education/information programmes.

Policy

- Implementation of licensing provisions in the existing by-law (service level, litter, data provision);
- Data collection via licensing of waste operators (as above);
- Targeted data collection, for example waste surveys;
- Making information on waste issues and opportunities available;
- Grant co-funding for projects that deliver on the goals and objectives for waste minimisation and management.

These options focus on the priority waste streams identified through the review of the current situation in Section 3.5 and summarised in Table 11.

Table 11: Priority wastes and waste sources

Recyclable materials	Other materials requiring active management include:	Waste sources
• Visitor's waste	• Hazardous waste	• Rural waste
• Organic Waste	• Difficult or special waste	• Industrial processing
• Glass	• General waste	
• Paper/Cardboard	• E-waste	
• Plastics		
• Timber		

7.2.1 Collection Options

The current collection systems are well used by residents across the region with the cost of refuse collection recovered through bag sales (Buller District) and targeted rates (Grey and Westland Districts). The kerbside recycling collections are funded through a targeted rate on all serviced properties. There is some illegal dumping by both residents and visitors to the region. Wheelie bin and drum collections are available in Buller District and other parts of the region not served by Council wheelie bin or bag collections.

As noted previously, the percentage of waste materials diverted from landfill is reasonable (estimated at almost 30 % across the region), with many other areas in New Zealand achieving around 30 %. The number of households participating in the recycling collection across the region is not available but is typically in the range 80-90% for bin based systems. Available composition data suggests there is potential to increase the capture of materials at the kerbside.

There are refuse bylaws in place with provisions covering licencing and quality of service. The by-laws have not been actively implemented with no licensing regime implemented and limited data provision from waste collectors operating in various parts of the region.

Current arrangements

- Refuse collection provided by Councils, funded by bag sales (Buller District) or targeted rates (Grey, Westland Districts) alongside private sector provided services.
- Recycling collections provided by Councils, funded by targeted rate revenue.
- Refuse bylaws in place but not actively implemented by Councils
- Provision of litter bins and public place recycling facilities.

Issues

- Illegal dumping of household waste (including visitors)
- Provision of roadside collection in rural areas is focussed on easy to service areas
- Low capture of some recyclable materials, particularly in the Westland District
- Variable approaches to glass at kerbside across the region.
- Very limited services available for organic waste collection.

Refuse Collection

Considering approaches adopted elsewhere, Councils could consider:

- | | |
|---|---|
| <ul style="list-style-type: none"> • Continue to provide user pays collection service across the District i.e. Council selling refuse bags with collection services provided by Council or a contractor on their behalf. This system is common across New Zealand and in the Buller District costs households \$4.30 per bag or around \$215 per year depending on the number of bags used. | <p>Objective:
Maintain current level of service</p> |
| <ul style="list-style-type: none"> • A Council run, targeted rate funded refuse bag service i.e. Council provide bags and associated collection service funded by a targeted rate for serviced properties. Considering similar systems in other parts of New Zealand and current user charges for refuse collection in the Buller District and pricing for Grey District rural collections (bag tags) a rates funded system of this type is anticipated to cost \$150 - \$200 per serviced household as a targeted rate. | <p>Objective:
Consistent level of service to residents</p> |
| <ul style="list-style-type: none"> • A Council run, targeted rate funded¹⁸ refuse wheelie bin service i.e. Council provide a wheelie bin collection service for refuse funded by a targeted rate for serviced properties. Based on pricing for Greymouth and Westland District services, a rates funded system of this type of service is likely to cost \$150 - \$200 per serviced household as a targeted rate for 120L wheelie bins. | <p>Objective:
Consistent level of service to residents</p> |
| <ul style="list-style-type: none"> • Councils could extend the provision of refuse collection services to rural parts of the district, providing rural residents with a roadside or collection point based collection service. This is consistent with some rural areas in other parts of New Zealand. | <p>Objective:
Consistent level of service to all residents</p> |
| <ul style="list-style-type: none"> • Council could exit service provision altogether, allowing residents to select a private sector provider for roadside collection or transport their waste to the closest transfer station. This approach has been adopted in some locations in in New Zealand (Kaipara, Kapiti, Western Bay of Plenty). | <p>Objective:
Reduce cost to Council (contract management)</p> |

¹⁸ Wheelie bin based collections are typically rates funded and provided to all households. Some Councils in New Zealand offer options (bags or bins) with variable charging. There are no established pay per lift/use systems in place, Waikato District have a small scale sticker based pay per use system and Auckland Council is exploring options for a radio frequency identification (RFID) tag based system.

Table 12: Refuse collection options by Council

	Buller	Grey	Westland
User pays bags	Existing		
Rates funded bags		Existing	
Rates funded bins		Existing	Existing
Rural collections		Existing	
Exit service provision			

Recycle collection

The current recycling collection systems are funded by targeted rates. Considering approaches adopted elsewhere Council could consider:

- A Council run, targeted rates funded wheelie bin (paper, cardboard, plastics and tins) and recycle crate (glass) based service. This is the current service in Westport and Reefton and may be implemented in Greymouth and surrounds. Charges per household are in the range \$50 (urban areas) - \$150 (rural areas) per household each year typically levied as a targeted rate.
- A Council run, targeted rates funded recycling wheelie bin service. This is the current service in Greymouth and the Westland District (excluding glass). Charges for this service depend on the specific service configuration but are likely to be in the range \$50 (urban areas) to \$150 (rural areas) per household.
- Councils could extend the provision of recycling collection services to rural parts of the district, providing rural residents with a roadside or collection point based collection service. This is consistent with some rural areas in other parts of New Zealand.
- Council could exit recycling collection altogether, allowing residents to select a private sector provider for roadside recyclables collection or transport their recyclable materials to the closest transfer station. This approach has been adopted in some locations in New Zealand (Kapiti, Western Bay of Plenty).

Objective:
Maintain service, improve glass capture

Objective:
Maintain level of service, avoid glass contamination.

Objective:
Consistent level of service to all residents

Objective:
Reduce cost to Council (contract management)

Table 13: Recycling Collection options by Council

	Buller	Grey	Westland
Rates funded wheelie bin + crate	Existing		
Rates funded wheelie bin		Existing	Existing (glass out)
Rural collections			
Exit service provision			

Organic waste collection

Councils around New Zealand are increasingly looking at offering organic waste collection services to address the high proportion of organic waste in refuse bags or bins. Existing services in New Zealand target garden waste (Whakatane, South Taranaki, commercial services) or garden and food waste (Christchurch, Selwyn, Timaru). Auckland Council are in the early stages (October 2017) of implementing a food waste only service to avoid competing with existing commercial garden waste collections.

There are examples internationally (UK, Australia) of periodic garden waste collections along side bulky waste or inorganic collections. These are typically a few time per year and scheduled around seasonal activity or in response to storm events.

Considering approaches adopted elsewhere Council could consider:

- Promote drop off services available at Council refuse transfer stations for self haul (trailers/cars) and commercial collections. Consider options to support commercial green waste collections.
- A Council run, targeted rates funded organic waste collection service i.e. Council providing a bag or bin based collection service funded by a targeted rate for serviced properties. Examples in New Zealand include Whakatane, Christchurch and Timaru.
- A Council run, targeted rates funded organic waste collection service with individual properties able to opt in to the service i.e. Council providing a bag or bin based collection service funded by a targeted rate for properties that have joined the service. Examples in New Zealand include Selwyn and South Taranaki.
- A council run, periodic service focussed on garden waste during periods where large quantities are generated. For example periodic collections of bulky green waste during spring and summer.

Objective:

Increase recovery by supporting existing services

Objective:

Increase recovery by providing a universal service

Objective:

Increase recovery by providing an optional service

Objective:

Increase recovery by providing a targeted service

7.2.2 Physical Infrastructure Options

The physical infrastructure on the West Coast is adequate to handle the quantity of waste generated in the District including future projections with the exception of disposal of residual from the Buller District. This material is currently exported to Nelson for disposal.

The percentage of waste materials diverted from landfill across the region is estimated at almost 30 % based on the data collected for this Waste Assessment. This is consistent with similar areas in New Zealand with most areas achieving 30 % diversion or more.

There is some variability across the region with Buller District achieving a high level of diversion at Westport and Reefton transfer stations but data suggesting diversion is low in the Westland District. There are also issues with locating facilities to capture refuse (to avoid littering/dumping) and recyclable materials from visitors to the region.

Councils provide a network of rural transfer stations that offer access for remote rural communities but are relatively costly to operate. National initiatives to improve the management of rural waste streams (for example plastic wrap, chemical containers and treated timber) suggests there may be an increase in the quantity of material entering the Council waste management system in rural areas.

Current arrangements

- 16 transfer stations across the Region, funded by user charges and rate revenue. The transfer stations have adequate capacity for current and anticipated waste quantities including any increase in materials from the rural sector.
- Recyclable materials are processed at 3 materials recovery facilities (Westport, McLean's and Hokitika).
- Shredding of green waste received at major transfer stations (Westport, McLean's, Hokitika).
- Blending of shredded green waste from Westport with sewage sludge
- Stockpiling of shredded green waste at McLean's and Hokitika.
- Disposal of refuse at landfills on the Coast (Karamea, Maruia, McLean's, Butlers and Haast) or out of the region (Nelson/Tasman).

Issues:

- Variable services for diversion of materials at transfer stations - recyclables, organic waste with variable provision for capture of materials for recycling or composting.
- Uncertain disposal options for refuse from the Grey District once Cell 2 at McLean's Landfill is complete.
- Potential for rural waste¹⁹ to increasingly entering the Council waste management systems - via commercial collections, rural roadside collections and transfer stations.
- Visitors to the region have a range of different ways they can manage their waste i.e. there is a lack of consistency in services for visitors.
- There are three MRF with potential to consolidate processing to one or two sites.
- The two major landfills (McLean's and Butlers) are close to each other.
- Costs are relatively high, but reasonable in light of scale of processing and disposal facilities and transport distances
- Limited services for commercial and construction waste with limited information available regarding diversion activity focussed on these waste streams.
- Lack of collections for glass in the Westland District and issues with contamination in Grey.

Bulky Waste

There is potential to target bulky waste²⁰ from households across the region with a focus on materials recovery and avoiding illegal dumping. Options include:

- Continue with current provision for drop-off of bulky waste at transfer stations on a user pays basis.
- Implement a scheduled bulky waste collection²¹ from the roadside (inorganic collection) with provision for (dry) waste sorting of collected material. Typically once or twice per year.
- Implement an on demand bulky waste collection (often within a 1-2 month window each year) with provision for (dry) waste sorting of collected material²².

Objective:

Increase the diversion of material from landfill. Avoid illegal dumping via convenient service.

¹⁹ Waste from farming activities including plastic wrap, chemical containers and fencing materials (timber, wire). This material has traditionally been stored or disposed of on individual farms.

²⁰ Material that cannot be accommodated in regular waste collections and is therefore stockpiled, taken to transfer stations or illegally dumped.

²¹ Estimated cost for option evaluation purposes \$0.5M per year across the Region, potentially much higher depending on geographic extent.

²² Estimated cost for option evaluation purposes \$0.3 M per year across the Region, potentially much higher depending on geographic extent.

Self haul/transfer stations

The current arrangements for disposal of refuse across the region work well with businesses, households having access to appropriate disposal locations. Visitors have access to the same facilities but these are often not conveniently located for leisure travellers. There is potential to address current issues and improve the capture of materials for recycling or recovery. Materials or sources of waste that could be targeted include:

- Visitor waste, particularly at remote locations e.g. Punakaiki.
- Materials passing through smaller (rural) transfer stations
- Commercial, industrial and construction waste.

Options for self haul/transfer stations include:

- Provide standardised recycling and disposal 'depots' at key visitor stopping points including key free camping locations and view points. This could include locations in settlements including the main centres²³.
- Increase the capture of materials for diversion at rural transfer stations with a focus on green waste, scrap metal and recyclable materials. This might involve shredding and stockpiling of green waste, accumulating scrap metals for periodic transport to the main transfer stations or market and consolidating recyclable materials for periodic transport to the main transfer stations²⁴.
- Implement sorting of mixed dry waste loads at main transfer stations - commercial or construction waste. Examples of this approach include basic sorting of loads dumped on a sorting floor/pad through to highly complex sorting systems. Marlborough District Council have recently commissioned a waste sorting facility targeting general waste and there are several construction waste sorting operations in Auckland²⁵.

Objective:
Efficiency, avoid illegal dumping

Objective:
Balance service level with cost to provide equivalent levels of service.

Objective:
Increase the diversion of material from landfill

Processing

While the current infrastructure in the region is adequate, there is potential to improve processing to address risks associated with current diversion activities or enable increased diversion of material from landfill. Materials that could be targeted include:

- Garden waste - lawn clippings and prunings.
- Food and other highly putrescible waste.
- Processing of household and commercial recycling.
- Glass (from kerbside recycling, commercial collections and transfer stations).

²³ Estimated cost 0.5 - 1.0M per year (including allowance for capital funding) depending on the number of stations and location. Servicing costs are likely to be significant given remoteness of potential sites. Buller District are already investigating this approach and North Beach and Punakaiki are proposed as initial locations. Other potential locations include Karamea, Maruia, Springs Junction, Franz Josef, Fox and Haast.

²⁴ Allowance of additional \$0.3M across the Region for additional staff (time) and reconfiguration of sites including allowance for capital where required.

²⁵ Estimated allowance for option evaluation purposes of \$0.5M for site reconfiguration, staff time and plant (e.g. small bobcat loader for moving materials).

The options to be considered include:

- Green waste processing - replicate co-processing of shredded green waste and sewage solids currently undertaken in Westport. Green waste accepted at transfer stations or collected from households and businesses shredded and co-processed²⁶.
- Consolidate processing of recyclable materials (from kerbside and commercial collections) at one or two sites across the region. Materials currently processed at McLean's Landfill (by Smart Environmental) and Hokitika Transfer Station (by EnviroWaste) could be at one of those sites or processing of materials from across the region could be consolidated at McLean's or Westport²⁷.
- Actively pursue alternatives for glass processing and local use or improving the logistics of transporting glass to Auckland for remanufacturing²⁸.

Objective:
Secure 'market' for green waste

Objective:
Improve efficiency of processing of recyclable materials

Objective:
Increase the diversion of glass from landfill



Figure 20: Marlborough Waste Sorting Centre²⁹

Drop off and Disposal

The current cell at McLean's Landfill is nearing completion and Grey District have commenced design and construction for Cell 3A (as at April 2017). Grey District Council is considering a range of options for future disposal.

With a significant number of visitors to the region there are examples of litter bins being used for general waste by travellers and also illegal dumping where there are no litter bins provided. In other parts of New Zealand these issues have been addressed by removing litter bins, configuring the bins to prevent the deposit of large waste items and/or increasing capacity. Taupo District Council, Waikato District Council (Raglan) and Thames Coromandel District Council (Whiritoa) are all using the Big Belly system combining small openings, a compactor bin system and remote notification of contractors when the bins are full. While remote notification will not work everywhere on The Coast there is potential to adapt some of the recycle station arrangements (to add refuse) with either remote notification or local 'custodians' ensuring bins are emptied as required.

²⁶ Estimated allowance for the purposes of option evaluation of \$0.3M across the region to allow for period green waste shredding and placement/mixing of sewage solids/green waste.

²⁷ Estimated allowance of 1.2M additional cost for recyclables processing including additional operational costs and funding for new/upgraded equipment.

²⁸ Estimated allowance of 0.5M additional cost for glass processing including additional operational costs and funding for new/upgraded equipment.

²⁹ From <http://www.marlborough.govt.nz/Services/Recycling-Resource-Recovery/Waste-Sorting-Centre.aspx>

The options to be considered include:

- Confirm long term disposal options for waste from the Grey and Buller Districts
Consider options for residual waste disposal following development of Cell 3A at McLean’s landfill. Options that could be considered include:
 - Further development at McLean’s landfill.
 - Transport waste from Grey District for out of region disposal.
 - Collaboration with Westland District on long-term development at Butlers Landfill.

Objective:

Identify secure disposal for refuse from the Grey District, explore options for disposal of refuse from Buller District



Figure 21: Recycle Stations (Southland and Selwyn)



Figure 22: Refuse Transfer Vehicles (Hurinui/Kate Valley Landfill)

7.2.3 Options to manage the negative impacts of waste

In the context of waste minimisation and management it is important to recognise that there are negative impacts of waste generation and management. Some of these are historical (e.g. unmanaged closed landfills) and some are related to mis-use of existing systems or illegal activity.

Management of closed landfills across the region is planned with appropriate budgets allocated through the Long Term and Annual Planning process. No change is proposed to the currently planned activity.

Current arrangements include:

- Programme of monitoring and works at closed landfills
- Illegal dumping collected by Council contractors where required
- Litter bins and services for visitors in selected locations around the District, serviced under contract to the Councils.

Issues:

- Illegal dumping in some areas - residents, businesses and visitors.
- Litter bins over-used in some areas (high use tourist spots).

There are two options to address issues with litter bin use - limiting size of waste accepted and increase capacity or removal.

- Removal with associated signage and other communications material has been successful in other parts of New Zealand - encouraging the public to take their waste with them rather than leaving it in public places.
- Capacity can be increased by providing additional bins or introducing automated compactor style systems. Buller District have a range of larger capacity litter bins in place that could be replicated elsewhere. The automate systems can work well but in some cases rely on mobile coverage that is not universal in the Region.

Objective:
People take litter home

Objective:
Increase capacity

As noted above, some areas with high visitor traffic may benefit from larger recycling/disposal facilities. For the West Coast region installation of recycle/waste stations at tourism hotspots alongside litter bins in settlements is the logical option.

7.2.4 Education Options

Providing clear information is an important aspect of successfully implementing a waste minimisation and management plan or programme. Information needs to clearly explain what is required of people using waste and recycling services, including visitors to the region. Communications should also set out the costs and benefits of waste minimisation and management. Information should explain **why** it is important to minimise waste and **how** to use the facilities available to residents and businesses in the region.


Education activities in the West Coast region include:

- Supporting schools providing education for sustainability under the NZ Curriculum including Enviroschools. This is focussed on helping students (and by extension their families) **why** it is important to effectively minimise and manage waste.
- Providing simple and clear information for households and businesses explaining **how** to use the waste management systems and services available in the district. There is detailed information available on the three Council websites including material linking to the current (2016/17) Love Food, Hate Waste campaign.
- Supporting national information and education campaigns e.g. Love Food, Hate Waste.

7.2.5 Policy Options

Providing the right policy framework for effective waste minimisation and management is a critical component of each District Council's role. This includes the relevant District Plans, funding

Reducing Waste



This page contains information about reducing household food waste.
Updated: 10/11/2016 4:06 p.m.

New Zealand families waste about \$500 each year on food which is thrown out unswain into the rubbish bin.
This adds up to a staggering \$872 million for the whole country. It also results in 122,000 tonnes of edible food going to landfill and generating greenhouse gases. The cost of household food waste in our district is \$16,700,000 per year (approximately 2,300 tonnes). This means that:

- The average family throws away 3 shopping trolleys of food every year or else
- that the amount of food thrown away in Whangarei would feed 9000 people for a year.

Whangarei District Council is proud to be part of the national Love Food Hate Waste NZ campaign which aims to turn this around, by inspiring and enabling people to waste less food.


The Love Food Hate Waste website is a great resource for all New Zealanders to use, with recipes, blogs, tips, techniques, events, news and much more. You can also sign up to the newsletter and join the Facebook page.

We are interested to hear from and work with other organisations in our district who are working or interested in working to reduce food waste. Together we can make a difference!


Look out for our "love your leftovers" stand in the Library this month.

You can also look at some recipes and tips under 'Resources' on the top right hand of the page.

Love Food Hate Waste Website



Proud to support
LOVE FOOD hate waste



Your families throw out 79 kilos of food every year. One of the top 10 products thrown out.

initiatives under the Waste Minimisation and Management Plan and regulation under bylaws. This Waste Assessment considers funding and by-law components.

Funding

Services for households and businesses are funded through user charges (refuse) and a targeted rate (recycling). As noted in the discussion on collection options, there is potential to consider funding of refuse collection services through targeted rates - effectively compulsory user charges recovered through the rating system. There is also potential to fund activities through general rates - current examples in the region include collection of litter and illegal dumped material.

Rates funding of services provides a guaranteed income to cover anticipated costs, but in most cases, involves a standard charge regardless of how much an individual uses a particular service. There are examples in New Zealand of Councils imposing a variable targeted rate depending on the service being used. For example in Selwyn District the target rate for refuse and recycling varies depending on refuse collection (bag or bin), recycling and organic waste collection service selected.

Regulation

Grey and Westland District council have by-laws in place, in both cases focussed on managing collection of household refuse. There is potential to develop a district-wide bylaw managing the provision of collection services and improve the capture of data on private refuse and recycling collection services for households and businesses. Recent bylaws in New Zealand typically include provisions addressing receptacles, recycling, disposal of materials, collection of trade refuse and licencing of collectors including data provision.

Actions proposed:

- Develop criteria for making grants available from each Council's allocation of Waste Levy funds. Provisionally criteria will be based on contribution to the vision, goals and objectives for waste minimisation and management with consideration of co-funding. Applications for funding should also be assessed for their ability to deliver the promised benefits i.e. due diligence on organisation capability, governance and accountability. Consideration also needs to be given to ensuring that funding supports new or expanded activities rather than supporting the status quo.
- Develop a regional solid waste bylaw and associated implementation plan. This will focus on implementing licencing including reporting arrangements. With a relatively small number of collection providers operating in the region, Councils are in a position to develop pragmatic but effective reporting requirements. This will require consultation with the collection providers prior to formally notifying the license regime. Councils should target implementation of a licencing regime in 2019.
- Continuing regular reporting on progress against the regional WMMP targets as part of each Council's Annual Report.
- Collaborate with central government, local government organisations, non government organisations (NGO) and other key stakeholders to progress national activity on waste minimisation and management policy³⁰.
- Continue to actively address illegal dumping activity including where possible identifying perpetrators and if required undertaking clean-up activity.

³⁰ Including policy and analysis relating to tourism waste

7.3 Assessing options

7.3.1 Assessment Criteria

The options noted above need to be considered in light of Council's strategic direction for waste minimisation and management. This means assessing their ability to contribute to the vision, goals and objectives noted in Section 6 while providing good value for money. The criteria used for assessing options are noted in Table 14.

Table 14: Assessment Criteria

Criteria	Goal/Objective	Comment
Rates	Maximise community benefit	Options that minimise Council funding requirements are preferred
Household costs	Maximise community benefit	Options that minimise cost to households or businesses are preferred
Waste diversion	Avoid and reduce waste where we can	Options that make it easy to avoid waste or divert unwanted material from landfill are preferred.
Easy and convenient	Manage waste responsibly	Options that make it easy to avoid and reduce waste where possible and manage waste responsibly are preferred.
Protect our environment	Manage waste responsibly	Options that minimise the negative impacts of waste minimisation and management are preferred.
Build on existing infrastructure	Avoid and reduce waste where we can' Maximise community benefit	Options that build on existing infrastructure including collection services are preferred
Appropriate for the West Coast	Maximise community benefit	Options that reflect business, community and visitor requirements on the West Coast are preferred (in contrast to approaches from highly urbanised or industrialised areas)
Economic opportunity	Maximise community benefit	Options that generate economic opportunities for the West Coast are preferred

7.3.2 Long List Options Assessment

Table 15 to Table 18 summarise the assessment of collection and physical infrastructure options. Options identified for further consideration are noted and discussed further in Section 7.3.3

Table 15: Refuse Collection Options Evaluation

	Comment	Rates	Household costs	Waste diversion	Easy and convenient	Protect our environment	Build on existing infrastructure	Appropriate for the West Coast	Economic opportunity	Conclusion
Refuse										
Exit	Limited private sector services available in the region, likely to be lack of services in some areas	likely net increase (loss of overhead contribution)	equivalent or higher cost	Typically involves a move to 240L bins and associated decrease in diversion	Likely loss of service to difficult areas	Typically involves a move to 240L bins and associated decrease in litter	Makes current service contracts obsolete	Lack of collectors	Potential new business opportunities for private collectors	✘ Don't consider further
User pays bags	Existing service in Buller, unlikely options for others	No change	No change	No change	No change	No change	No change	No change	No change	✔ Consider as base case
Rates funded bin	Existing in Grey and Westland	Significant increase for Buller	Similar cost for typical household	No change	Bin general considered more convenient than bags	Remove possibility of bag damage leading to litter	Would require modification of current collection vehicles in Buller	Consistent with services in Grey and Westland	No change	✔ Consider further
Rates funded bag/bag tag	Existing in Grey rural, potential option for Buller	Significant increase for Buller	Similar cost for typical household	No change for Buller	No change for Buller	No change for Buller	Use existing vehicles in Buller	Use existing vehicles in Buller and Grey	No change	✘ Don't consider further
User pays bin	Technology emerging but not currently available, requires RFID Technology	Small increase (set up costs)	Similar cost for typical household	No change	Bin general considered more convenient than bags	Remove possibility of litter from damaged bags	Require modification of current collection vehicles in Buller	Similar to services in Grey and Westland	No change	✔ Consider further

Table 16: Recycling Collection Options Evaluation

	Comment	Rates	Household costs	Waste diversion	Easy and convenient	Protect our environment	Build on existing infrastructure	Appropriate for the West Coast	Economic opportunity	Conclusion
Recycle										
Exit	Limited private sector services available in the region, likely to be lack of services in some areas	Reduce rates cost	Depends on model, likely higher cost through private services	Likely to reduce with lower take up of private sector services	Similar to current	Similar to current, depends on take up	Makes current service contracts and potentially MRF arrangements obsolete	Lack of existing private collectors means this may not be feasible	Potential new business opportunities for private collectors	✗ Don't consider further
Wheelie bin	Existing Westland and Grey, Issues with glass fines	Similar to current cost	Similar to current cost	Relatively low due to excl glass or glass fines/contamination	Single bin general considered convenient and easy to use	Bins reduce windblown litter (recycling)	Would make glass collection crates/ vehicles obsolete	Consistent with current Westland system	Similar to current	✓ Compare with bin + crate
Wheelie bin + crate	Existing in Buller	Similar to current cost	Similar to current cost	Higher glass recovery and value	Additional glass crate less convenient than single bin	Bins reduce windblown litter (recycling)	Existing system in Buller would need additional bin for Grey and Westland	Consistent with current system in Buller.	Similar to current	✓ Consider as potential regional option
Wheelie bin + wheelie bin	Addresses glass sort H&S issues (lifting and broken glass)	Similar to current cost	Similar to current cost	Higher glass recovery and value	Additional glass bin less convenient than single bin, easier than crate	Bins reduce windblown litter (recycling)	Would make glass collection crates/ vehicles obsolete	Bin based collection well established	Similar to current	✓ Potential future configuration

Table 17: Organic Waste Collection Options Evaluation

	Comment	Rates	Household costs	Waste diversion	Easy and convenient	Protect our environment	Build on existing infrastructure	Appropriate for the West Coast	Economic opportunity	Conclusion
Organic										
No collection (drop off only)	Existing	No change	No change	No change	No change	No change	No change	No change	Potential for building private sector services where there is demand	✓ Consider as base case
Optional collection service	Council provided service available to (urban) residents	Provided on a cost recover basis	Increase only where residents opt in	Increase dependant on take up	Convenient service compared to transporting material to transfer station	Similar to current, depends on take up, alternative to illegal dumping	May be potential to make use of existing vehicles (spare capacity)	No clear demand (needs further research)	New service = new employment	✓ Consider further
Universal collection service	Council service provided to all (urban) residents	Significant increase	Significant increase	Significant increase	Convenient service compared to transporting material to transfer station	Alternative to illegal dumping	Will require additional collection resource	No clear demand (needs further research)	New service = new employment	✓ Consider further
Periodic collection	Council service provided during summer to all (urban) residents	Increase	Increase	Increase dependant on take up	Convenient service compared to transporting material to transfer station	Alternative to illegal dumping	Will require additional collection resource during collection period	No clear demand (needs further research)	New service = new employment	✓ Consider further

Table 18: Physical Infrastructure Options Evaluation

	Comment	Rates	Household costs	Waste diversion	Easy and convenient	Protect our environment	Build on existing infrastructure	Appropriate for the West Coast	Economic opportunity	Conclusion
Bulky waste										
Nothing	Existing	No change	No change	No change	No change	No change	No change	No change	No change, existing skip services available	✓ Consider as base case
Annual scheduled collection	Major exercise, no established demand but some evidence of illegal dumping	Significant increase	Significant increase	Service design to provide for recovery of recyclable and reusable materials	Convenient service compared to transporting material to transfer station	Alternative to illegal dumping	Make use of existing transfer stations, facility for sorting and recovery/sale	No clear demand (needs further research)	New service = new employment	✓ Consider further
Annual on request collection	Can manage scale and target recovery	Significant increase	Significant increase	Service design to provide for recovery of recyclable and reusable materials	Convenient service compared to transporting material to transfer station	Alternative to illegal dumping	Make use of existing transfer stations, facility for sorting and recovery/sale	No clear demand (needs further research)	New service = new employment	✓ Consider further
	Comment	Rates	Household costs	Waste diversion	Easy and convenient	Protect our environment	Build on existing infrastructure	Appropriate for the West Coast	Economic opportunity	Conclusion
Self haul/transfer										
Recycle/waste stations at tourism hot spots	Potential for standard set up (containers)	Increase (but potential for regional or tourism funding)	No change	Target recovery of materials	Convenient service for visitors by placing depots at popular locations	Alternative to illegal dumping	New infrastructure, making use of similar approach elsewhere (e.g. Arthurs Pass)	Clear issue that requires addressing	New service = new opportunity	✓ Consider further
Consistent service (green, recycle)	Potential for linked services - regional green waste processing	Increase where services not currently in place	Cheaper options for green waste and recyclable materials	Intended to increase diversion of materials at transfer stations	Convenient service for diversion	Cheaper options for green waste in particular as alternative to illegal dumping	Making use of space at existing transfer stations	Building on existing activity at some transfer stations	Building on existing so minor additional activity.	✓ Consider further
Dry waste sorting at Transfer Stations	Make use of time/capacity at each site to maximise recovery	Target making use of existing capacity	No change	Intended to increase diversion of materials at transfer stations	Targeting removal of materials from refuse stream, no additional action required by householders	No change	Making use of space and resources at existing transfer stations	Building on existing activity at some transfer stations	Building on existing so minor additional activity.	✓ Consider further

	Comment	Rates	Household costs	Waste diversion	Easy and convenient	Protect our environment	Build on existing infrastructure	Appropriate for the West Coast	Economic opportunity	Conclusion
Processing										
Green waste with sludge	Existing at Westport, extend to elsewhere	Minimal change - reduction in use of airspace off set by cost of processing	No change	Sustainable market for green waste	No change	Beneficial use of sludge	Space available but potential new equipment	Local use options (Council operations)	Building on existing so minor additional activity.	✓ Consider further
MRF - consolidate processing	3 x MRF, potential to consolidate	Minimal change - increase in efficiency offset by transport costs	No change	Sustainable processing of recyclables	No change	No change	Consolidating existing infrastructure	Making use of existing capability	Minor loss of activity	✓ Consider further
Glass - local processing and beneficial use		Increase likely	No change	Sustainable processing of recyclables	No change	No change	Adding to existing infrastructure	Recognises challenges with export of recovered glass.	Potential increase Depending solution identified	✓ Consider further
	Comment	Rates	Household costs	Waste diversion	Easy and convenient	Protect our environment	Build on existing infrastructure	Appropriate for the West Coast	Economic opportunity	Conclusion
Disposal										
Next cell at MacLeans	Currently on hold	Minimal change to current	No change	No change	No change	No change	Builds on existing landfill facility	Builds on existing facility	Similar to current	✓ Consider further
Additional material at Butlers	Capacity but difficult to	Increase in cost likely for Grey, potential reduction in cost for Westland	No change	No change	No change	No change	Builds on existing landfill facility	Builds on existing facility	Similar to current	✓ Consider further
Waste to energy in Buller	Proposed but subject to securing adequate material (from outside the West Coast, formal approval and funding.	Minimal change to current - based on current proposal	No change	No change	No change	Minimal change assuming robust environmental controls	New waste to energy facility required	New facility, approvals requirements not clear	Construction and operation of a new waste to energy facility will have a positive economic impact.	✓ Consider further

7.3.3 Detailed Options Evaluation

The options noted for further consideration in Section 7.3.2 can be considered as individual 'components' of the waste management system or as a full package. The evaluation presented here looks at each system component and develops recommendations for a full system configuration.

7.3.3.1 Collection

The long list evaluation flagged four **refuse collection** options for further consideration. These were:

- Bag based, user pays collection (the status quo in Buller District)
- Wheelie bin based collection, rates funded collection (the status quo in Greymouth and northern Westland District).
- Wheelie bin based collection, user pays.

These options were evaluated in more detail using the evaluation framework noted in Section 7.3.1 and high level modelling of cost and anticipated diversion (assessment criteria). The outcome of the evaluation is summarised in Table 19 with moving towards user pays bins (preferred) or a universal rates funded wheelie bin based service providing the highest overall scores.

Table 19: Refuse Collection - Detailed Evaluation

Criteria	1. Refuse - User pays bags	2. Refuse - Rates funded bin	3. Refuse - User pays bin
Cost to households	\$4.50/week	\$4.00/week	\$4.00/week
Rates	\$1.0M/year	\$1.3M/year	\$1.3M/year
Diversion	34%	27%	34%
Easy and convenient	Similar convenience to the current system	Easier to use than the current system	Easier to use than the current system
Protect our environment	No change - litter, refuse collection, illegal dumping	Bins reduce windblown litter, need to manage capacity	Bins reduce windblown litter, need to manage capacity
Build on existing infrastructure	Maintains current systems with minimal change	Leverages a component of the current system	Leverages a component of the current system
Appropriate for the West Coast	Similar to the current approach	Could apply to the West Coast, moderate improvement from the current system	Could apply to the West Coast, moderate improvement from the current system
Economic opportunity	Similar economic opportunities to the current approach	Similar economic opportunities to the current approach	Similar economic opportunities to the current approach
Comments	Status Quo	Status quo in Grey and Westland Districts	Emerging technology, relatively high risk, most appropriate as long term transition.
Score	57	61	68

The long list evaluation identified three **recycling collection** options for further consideration. These were:

- A single wheelie bin based collection service (status quo in Greymouth and northern Westland)
- Wheelie bin & glass crate based collection service (the status quo in Westport and Reefton).
- Wheelie bin & glass crate based collection service.

These options were evaluated in more detail using the evaluation framework noted in Section 7.3.1 and high level modelling of cost and anticipated diversion (assessment criteria). The outcome of the evaluation is summarised in Table 20 with collection using a wheelie bin for co-mingled recyclables and a crate or additional wheelie bin for glass the highest overall scores.

Table 20: Recycling Collection - Detailed Evaluation

Criteria	4. Recycle - Wheelie bin	5. Recycle - Wheelie bin + crate	6. Recycle - Wheelie bin + wheelie bin
Cost to households	NA	NA	NA
Rates	\$1.5M/year	\$1.2M/year	\$1.3M/year
Diversion ³¹	28.0%	34.0%	34.0%
Easy and convenient	Similar convenience to the current system	Harder to use than the current system	Easier to use than the current system
Protect our environment	No change - litter, refuse collection, illegal dumping	No change - litter, refuse collection, illegal dumping	No change - litter, refuse collection, illegal dumping
Build on existing infrastructure	Maintains current systems with minimal change	Maintains current systems with minimal change	Change in one or more components of current system
Appropriate for the West Coast	Similar to the current approach	Similar to the current approach	Could apply to the West Coast, moderate improvement from the current system
Economic opportunity	Similar economic opportunities to the current approach	Similar economic opportunities to the current approach	Similar economic opportunities to the current approach
Comments	Status quo in Westland and Grey Districts	Status quo in Buller District	Emerging technology, relatively high risk
Score	53	58	59

³¹ Kerbside waste diversion rate (refuse and recycling).

The long list evaluation identified several options for collection of **organic waste** for further consideration. These were:

- No collection of organic waste from households (drop off at transfer stations, status quo).
- Council provided, opt in organic waste collection.
- Council provided, universal organic waste collection (fortnightly).
- Council provided, universal periodic organic waste collection (4 - 6 times per year).

These options were evaluated in more detail using the evaluation framework noted in Section 7.3.1 and high level modelling of cost and anticipated diversion (assessment criteria). The outcome of the evaluation is summarised in Table 21 with all options returning a similar score. Periodic collection represents a good balance between an improved service and cost. This approach is used in many areas in provincial Australia alongside bulky waste collections and focussing on seasonal generation of garden waste.

Table 21: Organic Collection - Detailed Evaluation

Criteria	7. Organic - No collection (drop off only)	8. Organic - Optional collection service	9. Organic - Universal collection service	10. Organic - Periodic collection
Cost to households	\$0.00/week	\$5.00/week	\$0.00/week	\$0.00/week
Rates	\$0.1M/year	\$0.2M/year	\$1.5M/year	\$0.7M/year
Diversion ³²	28%	37%	45%	40%
Easy and convenient	Similar convenience to the current system	Easier to use than the current system	Easier to use than the current system	Easier to use than the current system
Protect our environment	No change - litter, refuse collection, illegal dumping	Improvement, some organic waste diversion, estimate 10-20% participation.	Improvement in environmental protection - organic waste diversion	Improvement in environmental protection - organic waste diversion
Build on existing infrastructure	Maintains current systems with minimal change	Change in one or more components of current system	Change in one or more components of current system	Change in one or more components of current system
Appropriate for the West Coast	Similar to the current approach	Not normally applied in areas like the West Coast	Not normally applied in areas like the West Coast	Not normally applied in areas like the West Coast
Economic opportunity	Similar economic opportunities to the current approach	Similar economic opportunities to the current approach	Moderate increase in economic opportunity for the West Coast	Moderate increase in economic opportunity for the West Coast
Comments	Status quo	Households opt in for Council collection - user pays	Households provided with Council collection - rates funded	Households provided with Council collection - rates funded
Score	63	61	64	67

³² Kerbside waste diversion rate (refuse, recycling and organic waste).

The evaluation of options (Table 22) for **bulky waste** suggests that scheduled or on request bulky waste collections are worth further investigation. Specifically the analysis suggests there is potential for significant additional diversion with moderate increase in costs to ratepayers.

Table 22: Bulky Waste Options - Detailed Evaluation

Criteria	11. Bulky waste - No collection	12. Bulky waste - Annual scheduled collection	13. Bulky waste - Annual on request collection
Cost to households	NA	NA	NA
Rates	NA	\$0.5M/year	\$0.3M/year
Diversion	28%	35%	33%
Easy and convenient	Similar convenience to the current system	Significantly easier to user than the current system	Easier to use than the current system
Protect our environment	No change - litter, refuse collection, illegal dumping	No change - litter, refuse collection, illegal dumping	No change - litter, refuse collection, illegal dumping
Build on existing infrastructure	Maintains current systems with minimal change	Change in one or more components of current system	Change in one or more components of current system
Appropriate for the West Coast	Similar to the current approach	Could apply to the West Coast, moderate improvement from the current system	Could apply to the West Coast, moderate improvement from the current system
Economic opportunity	Similar economic opportunities to the current approach	Moderate increase in economic opportunity for the West Coast	Moderate increase in economic opportunity for the West Coast
Comments	Status quo	Scheduled collection, funded by rates, assuming off site sorting for recovery	Only collected from houses requesting a collection, assume off site sorting for recovery with lower volume and scheduling making it easier to capture materials.
Score	57	63	61

7.3.3.2 Physical Infrastructure

The long list consideration of physical infrastructure options identified four groups of activities worthy of further consideration. These options could be implemented individually or in various combinations. The groups of options were:

- Self haul/transfer - consistent services and targeting 'dry' waste at transfer stations.
- Processing - improving the processing of materials on the West Coast including green waste, recyclable materials and specifically glass.
- Disposal - confirming the long term approach to disposal of materials that cannot be recovered or recycled.

The evaluation of options for **self haul/transfer** (Table 23) highlights that several of the options are worth pursuing further. Each of the options (15, 16 and 17) are an improvement on the status quo but require additional operational funding and capital investment.

- Recycle/waste stations at tourism hot spots - capital investment for container based recycle/waste stations, operational funds for periodic servicing.
- Consistent services - variable capital investment (bins, transfer station layout) and operating funds (transport of materials, staff time) across the transfer station network.
- Dry waste sorting - variable capital investment (bins, transfer station layout, sorting equipment/plant) and operating funds (transport of materials, staff time) across the transfer station network.

Table 23: Self haul and transfer options - detailed evaluation

Criteria	14. Self haul/transfer - Baseline	15. Self haul/transfer - Recycle/waste stations at tourism hot spots	16. Self haul/transfer - Consistent service (green, recycle)	17. Self haul/transfer - Dry waste sorting at Transfer Stations
Cost to households	NA	NA	NA	NA
Rates	\$0.1M/year	\$0.5 - 1.0M/year	\$0.3M/year	\$0.5M/year
Diversion	28%	35%	45%	50%
Easy and convenient	Similar convenience to the current system	Significantly easier to user than the current system	Similar convenience to the current system	Similar convenience to the current system
Protect our environment	No change - litter, refuse collection, illegal dumping	Improvement in environmental protection	No change - litter, refuse collection, illegal dumping	No change - litter, refuse collection, illegal dumping
Build on existing infrastructure	Maintains current systems with minimal change	Change in one or more components of current system	Change in one or more components of current system	Leverages a component of the current system
Appropriate for the West Coast	Similar to the current approach	Well suited to West Coast context, significant improvement from current system	Could apply to the West Coast, moderate improvement from the current system	Could apply to the West Coast, moderate improvement from the current system
Economic opportunity	Similar economic opportunities to the current approach	Similar economic opportunities to the current approach	Moderate increase in economic opportunity for the West Coast	Moderate increase in economic opportunity for the West Coast
Comments	Status quo	Buller District have started to develop drop-off points with a focus on recyclable material. Container based systems are common around NZ but provision needs to be made for refuse alongside recyclable material.	Potential to align available services across the Region e.g. recyclable materials accepted, reusable materials, green waste.	Potential to target dry materials for recovery (cardboard, metals, untreated timber, reusable items). Potential to use differential charging (lower cost for dry waste vs mixed refuse).
Score	60	68	66	70

The evaluation of options for **processing** options (Table 24) suggests that the options are opportunities to reduce risks to the current system and underlie other options considered here (organic waste collection, recycle collection, glass collection).

- Green waste with sludge - provides an outlet for green waste captured through kerbside collection and/or at transfer stations.
- Consolidate MRF processing - minimise cost and potential target improved quality of MRF outputs to address current (early 2018) market challenges.
- Glass processing - provide an local outlet for glass collected at kerbside or transfer stations and/or improve the value of glass exported for recycling or reuse.

Table 24: Processing options - detailed evaluation

Criteria	18. Processing - Green waste with sludge	19. Processing - MRF - consolidate processing	20. Processing - Glass - local processing and beneficial use
Cost to households	NA	NA	NA
Rates	\$0.3M/year	\$1 - 1.2M/year	\$0.5M/year
Diversion	40%	35%	35%
Easy and convenient	Similar convenience to the current system	Similar convenience to the current system	Similar convenience to the current system
Protect our environment	No change - litter, refuse collection, illegal dumping	No change - litter, refuse collection, illegal dumping	No change - litter, refuse collection, illegal dumping
Build on existing infrastructure	Change in one or more components of current system	Change in one or more components of current system	Maintains current systems with minimal change
Appropriate for the West Coast	Could apply to the West Coast, moderate improvement from the current system	Could apply to the West Coast, moderate improvement from the current system	Similar to the current approach
Economic opportunity	Moderate increase in economic opportunity for the West Coast	Similar economic opportunities to the current approach	Similar economic opportunities to the current approach
Comments	Status quo in Westport, potential opportunity elsewhere in the Region.	Move from 3 MRF (Westport, Greymouth and Hokitika) to 1 -2 MRF. Focus on high quality and value material in light of current (2018) market challenges.	Look for local options to avoid using landfill space and cost of transport to market (Nelson, Auckland). Examples could include aggregate (landfill or transfer station construction) or sand replacement.
Score	62	54	57

The evaluation of options for **disposal** (Table 25) suggests that the status quo, including further development at McLean's Landfill is the preferred option based on cost and risk. The presence of two similar capacity landfills around 60 km apart suggests further consideration of the 8 - 10,000 T/year entering the two sites to reduce operational costs needs to be considered in the med-long term.

Table 25: Disposal options - detailed evaluation

Criteria	21. Disposal - Next cell at McLean's, status quo elsewhere	22. Disposal - Additional material at Butlers
Cost to households	NA	NA
Rates ³³	\$1.0M/year	\$1.2M/year ³⁴
Diversion	28%	28%
Easy and convenient	Similar convenience to the current system	Similar convenience to the current system
Protect our environment	No change - litter, refuse collection, illegal dumping	No change - litter, refuse collection, illegal dumping
Build on existing infrastructure	Leverages a component of the current system	Change in one or more components of current system
Appropriate for the West Coast	Could apply to the West Coast, moderate improvement from the current system	Could apply to the West Coast, moderate improvement from the current system
Economic opportunity	Similar economic opportunities to the current approach	Similar economic opportunities to the current approach
Comments	Status quo, cell construction underway.	Potential to use Butlers landfill as a sub-regional facility. Current pricing (almost double McLeans Landfill) suggests that this may be cost prohibitive but spreading fixed costs over larger quantity of material may reduce costs.
Score	61	54

³³ Estimate contract costs for transfer and landfill operations including disposal.

³⁴ Estimated increase due to transport and higher operation costs at Butlers vs. McLean's Landfill.

7.4 Preferred options

Based on the detailed option evaluation, the preferred configuration of the waste management system is summarised in Table 26.

Table 26: Preferred Waste Management System Configurations

System Component	Preferred Option(s)		
Refuse collection	User pays bag + rates bin (status quo)	<i>Investigate and maintain a watch on user pays wheelie bin technology (RFID)</i>	
Recycle collection	Rates funded 240 L wheelie bin + crate	Rates funded 240 L + 140L wheelie bins	
Organic collection	Drop off at transfer stations (status quo)	<i>Investigate periodic garden waste (bulky waste collections)</i>	
Bulky waste	Existing transfer station network (status quo)	<i>Investigate bulky waste collection (bi-annual - scheduled or on-demand)</i>	
Self haul and transfer	Recycle/waste stations at tourism hot spots	Consistent service level across transfer stations	<i>Investigate/Trial dry waste sorting (charging) at transfer stations</i>
Waste processing	<i>Investigate green waste with wastewater sludge at Grey and Westland Districts</i>	<i>Investigate consolidating MRF operations</i>	<i>Investigate glass local processing and beneficial use</i>
Disposal options	Butlers, McLeans (new cell) and export to Nelson (status quo)	<i>Investigate combining Grey and northern Westland District Material in the medium term</i>	

Note: Aspects in normal font are status quo or to be progressed without further evaluation (subject to confirming funding through Council budget processes.

Aspects in *italics* are to be further investigated or considered if other parties develop options/infrastructure further.

Other activities proposed include actions to improve management of litter, education activities and policy implementation. These are discussed below.

The two options to manage litter and associated illegal dumping impacts have very different benefits and challenges. In the West Coast Region they are also closely related to managing waste in tourism hotspots. Providing additional bins or increasing capacity will increase costs but with careful design it may be possible to reduce or maintain costs at present levels through managing servicing costs.

The education activities proposed are relatively low cost and provide a key supporting role for other actions explored and proposed in this Waste Assessment.

The policy actions proposed support other actions (funding for collection) or provide a key supporting role for other actions explored and proposed in this Waste Assessment. Proposed actions

Based on the analysis and discussion presented in the preceding sections the following options should be included in an action plan for the West Coast Region Waste Minimisation and Management Plan.

Infrastructure actions

- **Investigate and maintain a watch** on wheelie bin based user pays technology for refuse collection.
- **Investigate** a transition to two stream (co-mingle recyclables + separate glass) for kerbside recycling services across the Region.
- **Investigate**³⁵ a periodic garden waste collection service (most likely combined with a bulky waste collection service).
- **Investigate**³⁵ optimising services for bulky household waste including the role of the regional transfer station network and potential bulky waste collections (scheduled for all households or on demand).
- **Implement** recycle/waste stations at tourism hotspots across the West Coast - trail the approach in Buller District (North Beach, Punakaiki) and then roll out to other locations.
- **Investigate/Trial**³⁶ dry waste (construction waste, commercial waste) sorting including the use of charging to incentivise semi-sorted loads at key transfer stations.
- **Implement** processing of shredded green waste and sludge in Greymouth, Hokitika (and potentially Reefton).
- **Investigate** consolidating MRF operations and options for glass (local processing and beneficial use).
- **Investigate** combining Grey and northern Westland District refuse disposal in the medium term (as cells at Butlers and/or McLean's Landfills are completed).
- **Maintain a watch** on the proposal Westport waste to energy proposal.

Education actions

- Continue to update and maintain information on waste and recycling collection and drop off services in the West Coast Region on Council websites and information for visitors.
- Disseminate information on waste minimisation and management to all residents (including holiday makers/temporary residents) including national programmes like Love Food Hate Waste.
- Maintaining school education programme, support existing environmental education activities for schools, homes and businesses.

Policy Actions

- **Develop criteria** for making grants available from Council's allocation of Waste Levy funds. Provisionally criteria will be based on contribution to the Vision, Goals and Objectives for waste minimisation and management with consideration of co-funding. Applications for funding should also be assessed for their ability to deliver the promised benefits i.e. due diligence on organisation capability, governance and accountability.
- Develop a regional solid waste bylaw and associated implementation plan targeting implementation of a licencing regime in 2019.

³⁵ Detailed analysis of options considering cost of service, diversion of materials, fairness/equity, safety and protection of the environment (illegal dumping).

³⁶ Look at Westport, Reefton, McLeans and Hokitika transfer stations, detailed analysis of options considering cost of service, diversion of materials, fairness/equity, safety and protection of the environment (illegal dumping).

- Continue to report on progress against the targets in the WMMP in Annual Reports.
- Collaborate with central government, local government organisations, non government organisations (NGO) and other key stakeholders to progress national activity on waste minimisation and management policy³⁷.
- Continue to actively address illegal dumping activity including where possible identifying perpetrators and if required undertaking clean-up activity.

Table 27 presents an indicative timeline for deliver the actions outlined above.

³⁷ Including policy and analysis relating to tourism waste

Table 27: Proposed timeline for actions

2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Infrastructure					
Services					
Existing					
Refuse Collection	Refuse Collection	Refuse Collection	Refuse Collection	Refuse Collection	Refuse Collection
Kerbside Recycling	Kerbside Recycling	Kerbside Recycling	Kerbside Recycling	Kerbside Recycling	Kerbside Recycling
Transfer Stations	Transfer Stations	Transfer Stations	Transfer Stations	Transfer Stations	Transfer Stations
<i>Potential new services:</i>					
			<i>Refuse bin RFID/User pays</i>		
			<i>Westland District glass recycling</i>		
				<i>Tender and appoint organic waste and/or Bulky waste service</i>	<i>Organic and/or Bulky waste service</i>
<i>Buller District recycle/waste stations at North Beach and Punakaiki</i>		<i>Northern and central Buller, Grey and Westland Districts recycle/waste stations</i>			
	<i>Processing of shredded green waste and sludge in Greymouth, Hokitika (and potentially Reefton)</i>				
	<i>Collaborate with product owners on problem products e.g. e-waste</i>				<i>Tender/Appoint dry waste sorting (new or varied transfer station contracts)</i>
Investigations					
<i>Complete investigation on MRF consolidation</i>	<i>Complete study on garden waste and bulky waste collection.</i>		<i>LTP Proposal for bulky and/or organic waste</i>		
<i>Complete investigations into two stream collection options.</i>	<i>Complete study on dry waste sorting</i>		<i>LTP proposal on dry waste sorting</i>		

2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Education / Information					
Information on:					
green waste and food waste services	Green waste and food waste services	Green waste and food waste services	Green waste and food waste services	Green waste and food waste services	Green waste and food waste services
Council services	Council services	Council services	Council services	Council services	Council services
For holidaymakers	For holidaymakers	For holidaymakers	For holidaymakers	For holidaymakers	For holidaymakers
Schools	Schools	Schools	Schools	Schools	Schools
Illegal dumping	Illegal dumping	Illegal dumping	Illegal dumping	Illegal dumping	Illegal dumping
Policy					
Develop grant funding criteria	Grant funding round	Grant funding round	Grant funding round	Grant funding round	Grant funding round
By-law amendment	By-law implementation	By-law implementation	By-law implementation	By-law implementation	By-law implementation
Report on progress in 2017/18 Annual Report.	Report on progress in 2018/19 Annual Report.	Report on progress in 2019/20 Annual Report.	Report on progress in 2020/21 Annual Report.	Report on progress in 2021/22 Annual Report.	Report on progress in 2022/23 Annual Report.
Collaborate with others national activity and policy.	Collaborate with others national activity and policy.	Collaborate with others national activity and policy.	Collaborate with others national activity and policy.	Collaborate with others national activity and policy.	Collaborate with others national activity and policy.
Illegal dumping investigation and enforcement activity	Illegal dumping investigation and enforcement activity	Illegal dumping investigation and enforcement activity	Illegal dumping investigation and enforcement activity	Illegal dumping investigation and enforcement activity	Illegal dumping investigation and enforcement activity
Indicative Budget³⁸					
3.4M	3.7M	3.7M	4.6M	4.6M	5.6M
Status quo	Add Buller District recycle/waste stations, investigations	Add green waste + sewage solids processing	Add RFID refuse bins and Westland District glass collection		Add organic and bulky waste collection.

³⁸ Based on current budgets across 3 Councils and estimated cost of proposed initiatives. Further detail of the basis for cost estimates is contained in the option evaluation sections in the Regional Waste Assessment.

8 Statement of proposals

Each of the Council's Waste Minimisation and Management Plans (WMMP) were developed following completion of a District level Waste Assessment in 2011/12. Each Waste Assessment evaluated current quantities and composition of waste and diverted materials in the district, existing services, future demand for services and practicable options for addressing the various waste and diverted materials streams. The Waste Assessments have been reviewed and updated in the form of a Regional Waste Assessment to reflect the changes that have occurred locally, regionally and nationally since that time and also to meet the requirements of the Waste Minimisation Act 2008 (WMA).

Under the WMA, each Council is required to review and adopt changes to their Waste Management and Minimisation Plan every 6 years from 2012. There is provision for joint WMMP where this is an efficient and effective way for Councils to complete strategic planning for waste minimisation and management. The reviews are to be completed by mid 2018. A WMMP must contain a summary of Council's waste management and minimisation objectives, policies, methods and funding to achieve effective and efficient waste management and minimisation within the district. The Plan must also include a commitment to waste minimisation through consideration of the waste hierarchy and must have regard to the New Zealand Waste Strategy and the most recent Waste Assessment undertaken by Council. In addition Council must ensure that nuisance is not caused by the collection, transport and disposal of waste.

The purpose of the WMMP is to provide the basis on which future policies, service provision and facilities will be provided to manage the Region's waste, and to minimise the quantities requiring disposal while making the best use of Council's resources and fostering sustainability.

The Regional Waste Assessment has identified that over 15,000 tonnes of waste was generated in the West Coast Region in 2016. Around 70 % of this waste was landfilled with the remainder diverted via recycling and composting. Diversion occurs predominantly through recycling at kerbside and transfer stations and recovery green waste for mulch or compost. The Waste Assessment has identified a range of waste management and minimisation issues to be addressed, including:

- While there is some information available about the quantity and composition of waste generated in the West Coast Region the data is incomplete.
- There is a lack of consistent services for visitors, residents and businesses across the Region.
- There are by-laws in place in Grey and Westland Districts that provide for collection of data, however they are not currently enforced.
- Waste at tourism hotspots and illegal dumping of waste is an ongoing issue.
- Costs for waste minimisation and management services in the region are relatively high (but likely reasonable in light of scale and transport distances.)

The overall vision of the WMMP is *"To deliver community benefits and reduce waste. West Coast businesses and households will be provided with efficient and effective waste minimisation and management services."*

A series of waste minimisation and management targets are proposed:

- To reduce waste disposed of to landfill to below 300 kg per person each year.
- To recycle at least 35 % of waste collected at the roadside from households.
- To recover or recycle at least 50 % of the waste taken to transfer stations in the West Coast Region.
- To establish 5 recycle and waste stations at tourism hotspots across the Region.

To address the issues identified and meet the key targets, Council proposes a range of actions. The actions reflect the need to balance policy, provision of services including infrastructure and community engagement. In all cases the focus is on enabling the West Coast community to manage their waste according to the waste hierarchy, preferring waste avoidance, reduction and recycling over recovery and disposal of residual material. Actions relate to both continuing and enhancing existing activities and starting new activities and initiatives. The Action Plan is dynamic and needs to be responsive to changes in demand, resources and external circumstances. Making such changes and adjustments is anticipated as an integral part of this WMMP.

The Action Plan includes actions focusing on waste minimisation and management infrastructure, education of the West Coast community and getting the right policy framework in place.

Infrastructure actions

- **Investigate and maintain a watch** on wheelie bin based user pays technology for refuse collection.
- **Investigate** a transition to two stream (co-mingle recyclables + separate glass) for kerbside recycling services across the Region.
- **Investigate**³⁹ a periodic garden waste collection service (most likely combined with a bulky waste collection service).
- **Investigate**³⁵ optimising services for bulky household waste including the role of the regional transfer station network and potential bulky waste collections (scheduled for all households or on demand).
- **Implement** recycle/waste stations at tourism hotspots across the West Coast - trial the approach in Buller District (North Beach, Punakaiki) and then roll out to other locations.
- **Investigate/Trial**⁴⁰ dry waste (construction waste, commercial waste) sorting including the use of charging to incentivise semi-sorted loads at key transfer stations.
- **Implement** processing of shredded green waste and sludge in Greymouth, Hokitika (and potentially Reefton).
- **Investigate** consolidating MRF operations and options for glass (local processing and beneficial use).
- **Investigate** combining Grey and northern Westland Districts refuse disposal in the medium term (as cells at Butlers and/or McLean's Landfills are completed).
- **Maintain a watch** on the proposal Westport waste to energy proposal.

Education actions

- Continue to update and maintain information on waste and recycling collection and drop off services in the West Coast Region on Council websites and information for visitors.
- Disseminate information on waste minimisation and management to all residents (including holiday makers/temporary residents) including national programmes like Love Food Hate Waste.
- Maintaining school education programme, support existing environmental education activities for schools, homes and businesses.

³⁹ Detailed analysis of options considering cost of service, diversion of materials, fairness/equity, safety and protection of the environment (illegal dumping).

⁴⁰ Look at Westport, Reefton, McLeans and Hokitika transfer stations, detailed analysis of options considering cost of service, diversion of materials, fairness/equity, safety and protection of the environment (illegal dumping).

Policy Actions

- **Develop criteria** for making grants available from Council's allocation of Waste Levy funds. Provisionally criteria will be based on contribution to the Vision, Goals and Objectives for waste minimisation and management with consideration of co-funding. Applications for funding should also be assessed for their ability to deliver the promised benefits i.e. due diligence on organisation capability, governance and accountability.
- Develop a regional solid waste bylaw and associated implementation plan targeting implementation of a licencing regime in 2019.
- Continue to report on progress against the targets in the WMMP in Annual Reports.
- Collaborate with central government, local government organisations, non government organisations (NGO) and other key stakeholders to progress national activity on waste minimisation and management policy⁴¹.
- Continue to actively address illegal dumping activity including where possible identifying perpetrators and if required undertaking clean-up activity.

Council will fund these actions through a combination of targeted rates, user pays fees and charges and waste levy funding.

The above actions are intended to provide a wide ranging approach to waste services in the West Coast Region to protect public health promote effective and efficient waste management and minimisation.

⁴¹ Including policy and analysis relating to tourism waste

9 Consultation with the Medical Officer of Health

Comment from Community and Public Health's Medical Officer of Health for the West Coast Region is included as Appendix A.

10 **Applicability**

This report has been prepared for the exclusive use of our client Westland, Grey and Buller District Council, with respect to the particular brief given to us and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

Tonkin & Taylor Ltd

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CHP

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**Appendix A: Letter/Comments from Community
and Public Health**

Appendix B: Individual Council Data

10.1 Buller District Council

Waste Infrastructure - Buller Collections

The collection system for Buller District is presented in Figure 23 including materials collected at kerbside and delivered to landfill or resource recovery parks. Kerbside refuse in Buller District is collected in compactor trucks and consolidated at the Westport Resource Recovery Park for transportation to Nelson. Households can use refuse bags (sold at a range of retail outlets) or use one of several commercial collection services. Council offer a two stream kerbside recycling service in Westport and Reefton and surrounding areas. Households have alternating collections of co-mingled materials (paper, cardboard, plastics and tins in a 240L MGB) and glass (in a 60L crate).

Table 28 provides a summary of materials collected from the kerbside in the Buller District.

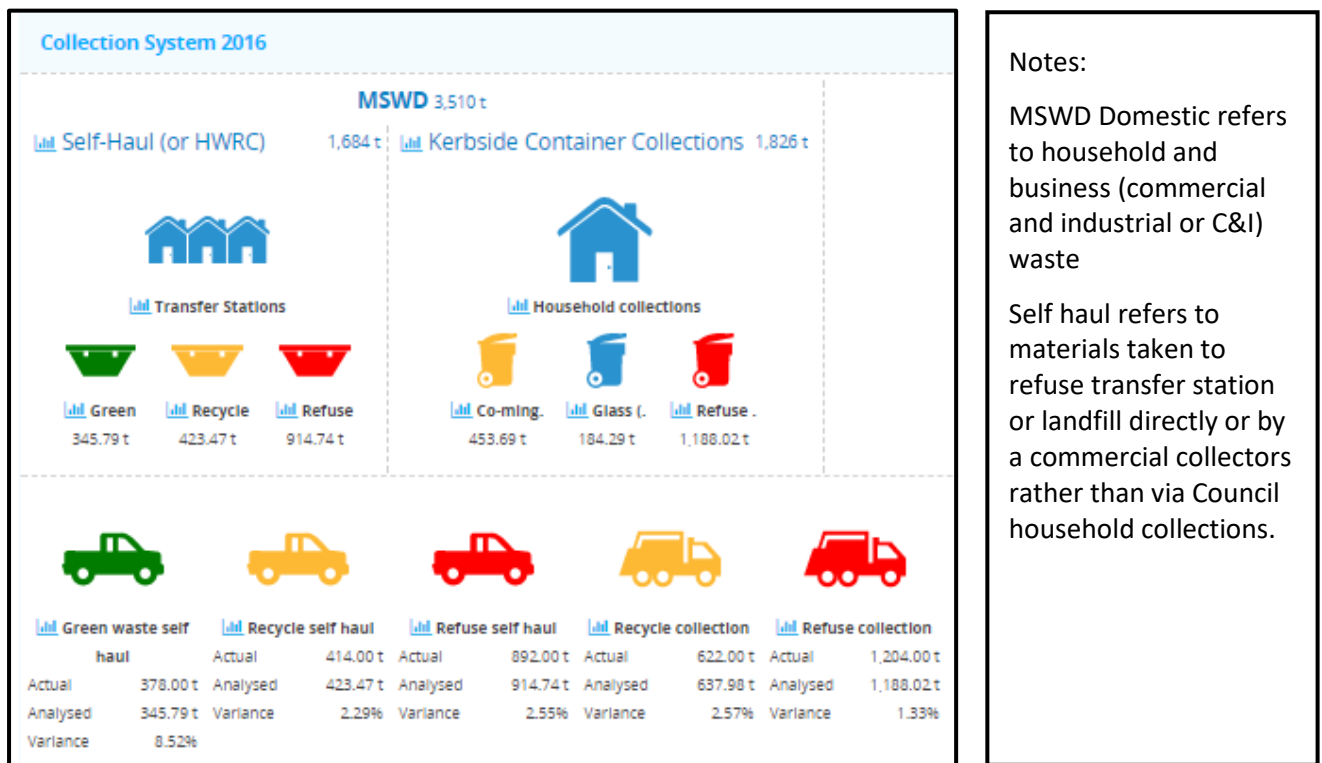


Figure 23: Buller District waste collection system

Table 28: Buller District - kerbside waste quantities⁴²

	2012	2013	2014	2015	2016
Kerbside Refuse Collection	1,829	1,500	1,370	1,261	1,204
BDC recycle collection	-	600	631	599	622
Total Kerbside Waste	1,829	2,100	2,000	1,861	1,826
Recycling Rate (%)	0%	29%	32%	32%	34%

⁴² Data sourced from waste collection and transfer station contract reporting and weighbridge records at Westport Transfer Station.

Waste Infrastructure - Buller Transfer, Processing and Disposal

Resource Recovery Parks, where waste and recycling can be dropped off by the public, are located at Westport and Reefton with refuse from these sites transported to Nelson for disposal. Landfills are located at Karamea and Maruia for disposal of refuse from the surrounding areas. The sites provide refuse and recycling facilities for public usage. There is a weighbridge at Westport Transfer Station. Material is weighed as it enters and leaves the site. Figure 24 is a screen shot from a model of the Buller District waste management system developed for this Waste Assessment.

Materials from the kerbside recycling collection are sorted at a Materials Recovery Facility located at Westport Resource Recovery Park prior to transport to Nelson Marlborough.

Green waste is shredded and combined with solids from the Westport wastewater treatment plant to produce a soil amendment product that is used in Council operations.

Table 29 summarises the quantity of materials managed through the Buller District transfer stations and landfills.

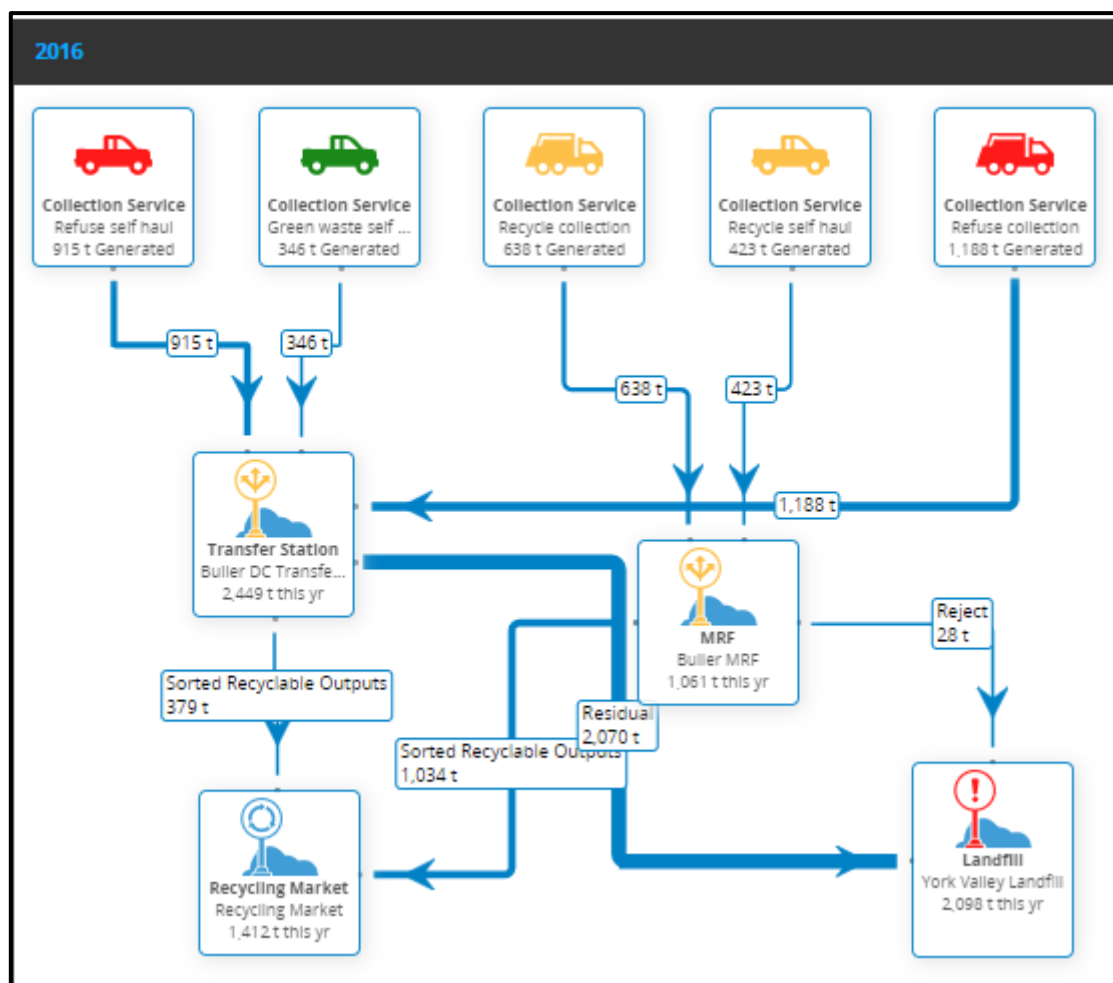


Figure 24: Buller District waste flow diagram - collection, processing and disposal (2016 estimates)

In the Buller District waste in Karamea and Maruia is disposed of at small local landfills. Refuse from Reefton and West port is consolidated before transport to Nelson for disposal at the York Valley Landfill. Materials are captured for recycling and transported with kerbside recyclable materials to Nelson.

Table 29: Buller District - estimated waste quantities via transfer stations or direct to landfill⁴³

	2012	2013	2014	2015	2016
Refuse to Karamea and Maruia	67	111	78	105	89
Refuse to Westport and Reefton	1,219	1,000	913	841	803
Recycle at transfer stations	-	400	420	400	414
Total waste direct to landfill	1,286	1,511	1,412	1,345	1,306
Recycling rate (%)	0%	26%	30%	30%	32%
Total waste landfilled	3,115	2,611	2,361	2,207	2,096
Total waste recycled	-	1,000	1,051	999	1,036
Recycling rate (%)	0%	28%	31%	31%	33%

10.2 Grey District Council

Waste Infrastructure - Grey Collections

The collection system for Grey District is present in Figure 25. Residents in Greymouth and surrounds have access to a kerbside collection service include a 120L wheelie bin for refuse and a 240L wheelie bin for recyclable materials. Outside of Greymouth residents are issued with refuse ties for standard refuse bags. All residents and businesses can transport materials to McLean’s landfill or local resource centres.

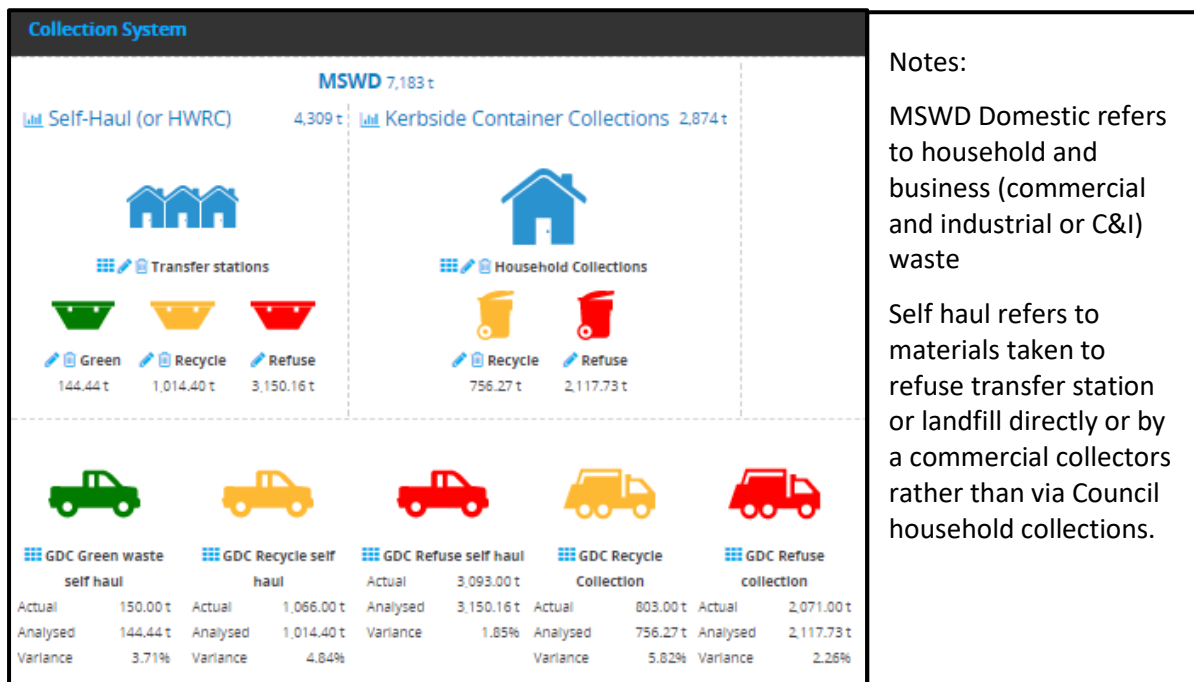


Figure 25: Grey District waste collection system

⁴³ Data sourced from waste collection and transfer station contract reporting.

Kerbside refuse in the Grey District is collected in compactor trucks and disposed of at McLean’s Landfill near Greymouth. Households in Greymouth and the surrounding area are provided with 120L MGB for refuse (collected fortnightly). The remainder of the district is supplied with 52 ties per year that can be used with any standard sized refuse bag. Council offer a single stream kerbside recycling service in Greymouth and surrounding areas. Households are supplied with a 240L MGB that is collected fortnightly. No kerbside recycling service is provided outside Greymouth and surrounds. Table 30 provides a summary of materials collected from the kerbside in the Grey District.

Table 30: Grey District - kerbside waste quantities⁴⁴

	2012	2013	2014	2015	2016
Kerbside Refuse Collection	2,383	1,912	2,137	2,006	2,071
GDC recycle collection	-	-	201	888	782
Total Kerbside Waste	2,383	1,912	2,338	2,894	2,853
Recycling Rate (%)	0%	0%	9%	31%	27%

Waste Infrastructure - Grey transfer, processing and disposal

Grey District has 4 locations where residents can bring refuse and recyclable materials. These are McLean's Landfill & Recycling Centre, Blackball Resource Centre, Moana Resource Centre and the Nelson Creek Resource Centre. There is a weighbridge at McLean’s Pit Landfill. Material is weighed as it enters and leaves (recyclable materials) the site. Figure 26 is a screen shot from a model of the Grey waste management system developed for this Waste Assessment.

Green waste is shredded and stockpiled at McLean’s Landfill.

⁴⁴ Data sourced from waste collection and transfer station contract reporting and weighbridge records at McLean’s Landfill.

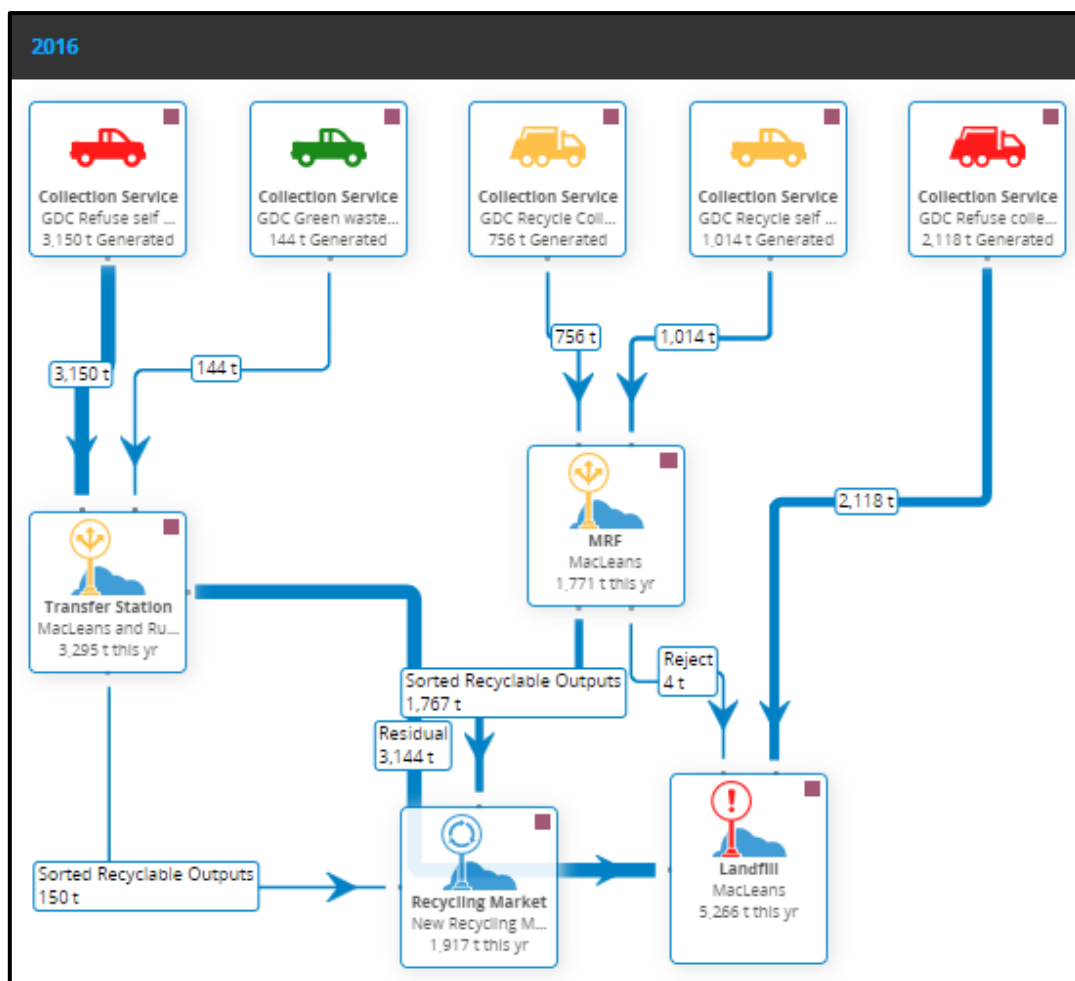


Figure 26: Grey waste flow diagram - collection, processing and disposal (2016 estimates)

In the Grey District all waste is disposed of at McLean’s Landfill near Greymouth. There are Resource Centres at Blackball, Moana and Nelson Creek. Materials are captured for recycling at each site. Table 31 summarises the quantity of materials managed through the Grey District transfer stations and landfills.

Table 31: Grey District - estimated waste quantities via transfer stations or direct to landfill ⁴⁵

	2012	2013	2014	2015	2016
Refuse to McLean’s Landfill	4,268	4,273	3,813	3,766	4,092
Recycle at transfer stations	759	664	680	728	998
Total waste direct to landfill	5,027	4,937	4,493	4,494	5,090
Recycling rate ((%)	15%	13%	15%	16%	20%
Total waste landfilled	6,651	6,185	5,950	5,772	6,163
Total waste recycled	759	664	881	1,616	1,780
Recycling rate (%)	10%	10%	13%	22%	22%

⁴⁵ Data sourced from waste collection and transfer station contract reporting.

10.3 Westland District Council

Kerbside refuse in the Westland District is collected in compactor trucks and disposed of at Butlers Landfill near Hokitika. Households in Hokitika, Kumara, Ross and connecting roads are provided with 120L MGB for refuse (collected fortnightly). Council offer a single stream kerbside recycling service (excluding glass) in the same areas. Households are supplied with a 240L MGB that is collected fortnightly. No kerbside recycling service is provided outside Hokitika, Kumara and Ross. Table 32 provides a summary of materials collected from the kerbside in the Westland District.

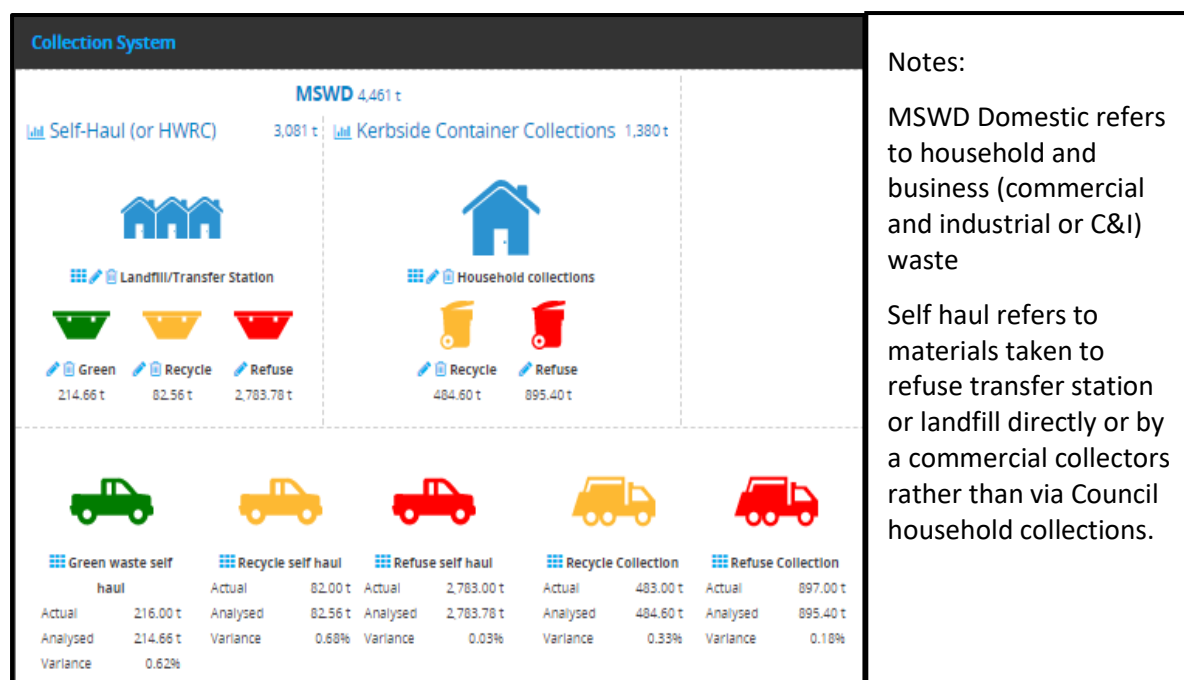


Figure 27: Westland District waste collection system

Table 32: Westland District - kerbside waste quantities⁴⁶

	2012	2013	2014	2015	2016
Kerbside Refuse Collection	-	-	-	897	897
GDC recycle collection	-	-	-	285	303
Total Kerbside Waste	-	-	-	1,182	1,200
Recycling Rate (%)				24%	25%

In the **Westland District** waste is disposed of at Butlers Landfill near Greymouth or Haast Landfill. There are transfer station stations at Kumara, Hokitika, Ross, Harihari, Whataroa, Franz Josef and Fox Glacier. A range of materials are captured for recycling at each site including metals, glass, paint, used oil, whiteware and green waste. Table 33 summarises the quantity of materials managed through the Westland District transfer stations and landfills.

⁴⁶ Data sourced from waste collection contract reporting.

Table 33: Westland District - estimated waste quantities via transfer stations or direct to landfill⁴⁷

	2012	2013	2014	2015	2016
Refuse to Haast (estimate)	100	100	100	100	100
Refuse to Butlers Landfill	-	-	-	2,840	2,783
Recycle at transfer stations	-	-	-	622	478
Total waste to transfer stations and landfill	100	100	100	3,562	3,361
Recycling rate ((%)	0%	0%	0%	17%	14%
Total waste landfilled (collections and via transfer stations	100	100	100	3,837	3,779
Total waste recycled	-	-	-	907	781
Recycling rate (%)	0%	0%	0%	19%	17%

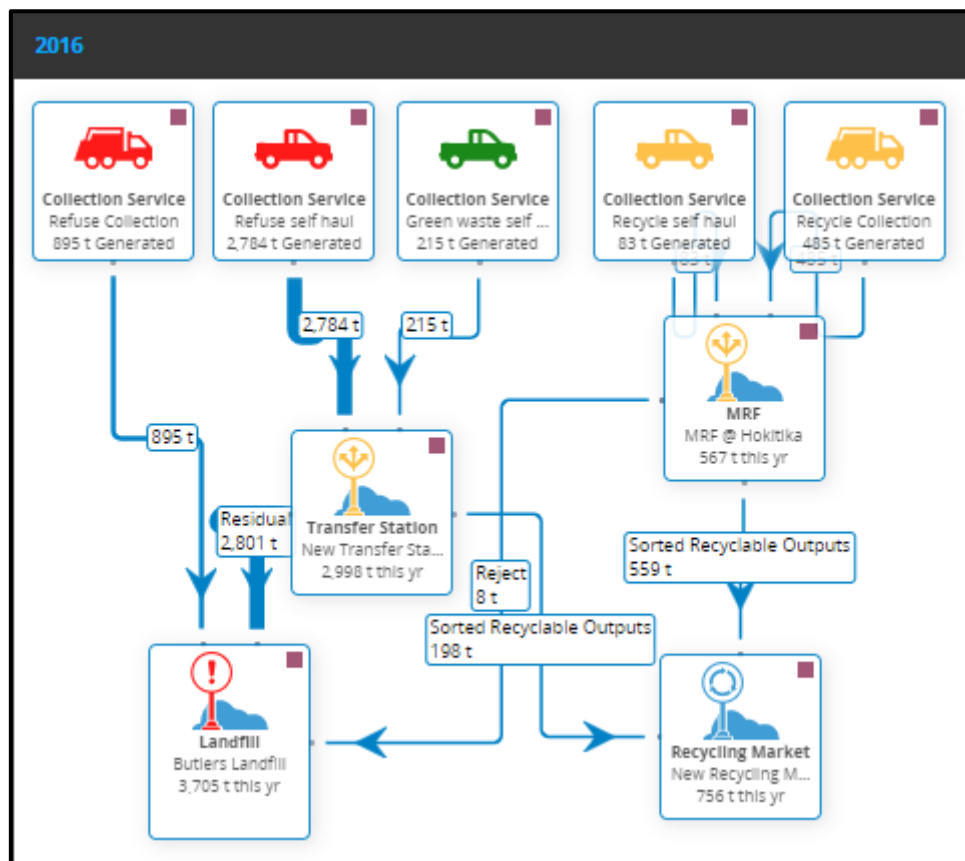


Figure 28: Westland waste flow diagram - collection, processing and disposal (2016 estimates)

⁴⁷ Data sourced from waste collection and transfer station contract reporting.

