West Coast Tai Poutini Organic Waste Collection & Processing

Feasibility Study

BULLER DISTRICT COUNCIL
Te Kaunihera O Kawatiri

DEVELOPMENT WEST COAST
Te Ohu Whakawhanake o Te Tai Poutini

MĀWHERA GREY DISTRICT COUNCIL

WESTLAND District Council | Te Kahui o Poutini

Ministry for the Environment
Manatū Mō Te Taiao

Waste Minimisation Fund

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Executive Summary

This Feasibility Study (hereafter referred to as 'this Study') explores the possible organic waste diversion systems and processing methodologies that could be used across the West Coast Tai Poutini region. It aims to identify feasible approaches within the West Coast's unique context and set of challenges, with an overall aim of identifying a preferred pathway for turning organic waste – currently a liability – into an asset.

Organic waste reduction presents multiple benefits for communities, including:

1. A reduction in methane emissions from organic waste in landfills and avoidable transportation of organic waste to landfill.
2. A reduction in waste management costs by reducing waste volumes sent to landfill, including reduced Waste Disposal Levy and transportation costs.
3. Increased operational efficiency and longevity of West Coast landfills, through the reduction of waste volumes to landfill.
4. Rescue of organic waste with economic potential and associated socio-economic benefits e.g., local job creation.
5. Meeting local soil regeneration needs with local products, further reducing transportation associated emissions.
6. Contribution to the achievement of stakeholder, iwi and community aspirations, and national policy[1] and regional plan[2] targets for organic waste and emissions reductions.

However, organic waste reduction on the West Coast faces numerous constraints; key amongst these being an inability to meet the costs associated with a council-delivered organic waste kerbside collection service.

The West Coast comprises small, distributed and isolated settlements with low population densities and comparatively low organic waste volumes. Socio-economic deprivation rates are high, particularly along the northern West Coast. Waste management approaches that work well in more densely populated and/or more affluent regions cannot be applied with the same success on the West Coast, and organic waste volumes are not sufficient to attract commercial sector interests.

For organic waste collection services and associated processing to be successful on the West Coast, an approach that combines community education with a council / community partnership presents the best model. By working with community organisations that have already achieved success with this model elsewhere in New Zealand, this Study concludes that it is possible to adopt a cost-effective and affordable approach for West Coast communities, while also working towards achieving national and regional organic waste reduction targets.

This Study considers several options for combined collection services and processing methodologies, and presents high-level costs, and likely organic waste reduction volumes, for the most preferred options. It concludes with recommendations for proceeding and proposes a pilot approach that could be used to test and refine how a council / community partnership could work in practice in a West Coast community.

[1] National Waste Strategy (2025)

[2] Regional Waste Management and Minimisation Plan (T+T, 2024)

CHAPTER 1

PREAMBLE

Chapter 1: Preamble

1.1 Feasibility Study Purpose

West Coast waste volumes are on par with the rest of Aotearoa New Zealand. In 2021, each New Zealander is estimated to have sent nearly 700 kilograms of waste to municipal landfills. That makes us one of the highest generators of waste per person in the Organisation for Economic Co-operation and Development (OECD). This is, in part, because of the challenges posed by New Zealand's geography and small population, and this is particularly the case on the sparsely populated and isolated West Coast.

Based on several regional and local assessments, around 30% of the West Coast's landfill waste is likely to be organics[3,4,5] . When organic material like food scraps and green waste is sent to landfill, it produces methane, which has a warming effect 28 times greater than carbon dioxide[6].

This Feasibility Study (hereafter referred to as 'this Study') explores the possible organic waste diversion systems and processing methodologies that could be used across the West Coast Tai Poutini region. It aims to identify feasible approaches within the West Coast's unique context and set of challenges, with an overall aim of identifying a preferred pathway for turning organic waste – currently a liability – into an asset.

1.2 Potential Benefits to be Realised

In November 2022, the then Government agreed to five policies to improve household recycling, including introducing a council provided household food scraps service to all urban areas (population >1,000). It was this mooted policy and associated available funding through the Ministry for the Environment that supported the need for this Study.

Although the current Government decided not to proceed with this policy, multiple benefits are still possible through organic waste reduction. On the West Coast, potential benefits include:

1. A reduction in methane emissions from organic waste in landfills and avoidable transportation of organic waste to landfill.
2. A reduction in waste management costs by reducing waste volumes sent to landfill, including reduced Waste Disposal Levy and transportation costs.
3. Increased operational efficiency and longevity of West Coast landfills, through the reduction of waste volumes to landfill.
4. Rescue of organic waste with economic potential and associated socio-economic benefits e.g., local job creation.
5. Meeting local soil regeneration needs with local products, further reducing transportation associated emissions.

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[3] Regional Waste Assessment citing JBL Environmental Westport waste audit from 2017 (T+T, 2024)
[4] Waste Audit Report (Whirika, 2024)
[5] West Coast Councils weighbridge data (2024)
[6] Aotearoa New Zealand's first emissions reduction plan (Ministry for the Environment, 2022)

6. Contribution to the achievement of stakeholder, iwi and community aspirations, and national policy[7] and regional plan[8] targets for organic waste and emissions reductions.

Given these benefits there is sound logic in understanding how organic waste reduction could be achieved across the West Coast.

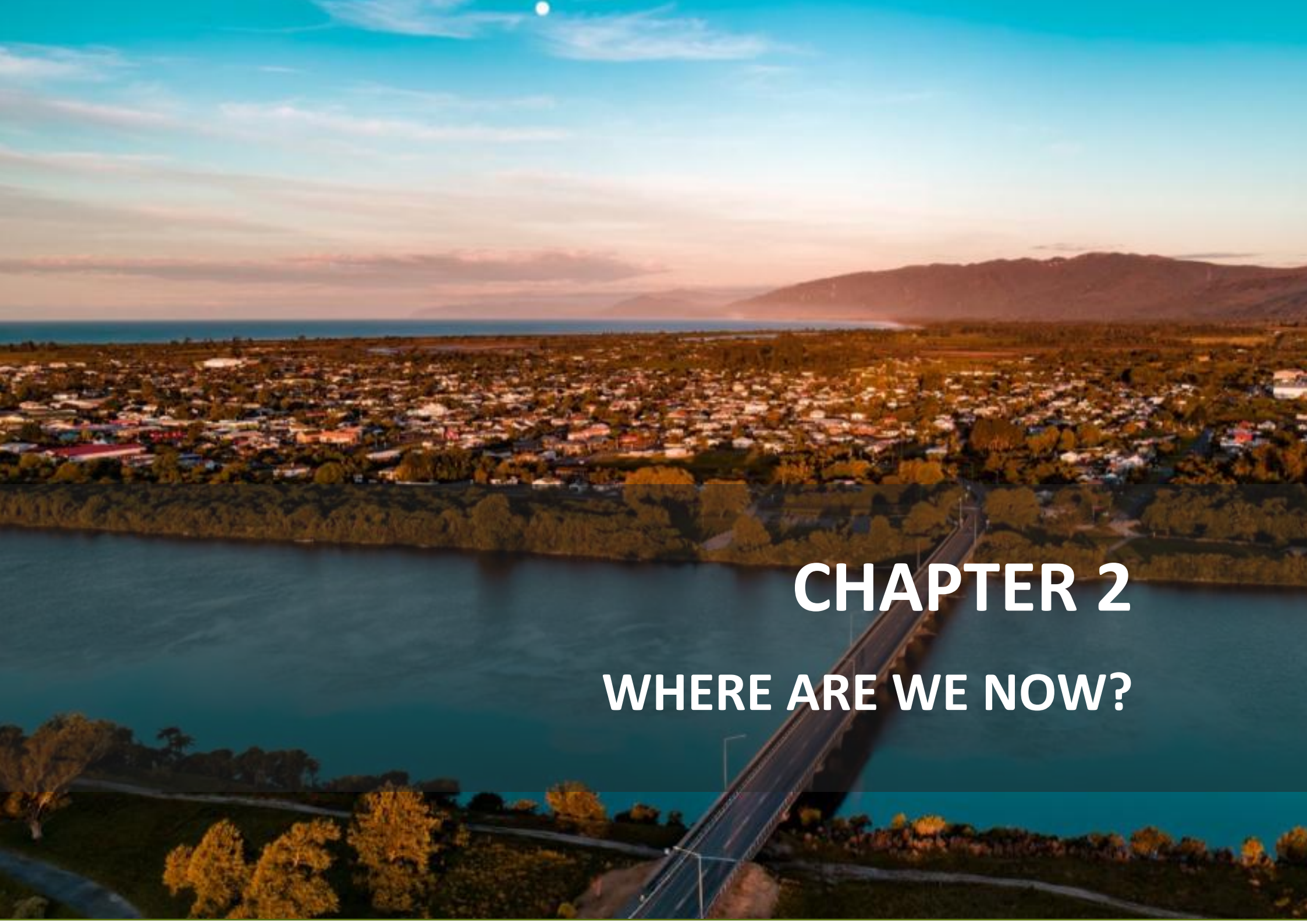
1.3 Objectives

This Study has two primary objectives:

1. Assess the feasibility of Council-provided kerbside organic waste collection services (food waste or combined food and green waste) for West Coast settlements with populations >1,000, and
2. Assess and identify the most feasible option(s) for establishing waste processing facility(ies) for food waste and/or combined food and green waste for West Coast settlements and urban centres.

[7] National Waste Strategy (2025)

[8] Regional Waste Management and Minimisation Plan (T+T, 2024)



CHAPTER 2

WHERE ARE WE NOW?

Chapter 2: Where are we now?

2.1 Understanding the West Coast / Te Tai Poutini

Summary

- The population is sparsely distributed across large distances
- The population is projected to stabilise or slightly decline in the longer term
- There are four towns across the region have a population >1,000 residents
- There is a significant tourism peak in summer temporarily swells the population by more than 5 times
- There is significant socio-economic deprivation across the northern part of the region
- West Coast's per capita GHG emissions are double the national average
- There is a strong history of regional collaboration across West Coast councils

2.1.1 Key Characteristics

Tai Poutini West Coast is a long narrow strip of New Zealand's South Island flanked by mountains to the east and the Tasman Sea to the west. It is one of the more remote regions in Aotearoa New Zealand and is also the longest region in the country, spanning 600 km from Kahurangi Point in the north to Awarua Point in the south (similar to the distance between Auckland and Wellington).

Much of the land is rugged and scenic, with wild coastlines, mountains and a very high proportion of native bush, much of it native temperate rain forest. It is the only part of New Zealand where significant tracts of lowland forest remain.

Figure 1: West Coast geographic region[9]

Although the region covers 8.7% of New Zealand's land area, it has only 0.6% of the people; making it the least populous region in New Zealand. Most

[9] Regional Economic Profile (infometrics.co.nz)

settlement occurs in small, dispersed coastal towns situated near the mouths of major rivers. The rest of the region is sparsely settled[10] and connected, in the majority, by the State Highway network. Table 1 summarises the region's key attributes.

Table 1: West Coast / Tai Poutini attributes

Attribute	West Coast / Tai Poutini region
Area	23,336 km^2
Population	32,910
Districts	Grey (pop. 14,300) Buller (pop. 9,670) Westland (pop. 8,940)
Main Centres	Four towns have a population > 1,000: • Greymouth (pop. 8,340) • Westport (pop. 4,250) • Hokitika (pop. 3,120) • Runanga (pop. 1,230) These four towns, plus Reefton (pop. 910) are recognised as urban areas by Statistics New Zealand[11].
Dwellings	17,220[12] (private and non-private)
Iwi Māori	Ngāti Waewae, a sub-tribe of Ngāi Tahu, are mana whenua for Te Tai o Poutini from Kahurangi Point, to the north bank of the Hokitika River. Makaawhio, also a sub-tribe of Ngāi Tahu, are mana whenua for Te Tai o Poutini from the south bank of the Pouerua River to Piopiotahi. Together, Ngāti Waewae and Makaawhio hold shared interest in the area situated between the north bank of the Pouerua River and the south bank of the Hokitika River[13].
Ethnicities	90.5% Pākehā 11.7% Māori 3.4% Asian 1.5% Pacific Peoples 0.5% Middle Eastern / Latin American / African; 1.8% Other[14]
Industries	The West Coast economy is reliant on a small number of industries that, in turn, have a high dependence on the natural resources of the region. A downturn in the mining sector around 2012 saw agriculture, particularly dairy, come to the fore. The top three farm types in the West Coast are dairy cattle farming, beef cattle farming and forestry. There are two locations for meat processing in the region – ANZCO Foods Kokiri, and Silver Ferns Farms Hokitika. Another significant driver of economic activity is Westland Milk Products, which has a new lactoferrin plant being constructed at a facility based in Hokitika. This new plant adds powder and butter manufacturing at the site. New opportunities are also being sought in the horticulture and boutique sectors.

[10] West Coast region (teara.govt.nz)
[11] West Coast Region - Wikipedia
[12] Place Summaries | West Coast Region | Stats NZ
[13] Ngāi Tahu – Te Ara Encyclopaedia of New Zealand
[14] Place Summaries | West Coast Region | Stats NZ

Attribute	West Coast / Tai Poutini region
	Today, mining, and particularly the extraction of gold, has grown significantly. Mining is the key industry where the West Coast region shows a strong comparative advantage. The West Coast has a range of existing and potential mining projects, which include projects recently consented near Westport, or working through the consent process north of Greymouth. Coal from the West Coast is still used for the manufacturing of steel[15]. In terms of the West Coast's Gross Domestic Product (GDP), key contributing industries include electricity, gas, water, and waste services (14% of GDP, 2023), agriculture, forestry, and fishing (13.8% of GDP, 2023), and mining (8.4% of GDP, 2023)[16].
Tourism	The West Coast is an ideal location for tourism and has an increasing number of tourists visiting every year, with peak visitor numbers occurring between the months of November and April. In 2023, there was an average of 160,000 visitors to the region each month, which is greater than four times the number of residents passing through the region monthly[17]. Key hotspots for tourists include Greymouth, Westport, Hokitika, Fox Glacier, Franz Josef Glacier, Punakaiki and Reefton.

2.1.2 Community Wellbeing

New Zealand's socio-economic deprivation index is measured on a scale of 1 – 10, where 10 is the most deprived. It is based on 12 socio-economic deprivation indices, including housing, health, income, employment, benefit dependency, and education measures. Buller, Grey and Westland District deprivation indices for 2024 are above the national average, with the Buller District at the extreme end with a deprivation index of 9. District indices are shown in Table 2.

Table 2: District socio-economic deprivation indices

District	Socio-economic **Deprivation Index**[18]
Buller	9
Grey	6
Westland	6

2.1.3 Environmental Wellbeing

Environmental wellbeing highlights the human impact of living on the natural environment. The natural environment is important to wellbeing as it provides the foundations for life to exist, and the resources that are used daily for employment, social interactions, and basic living. Better wellbeing in this domain is displayed through minimising the damage and disruption to the natural environment caused by human activity[19].

[15] RLTP FINAL for website 2021-2031.pdf (wcrc.govt.nz)
[16] Regional Waste Assessment (T+T, 2024)
[17] West_Coast_Visitor_Trends_August_2023_q77iv4P.pdf (d3sak6swcqiwkw.cloudfront.net)
[18] Dot Loves Data: Overview
[19] Regional Economic Profile | West Coast Region | Greenhouse gas emissions - industry emissions

Based on local household and economic activity, the West Coast's per capita greenhouse gas emissions for 2023 were more than twice that of the national average i.e., 34 tonnes per capita versus 15 tonnes per capita[20] .

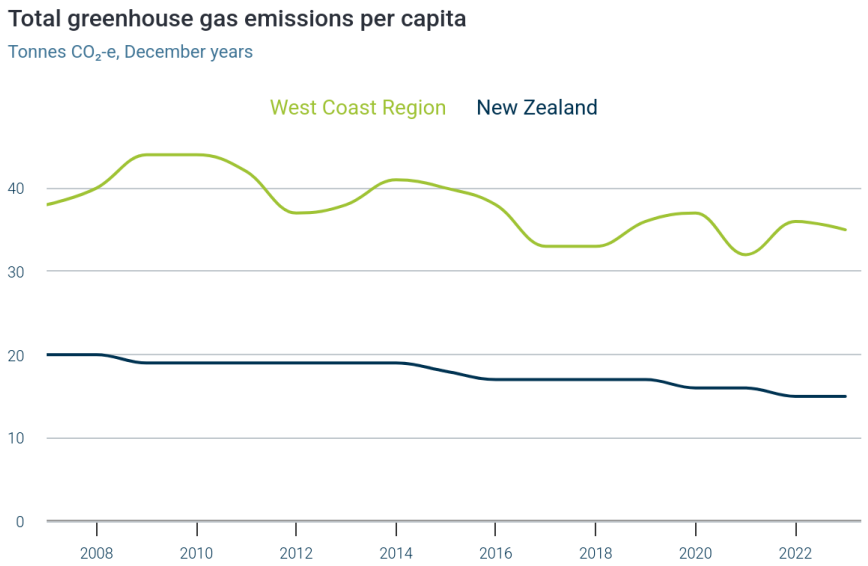


Figure 2: Total greenhouse gas emissions per capita

2.1.4 Population Projections

The West Coast is one of the few parts of New Zealand where the population has been declining – from a high of 40,136 in 1936 down to 31,100 in 2001[21].

The population grew slightly in the early 21st century and reached 32,910 in 2023.

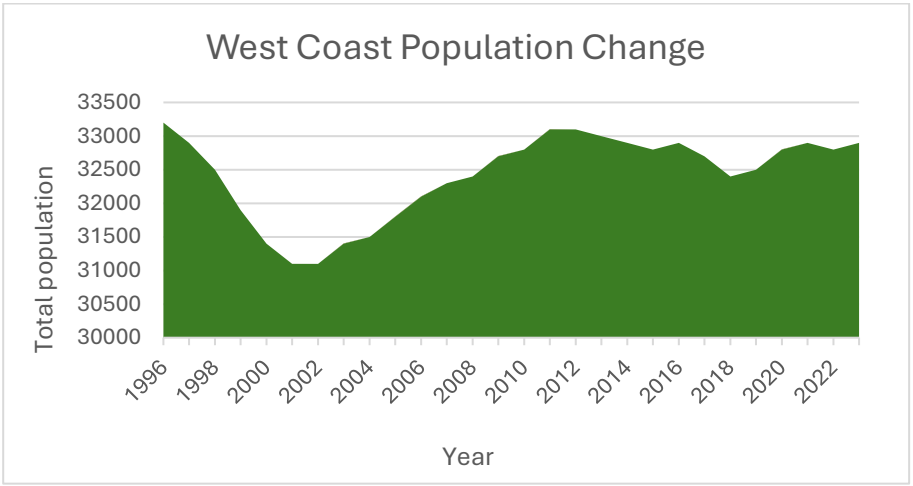


Figure 3: West Coast population change between 1996 and 2023

Population change in West Coast communities between June 2022 and June 2023 has fluctuated between a decline of -2.2% in Central Greymouth, and growth in the Arahura to Kumara area of +3%. Population change during this period for different communities across the region is shown in Table 3. Overall, the Buller District contracted by 0.72%, whereas the Grey and Westland Districts both grew by 0.4% and 1.5% respectively.

[20] Regional Economic Profile | West Coast Region | Greenhouse gas emissions - per capita

[21] Regional Economic Profile | West Coast Region | Population growth (infometrics.co.nz)

Table 3: Population growth and contraction across the West Coast, 2022/23

Community	Population at June 2023	% Change from June 2022
Buller District	**9,670**	**-0.72%**
Karamea	860	+1.2%
Buller Coalfields	930	+1.1%
Rural Westport	1,260	-1.6%
Westport North	1,830	-0.5%
Westport South	2,410	-1.2%
Charleston	560	0%
Inangahua / Reefton	910	-1.1%
Grey District	**14,270**	**+0.4%**
Barrytown	1,050	+1.9%
Nelson Creek	770	+1.3%
Lake Brunner	1,167	0%
Dobson	877	-1%
Cobden	1,620	0%
Central Greymouth	890	-2.2%
King Park	1,120	+0.9%
Blaketown	880	0%
Marsden	1,310	+0.77%
Karoro	1,070	0%
Rutherglen	1,460	+2.1%
Rural Greymouth	827	+1.1%
Westland District	**8,940**	**+1.5%**
Arahura to Kumara	1,138	+3%
Hokitika	2,914	+1.3
Hokitika Valley to Otira	658	0%
Waitaha	440	0%
Whataroa	700	+1.5%
Westland Glaciers to Bruce Bay	1,150	+2.7%
Haast	270	0%

Statistics New Zealand's medium range forecast from 2018 predicted the West Coast population to slightly decline by -5.7% to around 31,000 over the longer term to 2048, with a possible range of 25,000 to 36,000 under low and high scenarios respectively.

Statistics New Zealand forecasts also indicate that the West Coast region will experience the lowest growth levels across New Zealand under the high range forecast, and the most significant population decline under the low range forecast across all regions in New Zealand.

Population projections for each district are shown in Figure 4[22].

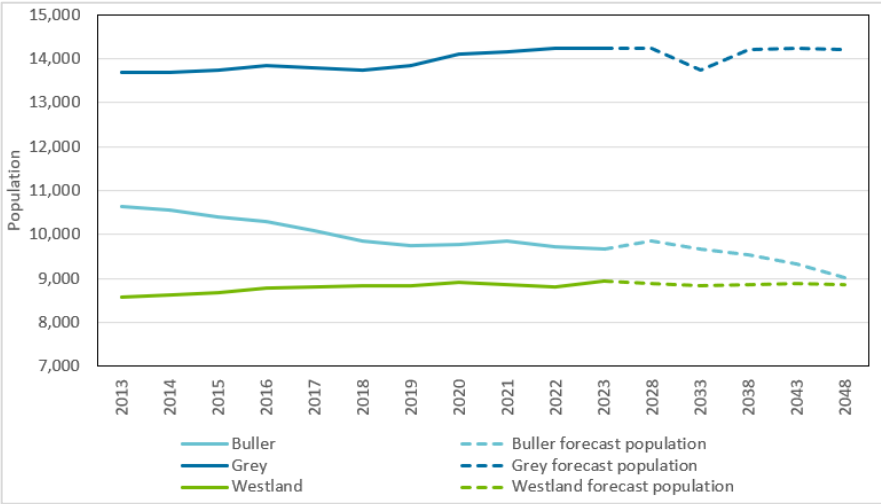


Figure 4: Population projections for each West Coast district

While the official projections indicate a population decline, this may be incorrect. House and land pricing increases and a housing shortage throughout New Zealand means more people may consider purchasing in regions where prices are more affordable[23]. For example, in August 2023, the value-to-income ratio, which measures the relationship between house prices and household incomes, is 7.2 nationwide, whereas in the Grey District, it is only 3.6.

2.1.5 Age Structure

The West Coast's population age structure is not dissimilar to the rest of New Zealand, although it does have a slightly smaller proportion of school age and younger children, and a slightly higher proportion of the population at retirement age (Figure 5)[24].

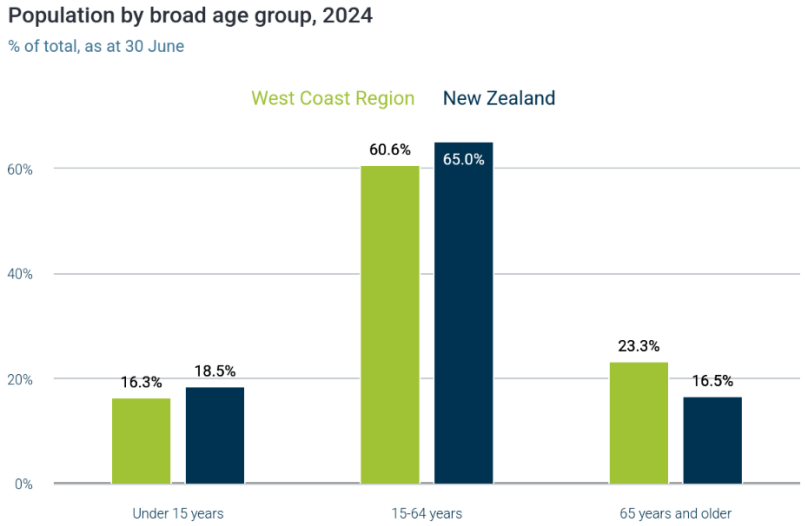


Figure 5: Population by broad age group, 2024

The birth rate in the region is expected to decline by 7% on average year on year from current levels, with the death rate increasing by 9% on average year on year. This is leading to an aging population within the region which

[22] Stats NZ 2018 population data and forecasts
[23] RLTP FINAL for website 2021-2031.pdf (wcrc.govt.nz)
[24] Regional Economic Profile | West Coast Region | Age composition

has implications for the demand for services and facilities, as well as decisions regarding changes to property rates.

2.1.6 Earnings and Household Income

Earnings contribute to wellbeing and provide choices to individuals. Key earnings aspects from 2023 include:

- Mean annual earnings in West Coast region were $66,599 per person in the year to March 2023, which was lower than the national average ($74,754).
- Mean earnings in the West Coast region increased by 6.8% over the year to March 2023, compared with an increase of 7.4% across the whole of the country.
- 14.6% of the working age population was receiving benefit support, compared to 10.2% of the total working age population across New Zealand.

Overall, the average household income in West Coast region was $108,882 in 2024, which was lower than the New Zealand average of $132,538[25].

2.1.7 Regional Roading Network

Despite the West Coast having less than 1% of New Zealand's population, state highways within the region account for 8% of the total length of the national State Highway network. The performance of the State Highway is particularly important for connection across the West Coast.

State Highway 6 makes up the transport spine of the network, from Haast through to Westport, and connects to the Tasman District in the north through the Buller Gorge, and to Otago in the south via Haast Pass. State Highways 73 and 7 provide links to Canterbury, with the former recognised as critical to the movement of freight for the region[26].

The local road network is critical to connect businesses and freight hubs, rail links and the state highway network[27]. Together the three councils own and operate almost 1,900km of roads and 642 bridges across the local networks. There are also two Special Purpose Roads (SPR) on the West Coast – Karamea Highway in the Buller District, and Haast to Jacksons Bay Road in the Westland District. Both roads are part of the national transition of SPR roads to local road status, and subsequent change in funding from the current 100% funding assistance rate (FAR) to the normal rate of each local authority.

The remoteness, natural environment, and topography are key influencers of the transport network and economy and contribute to the unique challenges faced by councils and their communities[28]. Given its small population and the large geographic extent of the region, there are challenges to funding the maintenance and upgrade of the extensive roading network.

2.1.8 Notable Regional Characteristics

The West Coast's most notable characteristics which influence the region's waste management and minimization system include:

1. **Relatively sparsely populated region, which is spread across a geographically isolated and expansive area** with a roading network that is vulnerable to landslips, and climatic and seismic events. This means that solutions for effective management and minimization of waste within more densely populated urban areas in New Zealand

[25] Regional Economic Profile | West Coast Region | Household income
[26] RLTP FINAL for website 2021-2031.pdf (wcrc.govt.nz)
[27] RLTP FINAL for website 2021-2031.pdf (wcrc.govt.nz)
[28] 2021-Excellence-Awards-West-Coast-Councils.pdf (apopo.co.nz)

cannot be applied with the same success across the West Coast. As a result, solutions must be developed in a way that ensure they best serve the needs of the West Coast communities.

2. **High relative socio-economic deprivation, particularly for communities within the Buller District.** These communities have less disposal income available than the average New Zealand household. As a result, the community's ability to support effective waste management and minimization solutions through increases to general rates or on a user-pays basis can be compromised.
3. **Long-term population projections indicate that the most likely scenario is for the population to stay stable or slightly decline** over the coming two decades. Waste solutions must be developed with population projections in mind.
4. **High numbers of tourists, which are expected to increase.** In 2023, there was an average of 160,000 visitors to the West Coast region each month, which is more than four times the number of permanent residents. There is currently no direct mechanism for charging visitors for their waste management costs. This means that local communities pay for the management and minimization of visitor waste.
5. **Key industries in the region** include electricity, gas, water, and waste services (14% of GDP, 2023), agriculture, forestry, and fishing (13.7% of GDP, 2023), and mining (8.4% of GDP, 2023). Although this Study focuses on residential organic waste, there may be opportunity to consider finding ways to collaborate on waste management solutions with business and industries in the future.
6. **Strong history of regional collaboration across the councils.** This may be leveraged to increase organic waste volumes to achieve economies of scale, or access government funding with preference for collaborative investment models.

2.2 Current Waste Management on the West Coast / Te Tai Poutini

Summary

- Affordability is a key issue for waste management on the West Coast
- Comparative waste disposal costs are amongst the highest across the country
- Waste Disposal Levy and Emissions Trading Scheme costs are set to increase and will exacerbate affordability issues
- Buller District's landfill waste is disposed to York Valley landfill in Nelson
- Grey District's and Westland District's landfill waste is disposed to West Coast based landfills
- Waste collection services are operated differently by each district council
- Regional organic waste volumes vary seasonally driven by changing residential activities and tourism peaks
- Private contractors who operate across the region complicate waste volume transparency
- Food waste in kerbside collections and green waste from drop-offs at transfer stations account for most organic waste volumes on the West Coast
- Percentage of organic waste of total kerbside waste volumes (kerbside only) is estimated (from audits) to be 35%
- Percentage of organic waste of total waste volumes (drop-offs and kerbside) is estimated (from three data sources) to be 22%
- There are currently no commercial organic waste processing operations in the region

2.2.1 Waste Infrastructure

Waste collected on the West Coast is disposed at several landfills that operate both within and outside of the region. The landfills used by each district and the charges associated with waste disposal are detailed below.

Comparative waste disposal costs are amongst the highest across the country and are significantly higher than neighbouring districts and districts of a similar context. Disposal fees in the 2023/24 financial year range from $441 per tonne in Grey District to $595 per tonne in Westland District. This is on average $180 greater than districts of a similar context. These disposal costs reflect several factors that include small scale disposal facilities (Grey, Westland) and the need to transport materials significant distances (Buller, Westland)[29] (Figure 6).

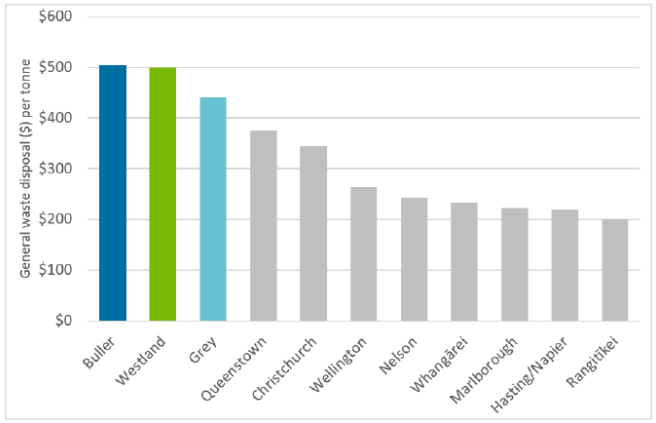


Figure 6: Comparison of waste disposal costs across similar and/or neighbouring districts30

Disposal fees are set to continue to increase in line with operational costs (including transport), capital investment and ongoing increases in Waste Disposal Levy and Emissions Trading Scheme costs. This means that affordability and access is likely to be an ongoing challenge.

The comparative high and increasing costs are likely to strengthen viability of alternatives to disposal, such as reuse, recycling, and recovery for many materials.

2.2.2 Buller District Waste Infrastructure

The Buller District Council currently operates two small municipal landfills within the district – one in Karamea and one in Maruia. These landfills service their local communities only and do not receive waste from across the wider district. Given their remote locations and small populations that they serve, these landfills have not been considered as part of this Study.

Waste from Reefton is collected at the Reefton Transfer Station and trucked 79km to the Westport Transfer Station, where it is combined with Westport's waste. The waste is then compacted, and transported 222km for final disposal at the York Valley Landfill in Nelson.

The cost for disposing waste through this process is $404/tonne, which includes transport and gate fees at York Valley.

2.2.3 Grey District Waste Infrastructure

The Grey District Council currently operates the McLean's Landfill, located 7km from central Greymouth. This site takes both green waste and general waste. Both waste streams ultimately end up in the landfill, either as waste or as capping material.

The Grey District Council also operates combined transfer stations and resource centres at Blackball, Moana and Nelson Creek. Green waste is

[29] West Coast Regional Waste Assessment (T+T, 2024)

[30] West Coast Regional Waste Assessment (T+T, 2024)

disposed at these sites at a cost to the user. This Study has not considered these green waste volumes further as waste from smaller, remote towns is outside the scope of this Study.

2.2.4 Westland District Waste Infrastructure

The Westland District Council operates the Butler Landfill, 22km south of Hokitika. There is no public access to this site, so all waste is collected and sorted at the Hau Hau Road Transfer Station close to central Hokitika. The cost to transport waste from the transfer station to Butlers Landfill is $19.89/tonne.

Westland District Council also operates transfer stations at Kumara, Ross, Harihari, Whataroa, Franz Joseph Glacier and Fox Glacier. All waste from these transfer stations is transferred to Hokitika, with green waste added to that collected in Hokitika for soil conditioner production. Green waste is disposed at these sites at a rate of $55/tonne.

Haast Landfill closed in December 2024 and was replaced with Haast Transfer Station. Waste volumes from Haast have not been considered further as waste from smaller, remote towns is outside of the scope of this Study.

Regional waste infrastructure is shown in Figure 7.

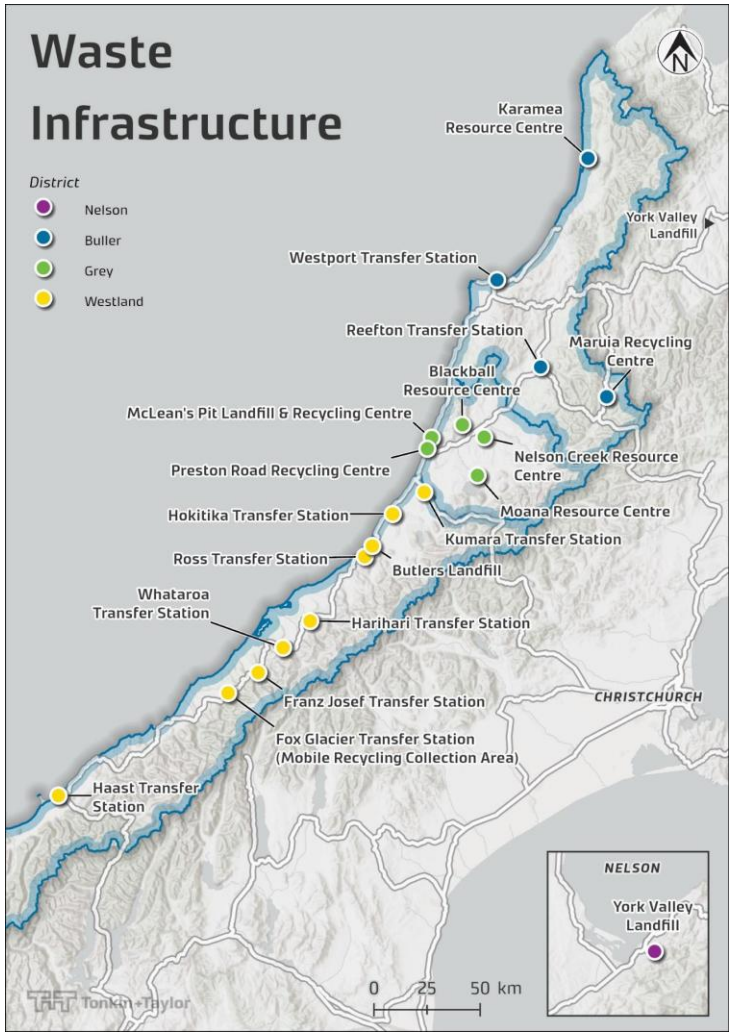


Figure 7: West Coast waste infrastructure[31]

[31] West Coast Regional Waste Assessment (T+T, 2024)

Table 4: West Coast facilities for managing landfill waste and recycling[32]

District	Facility name	Landfill waste accepted	Recycling accepted	Weighbridge	Notes
Buller	Westport Transfer Station	Yes	Standard recyclables, scrap metal, tyres, batteries, e-waste, used oil and paints.	Yes	All kerbside landfill waste and recycling is transported to the Westport Transfer Station. Landfill waste is packed for transport and sent to Nelson's York Valley Landfill. There is a material recovery facility (MRF) on-site to sort and bale the recyclables. Recycling is checked, sorted, and compacted before being sent to processing plants (end markets) outside of the region.
	Reefton Transfer Station	Yes	Standard recyclables, scrap metal, tyres, batteries, e-waste, Agrochemical containers, oil, and paint.	Yes	Domestic drop off only.
	Karamea Resource Centre	Yes	Plastics (1, 2 and 5), cans, scrap metal, tyres are received as recycling.	Yes	Glass and fibres are accepted but currently disposed as landfill waste. Recycling is sent to Westport for sorting.
	Maruia Recycling Centre	Yes	Plastics (1, 2 and 5), paper/cardboard, cans, and sorted glass (by colour).	No	Recycling is sent to Westport MRF for sorting.
Grey	McLean's Pit Landfill and Recycling Centre	Yes, including hazardous waste	Plastics (1, 2 and 5), paper/cardboard, cans, glasses, and green waste.	Yes	There is a MRF on-site to sort and bale the recyclables.
	Blackball Resource Centre	Yes	Plastics (1, 2 and 5), paper/cardboard, cans, and glass.	No	Landfill waste is sent to McLean's Pit Landfill for disposal.
	Nelson Creek Resource Centre	No	Plastics (1, 2 and 5), paper/cardboard, cans, and glass.	No	Recycling is sent to McLean's Pit Landfill for sorting.

[32] West Coast Regional Waste Assessment (T+T, 2024)

District	Facility name	Landfill waste accepted	Recycling accepted	Weighbridge	Notes
	Moana Resource Centre	No	Plastics (1, 2 and 5), paper/cardboard, cans, and glass.	No	Recycling is sent to McLean's Pit Landfill for sorting.
	Preston Road Recycling Centre	No	Plastics (1, 2 and 5), paper/cardboard, cans, and glass.	No	Recycling is sent to McLean's Pit Landfill for sorting.
	Mitchells Refuse Site	Yes	No	No	This site is for the disposal of Landfill waste only and is transferred to McLean's Pit Landfill for disposal.
Westland	Butlers Landfill	Yes	No	No	Closed to the public. All waste entering Butlers are weighed at Hokitika Transfer Station prior to arriving at Butlers.
	Hokitika Transfer Station	Yes	Plastics (1, 2 and 5), paper/cardboard, cans, glass, garden waste, and e-waste	Yes	Materials are sorted at Hokitika into different categories and stockpiled, then transported to Canterbury (EnviroNZ) where it is run through an automated sorting facility. Glass is sorted into 1.5 m3 bins then sent to Visy in Auckland (via Canterbury). Landfill waste is sent to Butlers Landfill.
	Kumara, Ross, and Harihari Transfer Station	Yes, including gas bottles, whiteware and tyres.	Plastics (1, 2 and 5), paper/cardboard, cans, and green waste.	No	Landfill waste is sent to Butlers Landfill. Recycling is sent to Hokitika Transfer Station where it is stockpiled and transported to EnviroNZ in Canterbury to run through an automated sorting facility.
	Whataroa, Franz Josef and Fox Glacier Transfer Station	Yes	Plastics (1, 2 and 5), paper/cardboard, cans, and uncompacted green waste.	No	Landfill waste is sent to Butlers Landfill. Recycling is sent to Hokitika Transfer Station.
	Haast Transfer Station (replaced Haast Landfill upon closure at the end of 2024).	Yes	No	No	Haast Landfill is due to close in December 2024, and at this point it will become a Transfer Station.

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2.2.5 Waste Services

The three West Coast councils operate their waste collection services in different ways that suit their particular needs.

2.2.6 Buller District Council

Kerbside Waste Collection

The Buller District Council uses 60 litre plastic rubbish bags for kerbside collection. These are collected once a fortnight by Smart Environmental and transferred to the Westport Transfer Station, located on Craddock Drive in Westport. The current charge for an official council refuse bag is $10.90. With this system each household pays the full cost of disposing of their own waste. The kerbside collection is offered in both Westport and Reefton.

Limited space in the bags and their fragility reduces the proportion of green waste that is disposed of via kerbside collection.

Note, the Buller District Council is aiming to change to a bin rather than a bag service by July 2026. This has been approved at Councillor level, but the financial mechanisms have not yet been agreed upon. The user-pays approach is continuing for now.

Smart Environmental also provides a private bin service to the community outside of their contract with the Buller District Council. It is estimated that approximately 10 percent of Westport and Reefton residents utilise this private bin service.

Additionally, WestReef Services Ltd provides a skip service to the community for work sites.

Waste Drop-off

A waste drop-off service is offered through transfer stations in Westport and Reefton. At both sites green waste can be disposed of free of charge. This green waste is then shredded and mixed with Water Treatment Plant sludge to create a biosolids product. Any organic waste dropped off with other mixed waste is charged at $606.50/tonne.

2.2.7 Grey District Council

Kerbside Waste Collection

The Grey District Council provides a rates-funded service and 120-litre kerbside rubbish wheelie bins to the Greymouth and Runanga communities. The bins are collected fortnightly by Smart Environmental. Smart Environmental also provide a private bin service to the community outside of their contract with the Grey District Council. Due to commercial sensitivity the percentage of waste collected directly by Smart Environmental is not known.

Furthermore, MT Drums offer 240L, 600L, 1100L and skip bins to the Greymouth area for both household and commercial customers.

Waste Drop-off

A waste drop-off service is offered at the McLean's Landfill which is situated 7km from central Greymouth. Green waste can be disposed at the site for $210/tonne. This green waste is shredded and used as a capping material for the rest of the landfill site. Any organic waste dropped off with other mixed waste is charged at $525/tonne.

2.2.8 Westland District Council

Kerbside Waste Collection

The Westland District Council provides a rates-funded service and 120-litre kerbside rubbish wheelie bins to the Hokitika community. EnviroNZ provides the service which is not offered as a private service; therefore, all kerbside bins are council bins. Bins are collected fortnightly from the wider Hokitika area, with waste transported back to their transfer station on Hau Hau Road, 2.3km from central Hokitika.

Furthermore, MT Drums offer 240L, 600L, 1100L and skip bins to the Hokitika area for both household and commercial customers.

Waste Drop-off

A waste drop-off service is offered at the Hau Hau Road transfer station. Green waste can be disposed for $55/tonne. Collected green waste is shredded and composted on site to create a soil enhancer product that is sold back to the community for $20/$m^3$. Any organic waste dropped off with other mixed waste is charged at $595/tonne.

2.2.9 Understanding Regional Waste Volumes

Reliably calculating waste volumes is challenging and complicated by the following factors:

- Variability in waste disposed across households
- High seasonal variability in waste types disposed e.g., green waste volumes peak in spring and summer and drop off in winter
- Tourism waste volume variations across seasons
- Variability in waste collection methodologies across the districts i.e., bags in Buller and bins in Greymouth and Westland
- Private contractors operating across the region with limited visibility over volumes
- Expense associated with waste audits

2.2.10 Total Regional Waste Volumes

T+T recently released the draft West Coast Regional Waste Management and Minimisation Plan 2024 – 2030 (the WMMP). The WMMP outlines what the National Waste Strategy means for the West Coast and proposes the region's approach to delivering waste management and minimisation services.

The WMMP reports that a total of 16,242 tonnes of waste was produced across the West Coast for the Financial Year 2022/2023 which equates to around 500 tonnes of waste generation per permanent resident per annum. However, this does not account for tourist generated waste, and so the actual amount of waste generated by each resident per annum will be less than the figure reported.

As part of the current Study, Financial Year 2023/24 data was obtained from the Westport Transfer Station, McLean's Pit Landfill, and the Hokitika Transfer Station to determine the total quantity of waste entering these sites. A total of 13,819 tonnes was collected during the period.

Variation between the two annual waste volumes could be related to the number of waste sites that were included in the two calculations, as only the three major waste sites (Westport, McLeans, Butlers) were reviewed in this Study.

2.2.11 Organic Waste Volumes

Organic waste, predominantly food scraps and green waste, is collected across the West Coast through either kerbside collection in the main centres (Westport, Reefton, Greymouth, Runanga, Hokitika) or through individual waste drop-off at the region's transfer stations.

As previously described, outside of the council provided services, there are some private waste operators collecting waste and disposing of it at council run transfer stations and landfills. The waste they collect is represented in the totals for each district.

To estimate the annual regional volume of food scraps and green waste, data has been sourced from:

1. Council weighbridge data (2024) to give the total amounts of waste coming into the waste systems in Buller, Grey, and Westland Districts

2. Waste audit carried out by JBL Environmental in Westport (January 2017) to calculate the percentage of putrescible waste (mainly food and green waste) in kerbside collected waste and waste dropped off at transfer stations. *Although this audit was only undertaken in Westport, these percentages have been applied as a proxy for both Greymouth and Hokitika.*
3. Organic waste audit (July 2024) to calculate the amount of food and green waste collected via council kerbside collections in Westport, Greymouth, and Hokitika

2.2.12 Council Weighbridge Data (2024)

Council weighbridge data enabled the total waste to be split into general waste disposed of directly to transfer stations, waste collected at the kerbside and green waste.

2.2.13 Westport Waste Audit (2017)

The 2017 Westport waste audit concluded that 14% of the general waste stream from drop-offs was organic material, so this figure has been used to determine the organic content in waste delivered directly to the three transfer stations. This is the only data available to determine organic content in the general waste stream dropped off at transfer stations.

2.2.14 Waste Audits (2017 and 2024)

For kerbside collection compositions and amounts, data was available from both the 2017 and 2024 waste audits. These audits were carried out at different times of the year, with the 2017 audit carried out in summer when green waste production was at its peak, while the 2024 audit was carried out in winter when green waste production was at its lowest.

The 2017 waste audit concluded that 30% of Westport's kerbside collected waste was organic material.

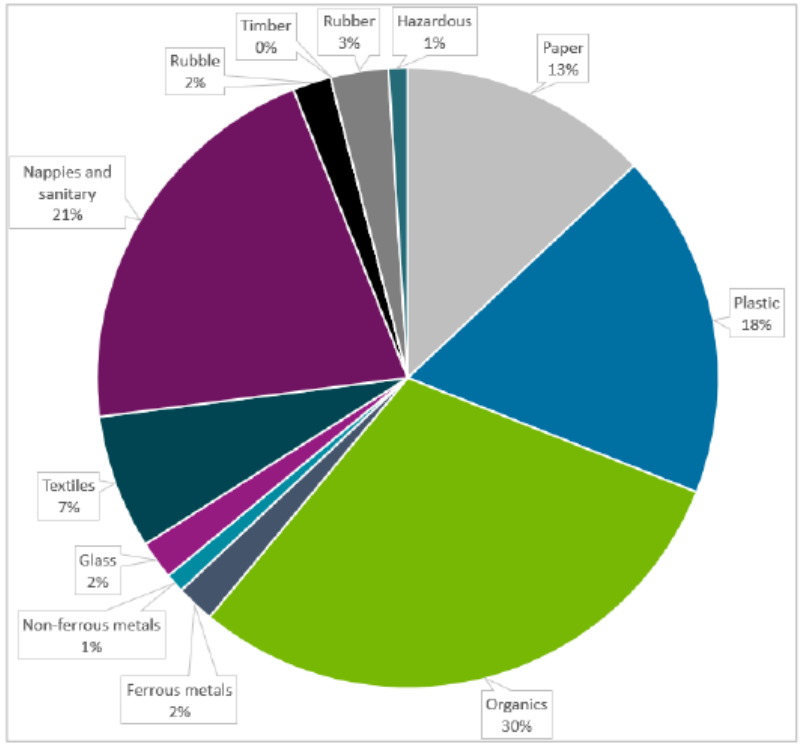


Figure 8: Westport kerbside landfill waste composition (2017)[33]

[33] West Coast Regional Waste Assessment (T+T, 2024)

A regional waste audit was completed in 2024 as part of this Study to determine the composition of kerbside rubbish in Westport, Greymouth and Hokitika. The audit was led by Waste and Sustainability specialist, Dr Niki Bould from Whirika Consulting. The methodology comprised a one-day waste audit in the main town of each of the three districts on the West Coast (Figure 9 and Figure 10).

The 2024 audit, which was carried out in each of the three districts, gave the percentages shown in Table 5.

Table 5: Percentage of organic waste material in district kerbside landfill waste (2024)

	% kerbside that is green	% kerbside that is food	Total % that is organic
Buller	0.80%	21%	22%
Grey	6%	30%	35%
Hokitika	17%	20%	37%

Figure 9: West Coast organic waste audit in progress (2024)

Figure 10: West Coast organic waste audit in progress (2024)

The detailed audit results are shown in Table 6 and Table 7.

Table 6: Kerbside rubbish per household for main towns.

Individual composition - **Kerbside rubbish per household for main towns June/July 2024**	**Westport, Buller District** Weight per household (1.48kg bags)	 % of total	**Greymouth, Grey District** Weight per household (1 bin)	 % of total	**Hokitika, Westland District** Weight per household (1 bin)	 % of total
Food scraps	2.40 kg	21%	3.42 kg	29%	2.53 kg	20%
Garden Waste	0.09 kg	1%	0.66 kg	6%	2.06 kg	17%
All other waste	8.84 kg	78%	7.52 kg	65%	7.85 kg	63%
TOTAL	**11.33** kg	**100%**	**11.60** kg	**100%**	**12.44** kg	**100%**
Subtotal of organic material	*2.49* kg	*22%*	*4.08* kg	*35%*	*4.59* kg	*37%*

Table 7: Kerbside rubbish estimated tonnes per week for main towns

Individual composition - **Kerbside rubbish estimated tonnes per week for each main town June/July 2024**	**Westport, Buller District** Tonnes per week	**Greymouth, Grey District** Tonnes per week	**Hokitika, Westland District** Tonnes per week
Food scraps	0.87 T/week	10.03 T/week	3.56 T/week
Garden Waste	0.03 T/week	1.94 T/week	2.91 T/week
All other waste	3.20 T/week	22.06 T/week	11.05 T/week
TOTAL	**4.10 T/week**	**34.03 T/week**	**17.52 T/week**
Subtotal of organic material	*0.90 T/week*	*11.97 T/week*	*6.47 T/week*

Given that the Buller District Council uses bags and accepts green waste free of charge, while the two southern councils use bins for their kerbside collection and charge for green waste disposal, the ratios from the 2024 audit have been applied to the kerbside data to determine the quantities of green and food waste from this waste stream.

The 2024 audit was carried out in the middle of winter which meant the green waste data is not representative of the norm, and very low in comparison to the average.

The audit results show a combined regional total of an estimated 19 tonnes of organic waste per week could be diverted through a kerbside collection process, with approximately 35% of the waste streams being organic and able to be processed.

2.2.15 Calculated Waste Volumes

By combining the three waste data sources described above, the annual quantities of organic waste produced in each district from each waste stream have been estimated and these are shown in Table 8**.**

Table 8: Estimated annual quantities of organic waste produced in each district on the West Coast

	Buller	Grey	Hoki	Total
Tonnes Total Waste (all sources)	2779	7978	3061	**13,819**
Tonnes Green Waste from drop-offs	574	529	338	**1,441**
Tonnes Green Waste from Kerbside Collection	6	159	156	**320**
Tonnes Food Waste from drop-offs	11	47	15	**73**
Tonnes Food Waste from Kerbside Collection	161	822	190	**1,174**
Tonnes organic waste from all sources	752	1557	699	**3008**

These results clearly indicate that most of the West Coast's organic waste comes from two sources – food waste in kerbside collections and green waste from drop-offs at transfer stations.

In addition to the quantities shown above, the following additional sources are also known to exist but do not pass through the council waste systems and therefore are very difficult to define. They are therefore not included as part of this Study. These include:

- a large amount of food waste from retail stores across the West Coast that is either made available to food banks, if possible, or used as feed for animals (pigs / chickens), and
- biosolids from the Westport Wastewater Treatment Plant.

2.2.16 Current Processing Options

Current options for organic waste processing on the West Coast are limited and there are currently no commercial organic waste processing operations of any scale, including composting, within the West Coast region.

Buller District

The Buller District Council commenced a year-long composting trial in December 2024 that mixes wastewater sludge (also referred to as biosolids) from Westport's Wastewater Treatment Plant (WWTP) with community green waste dropped off at the Westport Transfer Station.

Wastewater sludge consists of the solid organic, mud-like material that is left behind after wastewater has been treated at treatment plant. Composting makes it possible to turn the sludge into a compost like material that has a variety of uses such as a soil conditioner for landscaping[34].

Approximately 1 – 1.5 tonnes of biosolid sludge are produced at the treatment plant each day. The trial involves mixing the biosolids with equal parts, by volume, of post peel and sawdust. Shredded green waste that has been dropped off by the community at the Westport Transfer Station is added as a bulking agent, as it becomes available.

The trial is currently seeking resource consent.

Grey District

There are currently no commercial operations for processing organic materials within the Grey District.

Westland District

The Westland District Council receives green waste at its Hau Hau Road transfer station, where contactors mulch the green waste and then sell the resulting mulch product back to the community as a soil conditioner.

2.2.17 Current Challenges and Opportunities

The key **challenges** to organic waste collection and processing across the West Coast are as follows:

1. Low disposable income and high socio-economic deprivation across communities, especially in the northern West Coast. This leads to affordability issues associated with 'paid for' collection services.
2. Low resident, sparsely distributed population and extensive transport distances between urban centres. Reduces economies of scale and opportunities for shared facilities and centralised infrastructure. Transportation costs and emissions reduce the feasibility of a centralised approach.
3. Challenges with future national waste reduction and diversion targets, due to low disposal incomes, high deprivation, low population density, and forecast lack of population growth.
4. Increasing costs of waste disposal to landfill from Waste Disposal Levy expansion and Emissions Trading Scheme.
5. High capital cost for establishment of processing facilities.
6. Limited waste carbon feed stocks which restrict processing options or require purchase of carbon feed stocks from outside the region that

[34] Buller residents to benefit from local green waste being repurposed | Buller District Council

adds to costs. Processing options may need to be adapted to suit each West Coast urban location, depending on available feed stocks.

7. Limited organic waste volumes mean some processing options will not be economically viable (e.g., anaerobic digestion) or attractive to commercial investors (e.g., vermicomposting by MyNoke).
8. Availability of commercial collection services introduces difficulty intercepting and recovering organic waste.
9. Large variations in organic waste streams impacted by seasonality and fluctuating tourist numbers.
10. High tourist numbers (e.g., average 160,000 regionally, each month) with no current means to capture payment for waste services provided.
11. High waste contamination issues across all communities, driven by multiple factors including lack of awareness or desire to dispose of waste more economically i.e., non-recyclable materials disposed to recycling bins. Considerable ongoing campaigns required to achieve behaviour change and avoid high contamination rates.
12. Lack of current in-region processing options and limited regional knowledge and expertise on commercial scale organic waste processing options.

The key **opportunities** for organic waste collection and processing across the West Coast are as follows:

1. New Government strategy and work programme (7 March 2025) prioritises diversion and management of organic waste, reducing waste disposal per person, increasing the reuse of materials, and minimising emissions.
2. Iwi support for improved organic waste management practices across Tai Poutini.
3. National kerbside collection standards and opportunity to drive organic waste separation and collection in line with other council approaches.
4. Waste Minimization Fund opportunities for funding of organic waste bins, plant and site upgrades, amongst other requirements.
5. Continued, or enhanced, regional collaboration could create an opportunity to boost economies of scale and support the sharing of feed stocks to optimize processing.
6. The cost to dispose of landfill waste on the West Coast is significantly higher than neighbouring districts and districts with similar context. For example, disposal fees in the 2023/24 financial year ranged from $441 per tonne in the Grey District to $595 per tonne in Westland District. This is on average $180 more expensive than districts with a similar context. Furthermore, waste disposal fees are set to continue to increase in line with operational costs (including transport), capital investment and ongoing increases in Waste Disposal Levy and Emissions Trading Scheme costs. This drives a strong desire to reduce disposal to landfill and may make alternatives such as reuse, recycling, and recovery more attractive for many materials.
7. Diversion of Visitor Levy and Waste Disposal Levy to organic waste management practices.
8. Many successful Council-operated and community-operated collection and processing schemes exist across New Zealand from which West Coast councils can learn what does and doesn’t work well. The Love Food Hate Waste education programme is currently used by 52 councils to help communities reduce edible food waste and, as a result, food scraps.
9. Increased community scrutiny and desire to limit costs, and increasing environmental concerns, with communities motivated to improve waste management practices i.e., indicated from community survey.

10. Diversion of organic waste from landfill will result in some cost savings for ratepayers. These cost savings could be used to partially offset or subsidise organic waste collection and processing costs. This is especially the case in the Buller District, where landfill waste generated in Westport and Reefton is transported to York Valley Landfill in Nelson.
11. Environmental community groups and initiatives such as Maara Kai and EnviroSchools with interests in delivering waste education, and waste collection and/or processing services for their communities.
12. Recovering and re-purposing organic waste streams currently sent to landfill can maximise value of organic waste and extend landfill life.
13. Large established mining industry across the region provides a potential market for end products like compost.
14. Use of industrial organic waste as feed stocks for processing to increase volumes and achieve carbon/nitrogen ratio balance.
15. Emissions reporting for waste services and management is not currently taking place. As part of the National Strategy, tracking of this data will need to start taking place[35]. Opportunity to engage residents and organisations now on the journey through education that drives behaviour change.
16. Job Seeker Support rate (Sept 2024) higher than national average in Buller and Grey Districts: National average – 6.4%; Buller – 13%; Grey – 7%; Westland – 6%. Organic waste diversion may create jobs, including waste collection and handling, waste processing operations, and compost production and sale.

[35] West Coast Regional Waste Assessment (T+T, 2024)

CHAPTER 3

WHERE DO WE WANT TO GET TO?

Chapter 3: Where do we want to get to?

3.1 Regulatory Framework

The key regulatory framework for the resource recovery sector in Aotearoa New Zealand is the Waste Minimisation Act 2008 and the Resource Management Act 1991.

- The Waste Minimisation Act 2008 sets a framework to encourage a reduction in the amount of waste generated and disposed of in New Zealand, minimising environmental harm from waste and providing economic, social and cultural benefits.
- The Resource Management Act 1991 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.

In 2021, the Infrastructure Commission found that only 35% of New Zealand's waste is recovered (across all types, not just food waste), one of the worst recovery rates in the OECD.

3.2 National Strategy

Summary

- Government's National Waste and Resource Efficiency Strategy (NWS) was released 7 March 2025
- NWS 2025 prioritises organic waste and focuses on reducing waste disposal per person, increasing reuse and recycling of materials, and minimising emissions
- Policy for council-provided food and green waste collection service has been removed under new Government work programme
- Waste Disposal Levy set to increase to $75/tonne by 2027
- Ministry for the Environment-administered Waste Minimisation Fund offers co-funding of organic waste management initiatives

Strategy set at a national level directs the way waste is managed at a regional or local level.

Aotearoa New Zealand's National Waste Strategy/Te Rautaki Para (NWS) from 2023 was replaced by the new Government's Waste and Resource Efficiency Strategy on 7 March 2025 (Figure 11). The current Study, which commenced mid 2024 has largely been informed by the 2023 NWS. However, the 2025 NWS has also been reviewed to check that Government priorities regarding organic waste remain consistent.

Figure 11: Aotearoa New Zealand's National Waste Strategy/Te Rautaki Para (2023) has been replaced by the Government's Waste and Resource Efficiency Strategy (2025)

3.2.1 National Waste Objectives

The 2023 NWS provided three national targets to achieve by 2030:

1. Waste generation: reduce the amount of material entering the waste management system by 10 per cent per person.
2. Waste disposal: reduce the amount of material that needs final disposal by 30 per cent per person.
3. Waste emissions: reduce the biogenic methane emissions from waste by at least 30 per cent.

The 2025 NWS does not provide specific targets, however it's main outcomes also include reducing the amount of waste disposal per person, increasing reuse and recycling of materials and minimising emissions (Figure 12).

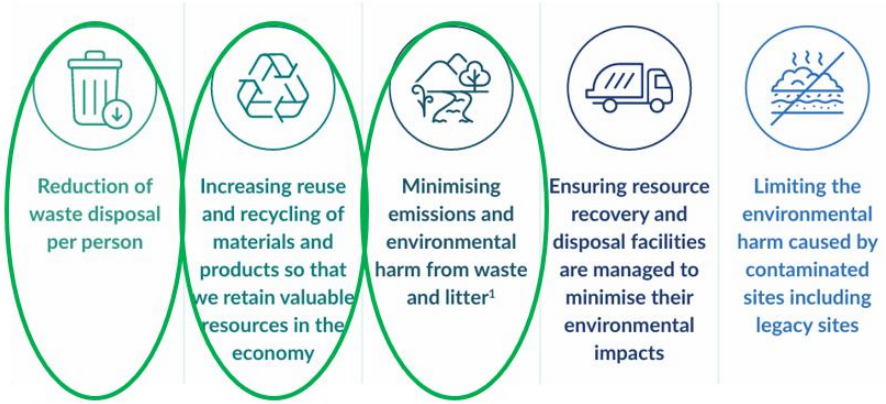


Figure 12: 2025 NWS objectives. Those circled in green are relevant to this Study

3.2.2 National Waste Policies and Work Programme

In November 2022, the then Government agreed to five policies to improve household recycling, including introducing a council household food scraps service to all urban areas (population >1,000). The current Government has decided that this policy will not go ahead at this time, but will continue to support councils to introduce food scraps collections through the Waste Minimisation Fund[36].

The 2025 NWS's work programme 2024 – 2026 idenitifies several 'focus areas' and specific 'work streams' of direct relevance to this Study, including:

[36] Update on waste policies | Ministry for the Environment

- Kerbside recycling policies:

  "Support territorial authorities to introduce standardised kerbside dry recycling and food organics or food and garden organics collections through targeted investment packages of the Waste Minimisation Fund."

- Investing the Waste Disposal Levy:

  "Priority waste streams…agreed by Cabinet in April 2024 include: organic waste."

- Reducing waste emissions:

  "Investigating ways of improving organic waste disposal."

3.2.3 Waste Disposal Levy and Waste Minimisation Fund (WMF)

For every tonne of waste disposed to landfill, a levy is applied and collected by the Ministry for the Environment (MfE). Since 1 July 2021, the New Zealand Waste Disposal Levy has been undergoing phased increases to encourage waste reduction and fund environmental initiatives (Figure 13).

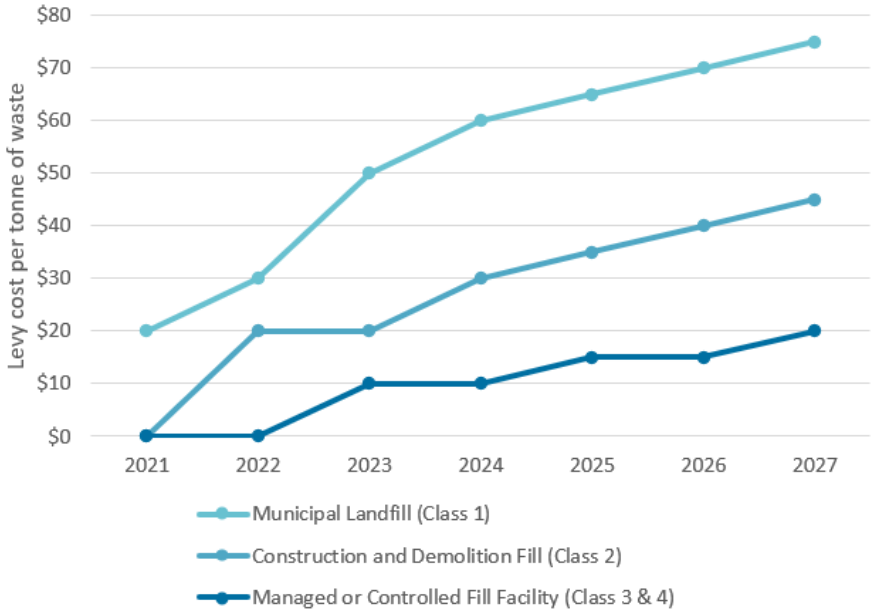


Figure 13: Waste Disposal Levy progressive expansion[37]

As of 1 July 2025, the Waste Disposal Levy for mixed municipal waste from residential, commercial, and industrial sources will be $65 per tonne[38] and is signalled to be increased to $75 per tonne by July 2027. Local councils will continue to receive 50% of levy revenue to fund community-specific waste minimisation plans, while the other 50% goes into the national Waste Minimisation Fund (WMF).

WMF priorities for 2025 focus on a broader range of environmental and waste management initiatives. Priorities of relevance to organic waste collection and processing may include infrastructure development, such as

[37] Regional Waste Assessment (T+T, 2024)

[38] Waste disposal levy expansion | Ministry for the Environment

developing kerbside organic waste collection services and processing facilities[39].

Figure 14: The four high-level objectives of the Waste Minimisation Fund. Image credit: MfE[40]

3.3 Regional Policy and Priorities

Summary

- Regional Waste Assessment (RWA) and Regional Waste Minimisation and Management Plan (WMMP) were completed in 2024
- Both the RWA and WMMP identify organic waste as a priority waste stream for the West Coast and a means to achieve regional waste reduction targets
- Strong alignment between the RWA, WMMP and the establishment of an organic waste collection service and associated processing facility(ies)

The role of territorial authorities is shaped by their policies, plans and regulations. This ensures progress is made towards agreed pathways and priorities at a regional and national level.

3.3.1 Regional Collaboration

The three district councils on the West Coast have a strong history of collaboration. The most recent Regional Waste Assessment (RWA) (2024) and Regional Waste Management and Minimisation Plan (WMMP) (2024) were conducted in regional collaboration.

Alongside the RWA and WMMP, the three district councils have a proposed combined District Plan: Te Tai o Poutini Plan[41] which sets out the objectives,

[39] Waste Minimisation Fund | Ministry for the Environment
[40] Beyond the Bin: capturing value from food waste (OPMCSA, 2024)
[41] Te Tai o Poutini Plan

policies, rules, and methods to manage land use activities and subdivision across the districts. The existing District Plans for each council remain in force (at least in part) until the combined District Plan comes fully into force.

Grey and Westland District Councils are also conducting a joint procurement for their waste services contracts, to come into place mid-2025. This aims to align services across the two districts as much as possible. The procurement documents are being drafted in a way to allow Buller District Council to join later, if it so chooses.

3.3.2 Regional Waste Assessment (2024)

The West Coast Regional Waste Assessment (RWA) describes the current waste situation, and sets the vision, goals, objectives, and targets (strategic framework) for waste management and minimisation on the West Coast. The West Coast district councils have decided to align their vision, goals, and objectives with that of the National Waste Strategy, whilst considering the regional context. This ensures the WMMP will be future proofed, and the region will be well positioned to adapt to national direction[42].

Figure 15 outlines the vision, three goals and eight objectives which Buller, Grey and Westland District Councils have adopted.

There is very strong alignment between the RWA and WMMP and the establishment of organic waste collection services and processing facilities, as described in Table 9.

[42] Regional Waste Assessment (T+T, 2024)

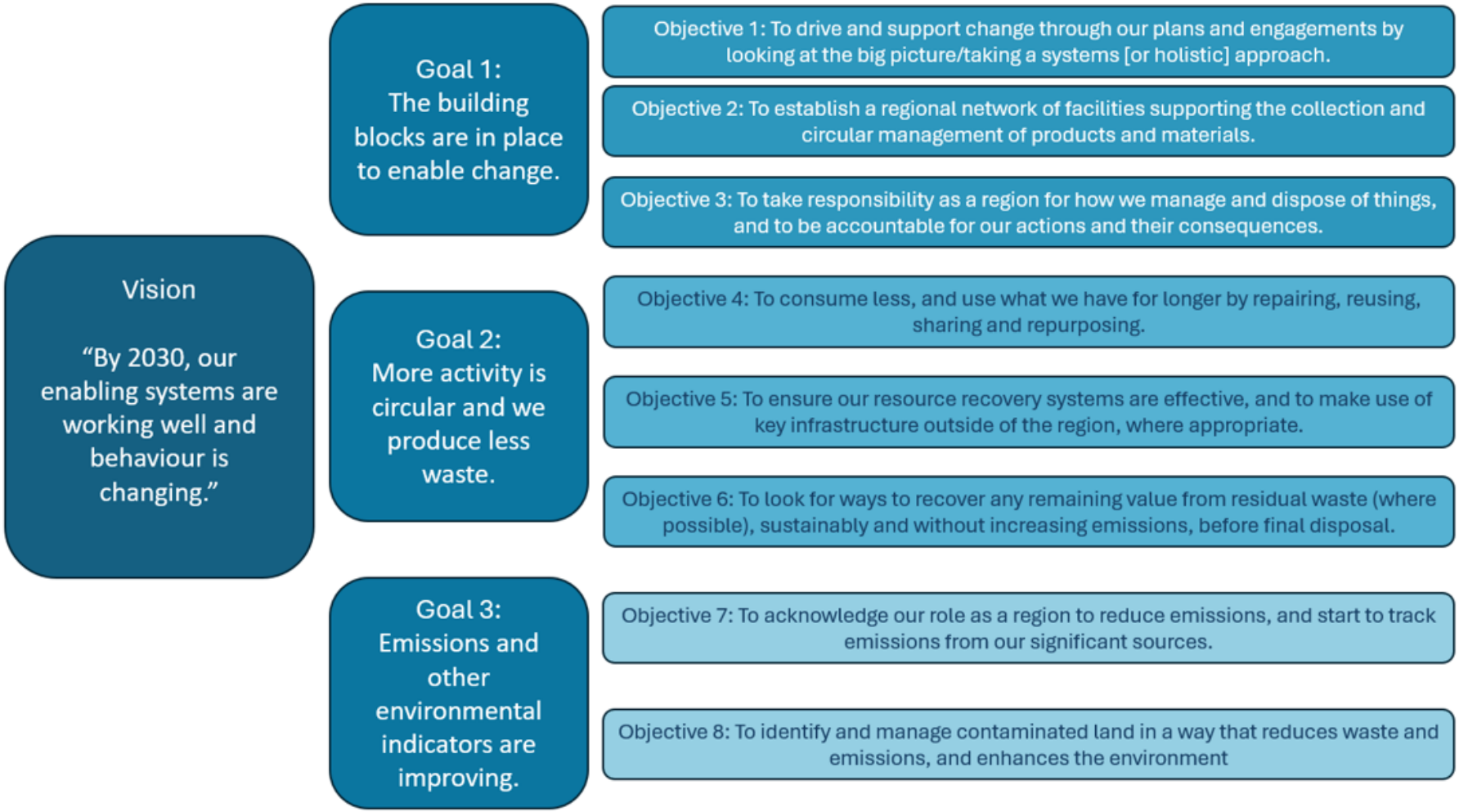


Figure 15: Vision, goals and objectives for the RWA and WMMP

Table 9: Vision, goals and objectives for the RWA and WMMP and alignment with organic collection and processing

RWA and WMMP strategic aspect	Organics collection and processing alignment
Vision: **By 2030, our enabling systems are working well, and behaviour is changing.**	An efficient organic waste collections service(s) and associated processing facilities across our region would support behaviour change across our communities. Provision of locally produced commercial grade quantities of compost / soil amendment product would reduce importation from outside of the region and reduce associated transport emissions.
Goal 1: **The building blocks are in place to enable change.**	An efficient organics collection service(s) would enable the diversion of organic waste from landfill, extending landfill life and reducing emissions. Technically functional, efficient, and cost-effective processing infrastructure and operations would treat diverted organic waste and generate value from waste.
Goal 2: **More activity is circular, and we produce less waste.**	Coast-wide, approximately 1,200 tonnes of household food waste is available for diversion away from linear waste disposal and into the circular economy each year.
Goal 3: **Emissions and other environmental indicators are improving.**	An equivalent of 2,280 tonnes of CO_2e per annum could be avoided each year through the diversion of household food waste from landfill. This does not include avoided transportation emissions.
Objective 1: **To drive and support change through our plans and engagements by looking at the big picture/tasking a systems (or holistic) approach.**	Current compost / soil amendment demand is met through supply from the Nelson and/or Canterbury regions. Opportunity exists to service (some of) this demand locally through the diversion and processing of household food waste.
Objective 2: **To establish a regional network of facilities supporting the collection and circular management of products and materials.**	There may be some limited opportunity to share organic waste feed stocks across the region to better balance carbon to nitrogen ratio requirements. However, a regional centralised organic waste processing approach is unlikely to provide the most efficient solution (in terms of cost and emissions).

RWA and WMMP strategic aspect	Organics collection and processing alignment
Objective 3: **To take responsibility as a region for how we manage and dispose of things, and to be accountable for our actions and their consequences.**	Organic waste collection services and processing facilities within the region to manage our own waste would increase our accountability. Within Buller, less waste by volume would be sent outside of the district for disposal to York Valley landfill in Nelson.
Objective 4: **To consume less, and use what we have for longer by repairing, reusing, sharing and repurposing.**	Food waste avoidance education for our communities would support the reduced consumption objective. Diverting and repurposing food waste to create a usable product would keep organic materials in use for longer.
Objective 5: **To ensure our resource recovery systems are effective, and to make use of key infrastructure outside of the region, where appropriate.**	Given the relatively small volumes of waste generated on the West Coast it is possible that bringing in mobile infrastructure from outside the region will enable waste to be processed in a way that would not otherwise be feasible.
Objective 6: **To look for ways to recover any remaining value from residual waste (where possible), sustainably and without increasing emissions, before final disposal.**	Coast-wide, 1,200 tonnes of household food waste is available for diversion from linear waste disposal and into the circular economy each year. Significant market value could be realised through the production of compost / soil amendment product.
Objective 7: **To acknowledge our role as a region to reduce emissions and start to track emissions from our significant sources.**	The West Coast's per capita GHG emissions are currently more than twice that of the national average. An equivalent of 2,280 tonnes of CO_2e per annum could be avoided each year through the diversion of household food waste from landfill. This does not include avoided transportation emissions.
Objective 8: **To identify and manage contaminated land in a way that reduces waste and emissions and enhances the environment.**	Not directly relevant.

3.3.3 Regional Waste Management and Minimisation Plan (2024)

The West Coast Regional Waste Management and Minimisation Plan (WMMP) was developed in 2024 to replace the region's 2018 WMMP.

The WMMP covers all solid waste and diverted material generated in the West Coast region. This does not imply that the Councils have direct involvement in the management of all waste - but there is a responsibility for the Councils to at least consider all waste in their districts, and to suggest areas where other groups, such as businesses or householders, could take action themselves[43].

The total waste to landfill from across the region is increasing year on year since 2018/19. It is expected that increasing costs of waste disposal to landfill resulting from the expanding Waste Disposal Levy and ETS will drive a reduction in waste to landfill. The region will need to support this through offering recovery options for commonly disposed waste materials, including a kerbside food waste collection[44].

Reported organic waste recovery volumes were relatively low, and it was concluded that there was a significant amount of organic material that could be targeted through the provision of collection services. Table 10 summarises the region's organic waste management system performance based on 2022/23 data.

Table 10: West Coast organic waste management system performance

		Total	Organics[45]
Bags/Bins	**Composition**	100.0%	49.0%
	Tonnes/yr	4,172	2,045
General	**Composition**	100.0%	11.2%
	Tonnes/yr	6,867	766
Regional Recovery	**Tonnes/yr**	4,214	744
	Recovery %	27.6%	20.9%

The WMMP identifies focus areas and actions to drive essential change and achieve targets focused on reducing waste generation and increasing material recovery and reuse. Figure 16 from the WMMP shows that the greatest wins for diversion of material from landfill is to focus on organic materials (food and garden waste) along with commercial waste.

[43] West Coast Regional WMMP (T+T, 2018)
[44] West Coast Regional WMMP (T+T, 2024)

[45] WMMP (T+T, 2024). This figure includes a conservative estimate of material captured at McLean's i.e. recovery T and % are underestimates.

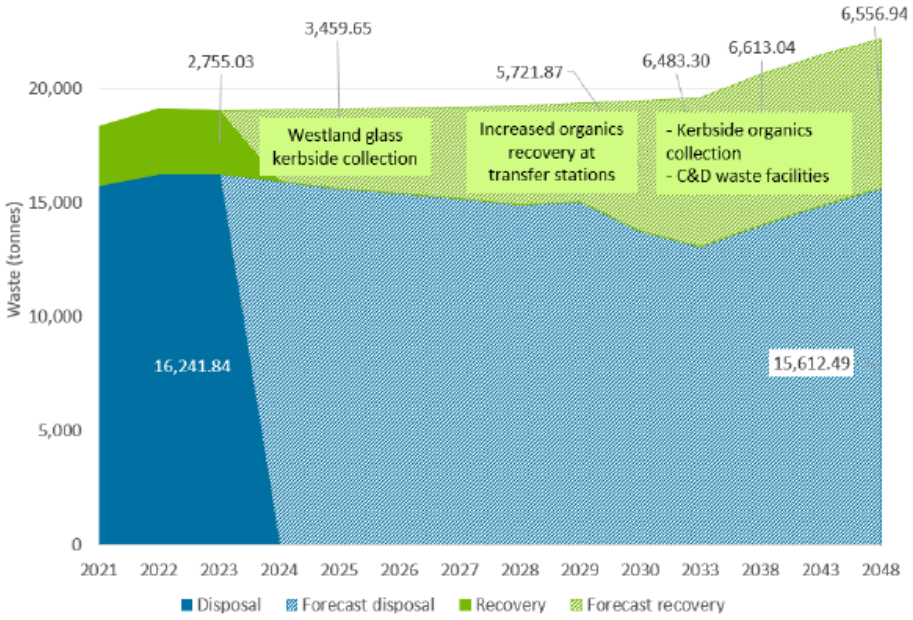


Figure 16: Organic waste diversion will play a significant role in the achievement of regional waste targets[46]

3.3.4 Regional Targets

The RWA and WMMP provide specific regional objectives and targets to drive essential waste management change. These targets are based on the previous Government's national targets as the RWA and WMMP were both developed under the 2023 NWS, prior to the release of the 2025 NWS.

The targets with relevance to this Study are contained in Table 11.

[46] WMMP (T+T, 2024)

Table 11: RWA and WMMP targets with relevance to organic waste[47]. The contribution organic waste collection services and processing facilities could contribute to meeting each target is also provided

Target		Unit	Actual 2018	Actual 2022/23	Regional target	Organics collection & processing potential contribution to target
Waste generation	Reduce amount of material entering waste management system by 10% per person by 2030*	Kg per capita / year	385.51	494	445 (by 2030) Equates to a reduction of 49kg per capita/year)	4 – 5 kg per capita / year Achieved through education for waste avoidance (LFHW's reduction target of 10%), and organic waste processing at-home (increasing West Coast at-home processing by 5 – 10%)
Waste disposal	Reduce the total waste tonnes per capita going to landfill by 30% per person by 2030*	Kg per capita / year	299.76	402	282 (by 2030) Equates to a reduction of 102kg per capita/year)	22kg per capita / year (Based on 1200T/annum of total organic waste. Up to ⅓ expected to be diverted from kerbside and drop-offs, so 400T/ annum. Divided by ~18,000 people (in main towns) = 20kg
	Reduce the total waste tonnes per dwelling going to landfill from council kerbside collection by 30% per person by 2030*	Kg per dwelling / year	575.63	573	401 Equates to a reduction of 172kg per dwelling / year)	42kg per dwelling / year (Based on 1200T/annum of total organic waste. Up to ⅓ expected to be diverted from kerbside and drop-offs, so 400T/ annum. Divided by ~9,500 dwellings (in main towns) = 42kg
Waste emissions	Increase organics capture at transfer station and kerbside (%) * *Organics capture includes food, garden and timber waste streams*	% diverted from landfill	N/A	4%	30% capture of organic material by 2030	30% capture of organic material by 2030

[47] Adapted from RWA (T+T, 2024)

	Reduce the biogenic methane emissions from waste by 2030 (CO2e) *	% reduced biogenic methane	N/A	TBC[48]	30% reduction	30% reduction

Note: targets marked with an (*) asterisk are requirements from 2023 NWS.

[48] Councils are awaiting guidance from central government on the calculation of biogenic methane emissions from waste before a baseline is confirmed for the region.

3.4 Iwi, Stakeholders, and Community

Summary

Iwi

- Ngāti Waewae and Makaawhio are mana whenua and hold shared interest across Tai Poutini
- Preferences for organic waste management include keeping solutions local at a local community or district-level, and helping people change behaviours through education
- Failure would be if nothing is done to improve current practices
- Would like to see a collection service provided to Arahura Marae and the settlement at Arahura

Stakeholders

- Priorities include:
  - Avoiding, or reducing, additional costs to ratepayers and reducing waste volumes to landfill
  - Findings solutions to problem waste streams e.g., biosolids and green waste
  - Creating new jobs and industry, particularly with sustainability focus
  - Avoid creating adverse effects

Community

- There were 478 responses to the regional community survey
- 92% of respondents said good waste management was important or somewhat important to them
- 43% of respondents currently manage waste at home e.g., home compost
- 31% dispose at least some food waste in their general rubbish
- 66% said they would use a food scraps collection service
- 78% said they would use a green waste collection service
- Economic cost of improved food and green waste management was a key concern with only 28% indicating a willingness to pay for a Council-provided collection service
- Many people proposed a user-pays system
- There were various suggestions for improving organic waste management on the West Coast
- Community groups on the West Coast expressed an interest in being part of the solution for improving organic waste management across their communities

3.4.1 Iwi-Hapu Partner Priorities for Organic Waste

Ngāi Tahu lands cover much of the South Island and are New Zealand's largest single tribal territory.[49] Ngāti Waewae, a sub-tribe of Ngāi Tahu, are mana whenua for Te Tai o Poutini from Kahurangi Point, to the north bank of the Hokitika River.[50] Makaawhio, also a sub-tribe of Ngāi Tahu, are mana whenua for Te Tai o Poutini from the south bank of the Pouerua River to Piopiotahi.

Together, Ngāti Waewae and Makaawhio hold shared interest in the area situated between the north bank of the Pouerua River and the south bank of the Hokitika River. From 2018 Census data, 11.7% of the West Coast population identify as Māori.[51]

Each District Council has Māori representation:

- Buller: Non-elected Māori Portfolio Councillor
- Grey: Iwi representative
- Westland: Two iwi representatives

Ngāti Waewae and Makaawhio have been invited to participate in this Study, at both the governance and project level. To date, participation has been limited. However, feedback from Ngāti Waewae has included the following important considerations:

- Strong preference for keeping things local at a local community or district-level
- Dislike for disposing food waste to rubbish bags; however, people need to be given other options to be able to do better
- Bringing waste into the region from afar is objectionable
- Education is very important, and people need reminders of what the right thing to do is
- Education would be best coming from community groups rather than the regulators
- Although organic waste management is a lower priority for iwi (i.e., not of the same importance as Te Mana o Te Wai), it is still important to iwi
- Retain compost product on Tai Poutini for peoples' gardens and for commercial operations
- Manage waste within small, micro-communities where people have small local solutions for waste management
- Create a by-product to create jobs and something original for communities
- Everyone needs to be involved and working together and doing their part
- Failure would be if nothing is done to improve current practices. The bare minimum is education so that the communities can develop their composting skills

[49] Ngāi Tahu – Te Ara Encyclopaedia of New Zealand
[50] Mō Mātou | About Us | Ko Arahura te awa | Ngāti Waewae – Te Rūnanga o Ngāti Waewae (ngatiwaewae.org.nz)
[51] Place Summaries | West Coast Region | Stats NZ

- Failure would also be if all the composting product is sent outside of the region for use elsewhere
- Would like to see a collection service provided to Arahura Marae and the settlement at Arahura

3.4.2 Stakeholder Priorities for Organic Waste

Stakeholders include the district councils, Development West Coast (DWC) and the Ministry for the Environment (MfE). National priorities, reflected in MfE policy, have been addressed elsewhere in this Study. Priorities identified by councils and DWC include:

- Avoiding, or reducing, additional costs to ratepayers
- Reducing waste volumes to landfill
- Enabling solutions that address poor waste management behaviours e.g., illegal dumping of general waste and green waste (a potential invasive weed source)
- Creating new jobs and industry, particularly with sustainability focus
- Grey District Council requires a solution for green waste which currently has no viable end use, and can drive inadvertent prohibited disposal to the environment
- Avoiding attraction of vermin and H&S concerns related to pathogens

3.4.3 Community Priorities for Organic Waste

3.4.3.1 Community Survey

A regional community survey (the "Survey") was delivered across the West Coast between 8 July and 29 July 2024. The Survey had four objectives:

1. To better understand waste management attitudes and behaviours across different West Coast communities, including interest in improving the management of our food and garden wastes.
2. To gauge interest across the West Coast in Council-provided food and/or garden waste collection services and understand the ways in which the services could be provided to best meet the local needs.
3. To gauge an understanding of community willingness to pay for collection services, should they be provided.
4. To seek input from West Coast communities regarding potential cost-effective solutions that support better food and garden waste management.

A total of 478 responses were received across the region as shown in Table 12:

Table 12: Community survey responses by district

DISTRICT	
Buller District	122
Grey District	266
Westland District	87
Not Specified	3
TOTAL	478

The Survey provided useful information regarding current food and green waste behaviours and attitudes across the West Coast, with approximately 3.93% of the West Coast population across all age demographics represented in the Survey[52]. However, it should be noted that this Survey has been used to indicate community preferences as a pre-engagement tool and should not be taken to represent formal council consultation.

Most people (92%) said good waste management was important or somewhat important to them (weighted average 4.48/5.00) (Figure 17:

Importance of good waste management to West Coast survey respondents (n = 478).

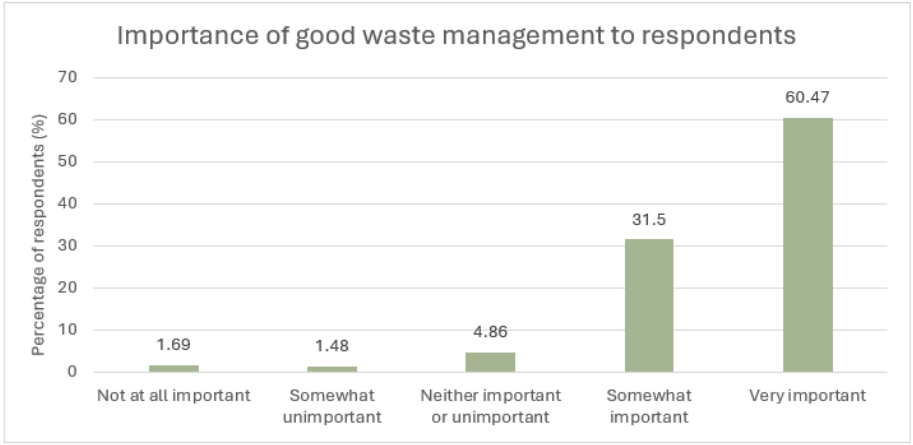


Figure 17: Importance of good waste management to West Coast survey respondents (n = 478)

The survey results reflect a community that is somewhat conscious of the importance of improved sustainable waste practices. People noted the importance of keeping food and green waste out of landfill to reduce methane emissions, and improved garden waste disposal options to better protect the environment from the spread of noxious weeds.

Approximately 43% of survey respondents currently home compost their food waste or have a worm farm, yet almost a third (31%) disposes at least some food waste in their general rubbish.

[52] If only one person per household completed the survey. If more than one person per household responded, then survey representation would be lower than 3.93%.

At least 37% of survey respondents home compost or mulch their garden waste, yet almost 21% disposes at least some garden waste in their general rubbish.

These results indicate that there are significant gains to be made in the way some West Coasters currently manage their food and green waste.

A key message from respondents included the importance of helping people reduce their food waste and increase home composting or mulching rates. However, there are barriers that currently impact good waste management behaviours and outcomes, including:

- Cost of green waste disposal which has led to an increase in illegal garden waste dumping in the bush, on beaches and river margins, in reserves, and along road verges.
- Limited options for effective disposal of non-compostable (at home) materials, including meat and bones, or high quantities of food waste and green waste, especially at certain times of the year.
- Lack of awareness, knowledge, skill or ability to dispose of food and green wastes at home via composting or other treatment methodology.

Regarding a Council-provided collection service for food waste, two-thirds (66%) of respondents indicated they would use the service, at least sometimes. Regarding a Council-provided collection service for green waste, over 78% of respondents indicated that they would use the service, at least sometimes.

The preferred collection approach for the largest proportion of respondents (44%) was with a single bin for both food waste and green waste with a fortnightly (43%) collection frequency. Some survey respondents indicated that there was greater need for collection of green wastes at certain times of the year, and collection frequencies could be adjusted accordingly.

Many respondents indicated conditional interest in using a food scraps or green waste collection service with dependence on cost, whether it was user-pays or not, and potential odour and animal interference issues.

The economic cost of improved food and green waste management was a key concern to survey respondents. There was concern that improvements in waste management could lead to higher costs for ratepayers and many respondents reported being interested in cost-effective solutions that did not result in increased costs to ratepayers. In support of this – only 28% indicated a willingness to pay for a Council-provided collection service with many people emphasizing the importance of a user-pays approach.

There was strong support for community composting and community gardening initiatives as lower-cost solutions for food and green waste collection, the development of native plant nurseries using waste-generated compost, and the production of local food. Many observed the importance of turning what is currently seen as waste into a community asset by creating a commercially available compost product. Cost / benefit analyses were also suggested to identify the best workable models that could be delivered as community schemes.

Hundreds of suggestions were made regarding how West Coast councils can meet national policy and regional plan targets and improve food and green waste management across the region. Most relevant amongst these were the following:

Collection or disposal

- Drop-off options – create specific areas at transfer stations / landfills where food waste and green waste can be disposed of, free of charge, and include incentives
- Provide a collection service, but only on a user-pays basis
- Provide free bins for collection to those who need them
- Provide low-cost at-home compost bin scheme and education
- Provide a chipper truck service
- Issue small bench-top tubs to households with compostable bag liners as part of a collection service
- Provide one day / year for collection of larger green waste to reduce prohibited dumping in the bush, riverways, and reserves

Community education

- Provide community education (e.g., workshops) on home composting and how to reduce food and garden waste
- Provide community education on reducing food waste smells in the week leading up to collection
- Educate in schools as a great start to drive better waste management practices and the necessary cultural shift
- Work with EnviroSchools and other community groups
- Use Love Food Hate Waste resources
- Tell the story, show the true cost of what currently happens, and the value from improved waste management

Creating value

- Stop treating food scraps and green waste as waste and treat it as a resource
- Support community groups who want to collect and process waste as community initiatives such as Poutini Puawai Project Group
- Make commercially available compost products to provide to industrial sites for rehabilitation e.g., mine sites and quarries
- Start local composting sites and sell the compost made from food and green waste back to the community so we have a “closed loop system”
- Use the waste to increase the region’s ability to grow its own food locally
- Start soil restoration projects in the community e.g., in community spaces and develop the sites with compost to become productive urban vegetable gardens. Encourage people to drop their green waste at these composting sites
- Work with pig farmers who could then provide the collection service from a communal dumping site

Cost / benefit

- Compare the costs of current approaches (food waste in general rubbish and paying for green waste disposal) versus costs of implementing a collection and compost production service
- Find a way to make the costs of collection balance the potential profit from selling the upcycled food and garden waste
- Provision a small fee on rates to cover the cost of pick-up
- Make green waste disposal free or offer a collection service through general rates

Environmental costs

- It is about time a service offered through general rates is provided to households of the West Coast, as there are many agencies and people spending lots of money dealing with the consequences of its absence – it needs to be as easy as possible for people to make the correct choice in this matter
- Better green waste management options to reduce the spread of noxious weeds from prohibited dumping
- Prohibited dumping results in the spread of the worst environmental pest plants. If given time to establish, they disrupt local ecosystems, threaten native biodiversity and in some cases (depending on species) can damage infrastructure, increase risk of flooding and impact primary industries. Other agencies and people are currently paying for the consequence of its absence.

Other suggestions

- Look at whole waste system, including recyclables and general waste, and figure out incentives rather than punitive approaches.
- Fine those who dump green waste at beaches and rivers.
- Start earlier than 2030.
- Include commercial premises as well as residential.

In conclusion, the Survey shows that the West Coast community is somewhat aware of many issues regarding food and green waste and many community members have expressed an interest in better waste management practices. There is clear need for more support, through the provision of collection and processing solutions, resources, and/or education, to achieve improved outcomes.

Significant concerns were raised regarding additional costs associated with the provision of food waste and green waste services. Innovative solutions, particularly through supporting and working with community groups, were seen as a key strategy for achieving necessary improvements. However, it may be that the community did not appreciate the cost associated with operating community composting schemes.

3.4.3.2 Community Groups

There are several community groups across the region currently operating, or with strong interest in, waste management outcomes for their communities.

Notable amongst these are:

EnviroSchools

- Located across the West Coast Tai Poutini region
- Provide environmental education to West Coast schools – currently 23 EnviroSchools across the region (44% of all West Coast schools and Early Childhood Education centres)
- Estimated to reach almost 20% of the regional population through work with school staff, students and whānau and we extend our reach by collaborating with community groups and engaging with local media and events.
- Each EnviroSchool is different, but all focus on waste reduction, including food waste, as one learning stream, and many EnviroSchools have veggie gardens and compost systems
- Particularly engaging activities include waste audits to highlight waste improvement opportunities
- Karamea Area School is currently running a successful garden and worm farm business which may provide a good model for other schools to copy (Press article about Karamea Area School).

- Other EnviroSchools have created brochures and signage for various environmental initiatives and similar activities could be done to promote better organic waste management for ways to educate the wider community.
- EnviroSchools regional staff have indicated enthusiasm for facilitating schools' involvement and building partnerships to enable participation in regional organic waste management initiatives

Te Hā o Kawatiri

- Located in Westport
- Provide service for the whole Buller Kawatiri District, including Māori and non-Māori community members
- Services and interests include community wellbeing, food security and food redistribution, Maara Kai (food gardens), and matauranga Māori tautoko
- Aspirations include scaling up current community gardens, and community composting, and community education for improved waste management outcomes

Whare Manaaki

Māra Kai (Including Pātaka) & Workshops | Whare Manaaki

- Located in Greymouth Mawhera
- Provide a Kaupapa Māori Community Hub for the entire community, including Māori and non-Māori community members
- Services include community education and workshops
- Operate a Maara Kai (food gardens) and composting

Figure 18: Whare Manaaki mahi

Feedback from community groups engaged as part of this Study include the following relevant points:

- There is good opportunity to leverage existing community group passion, enthusiasm, networks, community goodwill, knowledge and experience
- Community groups must be supported, including financially, to deliver organic waste collection and/or processing services, to avoid volunteer burn-out
- Financially supported community facilitation and advisor roles (could be part-time, fixed term) in each district to ensure the services are set-up and delivered effectively
- Excellent examples of successful community organic waste management already exist across Aotearoa New Zealand that could be emulated – including Xtreme Zero Waste (XZW) in Raglan

CHAPTER 4

HOW COULD WE GET THERE?

Chapter 4: How could we get there?

There are two key parts to this Study:

1. Organic waste kerbside collection system
2. Organic waste processing methodology

4.1 Organic Waste Collection System

Summary

- A food waste collection service, as opposed to a FOGO (combined food and green waste) collection service, has greater feasibility for the West Coast region
- A weekly collection service has greater feasibility than a fortnightly collection service
- An estimated 30% of food scraps in residential general refuse could be recovered through a kerbside food waste collection system on the West Coast
- The preferred equipment option would be provision of 7L kitchen caddies and 23L food only bins to each participating household, along with bin liners
- Significant equipment subsidies are available through MfE
- Approximately $100 per household is typical for a food waste kerbside collection service for communities like those on the West Coast
- Collection options considered in this Study include:
  - at-home diversion and processing
  - drop-offs
  - council-led regional kerbside collection
  - council-led district kerbside collection
  - community-led township kerbside collection
- Funding options include general rates, targeted rates, and user-pays approaches

Key considerations for a kerbside collection service include:

- Target materials – food organic scraps and waste (FO), or food organics and green organics waste (FOGO)
- Collection methodology – container type (bag, bin) and container volume; collection frequency
- Funding – general rates; targeted rates; opt-in user pays
- Seasonal effects – storage of food waste in warmer months; higher tourist numbers and tourist waste in summer months; changes in garden waste quantities during spring and summer.

4.1.1 Food Organics (FO) or Food Organics and Garden Organics (FOGO)

According to studies by WRAP UK[53], the amount of food scraps collected in a FOGO system is between one third and one half of the amount collected in a food scraps only collection. Table 13 shows indicative yields for the two most common food scraps collection services across the UK.

Table 13: Indicative yields of waste under different collection scenarios

Indicitave food scraps per yield per HH per week	
Weekly food scraps	1.5kg
Weekly FOGO	0.8kg

These indicative yields demonstrate that whether the service is food scraps only or FOGO has an influence on the amount of food scraps collected.

In New Zealand there are 17 councils currently running kerbside organics collection services that involve food waste. Nine collect food scraps only (FO), and eight collect both food and green waste (FOGO) (Figure 19).

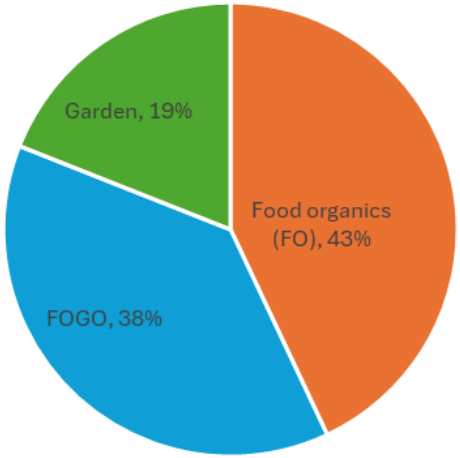


Figure 19: Breakdown of Council-Provided Organics Service Types in New Zealand (2024)[54]

Given that only 10% of the green waste collected on the West Coast comes through kerbside collections (the remainder via drop-offs), and that in general, the disposal of food waste into a recycling system reduces if green waste is collected in the same bin, it is concluded that this Study should focus on food waste kerbside collection only. This conclusion is the basis for the remainder of the Study.

[53] Organic Waste Collection and Processing: guidance for local authorities (WasteMINZ, 2024).

[54] Adapted from Organic Waste Collection and Processing: guidance for local authorities (WasteMINZ, 2024).

4.1.2 Organic Waste Collection Frequency

Studies by WRAP UK[55] indicate that the frequency of waste collection influences the amount of food scraps collected (Table 14).

Table 14: Indicative yields of waste under different collection frequencies

Indicitave food scraps per yield per HH per week	
Weekly FOGO	0.8kg
Fortnightly FOGO	0.5kg

Results from the West Coast community survey show a small difference in preference between weekly and fortnightly collections of organics waste, with fortnightly receiving greater support (Figure 20).

Figure 20: Collection frequency community preference

A survey of existing operators who are collecting food waste from their communities shows that weekly collections are preferred due to the reduction in odour and smaller volumes of food that households need to store on site. Both Kaicycle in Wellington and Xtreme Zero Waste in Raglan operate weekly collections after experimenting with different frequencies to determine what works best.

A review of local and international research and case-studies by WasteMinz (2024) has indicated that a high collection frequency of organic wastes is a common feature of high performing kerbside organic services. WasteMINZ recommendation is that any organic collection with food should be collected weekly[56].

4.1.3 Forecast Waste Diversion Rates and Yields

Estimating waste diversion rates and yields is challenging in an area where no food waste collection service has ever operated.

Xtreme Zero Waste in Raglan is seen as one of the national leaders in recovery and processing of organic waste. Using data obtained from XZW it is estimated that they are diverting around 30% of food waste that enters their waste stream by providing a separate food waste collection service[57].

The West Coast household survey gives some insight into what actions households are already taking to manage their food waste. Figure 21 *indicates what is currently happening across the West Coast and shows that* close to 70% of respondents already deal with at least some of their

[55] Organic Waste Collection and Processing: guidance for local authorities (WasteMINZ, 2024).

[56] Organic Waste Collection and Processing: guidance for local authorities (WasteMINZ, 2024).

[57] Liz Stanway, Organics Team Leader, XZW pers comm (March, 2025).

food waste at home, and only 31% dispose of it with their general household waste.

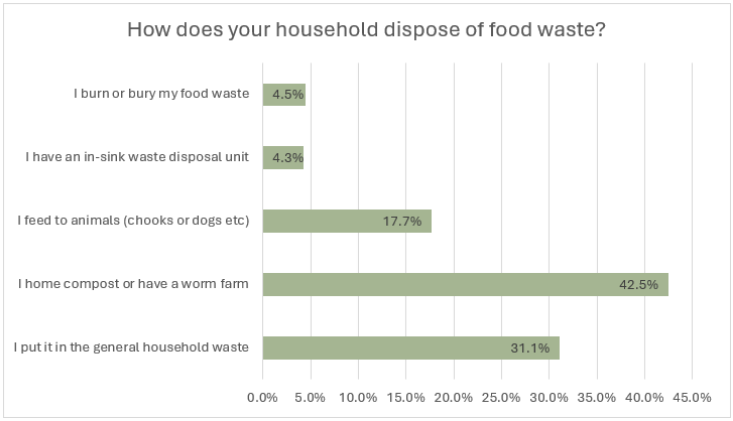


Figure 21: Current West Coast household organic waste disposal methods

However, the Survey also indicated that most people would use, or *sometimes* use, a food scraps collection service (66%) (Figure 23).

Figure 23: Interest in using a Council-provided food waste collection service

Overall, based on available research and data from existing organic waste collection initiatives, it is estimated that approximately 30% of food scraps waste that currently enters the West Coast waste system could be recovered through the provision of a kerbside food waste collection system.

4.1.4 Collection Equipment

4.1.4.1 Bins

Given the data that shows food waste only bins result in better diversion of food waste from landfills the preferable option for West Coast dwellings would be the provision of 7L kitchen caddies and 23L food only bins to each household that participates in the scheme. 23L bins are sized to hold a weeks worth of food scraps for an average household, while the 7L bins are sized to fit on or below a bench within the kitchen to make waste management easy within the home.

Figure 22: 7L kitchen caddy with compostable liner and 23L food waste bin.

Councils can apply to MfE for a subsidy per bin purchased to support the rolling out of kerbside collection of organic materials. Table 15 gives indicative pricing and subsidies for the two sizes relevant to this study.

Table 15: Indicative pricing for food waste collection vessels

Bin Type	Available Funding	Market Cost
7L kitchen caddy	$5.00	$12.50
23L food only bin	$15.00	$18.89

WasteMINZ data shows that costs associated with operating a FOGO service are considerably higher at all stages of the process than operating a FO service only – approximately 50% higher overall. For communities like those on the West Coast a figure of $100 per household is typical for a food waste only kerbside collection.

4.1.4.2 Bin Liners

Various approaches are taken to the use of bin liners as part of the collection process. Xtreme Zero Waste in Raglan run one of the more successful food waste collection systems in the country and have opted to use compostable bin liners as part of their process for a variety of reasons. These include:

- Reduces need for households to deal with food waste directly. They can simply remove the bag and tie it up when full
- Kitchen caddies are kept clean, meaning less mess for households to have to manage
- Households are more likely to use the caddy's when bags are provided as part of the service
- Food contained in bags doesn't attract vermin or birds at their processing site
- Bags break down within one to two weeks in their processing plant, with no residue in their final product

Table 16 outlines the pros and cons of using bin liners as part of the collection service.

Table 16: Pros and Cons of using bin liners (WasteMINZ)

PROS (WasteMINZ, page 19).	CONS
Bin liners have been shown to improve participation and food waste capture, especially over time.	Liners will add in the order of $10/HH/year to the cost of the service if supplied by council.
Bin liners reduce odours and mess for households.	Compostable plastic liners do not always break down completely in the processing stage and can negatively affect product quality. In Anaerobic Digestion processes plastic liners are a contaminant and must be removed.
Bin liners reduce moisture content in food scraps, making transport and transfer easier and more pleasant for collection crews.	There are concerns over the potential presence of PFAS[3] and other additives in compostable plastics and whether the degraded product contributes to microplastic pollution.
A well-run system using compostable bin liners can reduce overall contamination.	If households run out of liners, they may use non-compostable liners instead which can add to contamination.
	There are no compostable plastic liner manufacturers in New Zealand.

4.1.5 Collection Options

The simplest and most efficient way to collect food waste is through home collection, where household food waste is collected and processed on site, with no requirement to transport the waste any further.

If households are unwilling or unable to process food waste at home, there are two options available for collection of food waste from households within the urban areas of the West Coast. These include:

- drop-offs, where food waste is dropped at a centralized location by participating households for processing at a nearby facility

- collection services provided either by councils or community organisations.

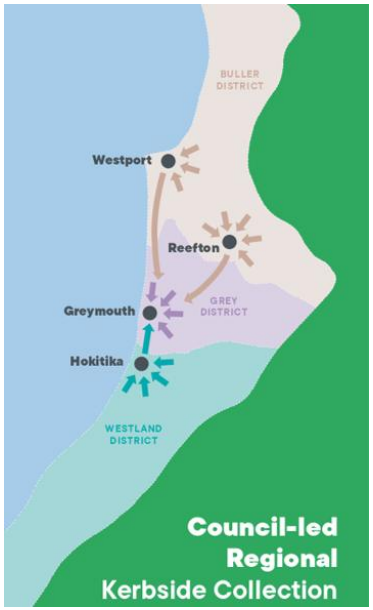
The cost of getting waste to a processing facility is met directly by the household for the drop-off model, while for home collection the costs are met through rates or charges by the service provider.

4.1.6 Collection Scale

Three models of collection services have been considered in this Study.

4.1.6.1 Council-led Regional Kerbside Collection

This model requires kerbside collection services to be offered in Westport, Reefton, Greymouth and Hokitika, and the transportation of all food waste to a central processing facility in Greymouth at the McLeans Landfill. The cost of kerbside bins, wages, transportation and processing are recovered through rates, a user pays system and/or product sales.



This option requires the highest amount of transportation to get material to a processing site of all the options that were assessed, however given the current transportation of Westport waste to Nelson this option would require less overall transportation than the current waste disposal system.

Overall, regional food waste volumes would be not great enough to justify a regional centralised approach.

Pros

There are several benefits to operating a centralised system that services all three West Coast districts. These include:

- Maximised processing efficiencies due to larger volumes of material available
- Minimised infrastructural / operational requirements due to everything being processed at one site
- Widest range of possible processing options due to larger volumes of feedstock available.
- There is considerably more forestry industry in the central West Coast area, which would provide easier access to carbon / bulking feedstocks for a processing facility.
- Less seasonal impacts due to improved processing opportunities

Cons

- Higher transport requirements due to moving waste to a central location
- Higher transport related carbon emissions
- No opportunity for district-based jobs
- All product ends up in one place and would then need to be redistributed across the West Coast markets, resulting in further transportation requirements
- Adds an additional stage of handling and transportation, resulting in higher costs to operate, and therefore increased costs to rate payers

4.1.6.2 Council-led District Kerbside Collection

This model requires kerbside collection services to be offered in Westport, Reefton, Greymouth and Hokitika, and the transportation of food waste to processing facilities at the Westport Transfer Station, McLeans Landfill in Greymouth and the Butlers Landfill in Hokitika. The cost of kerbside bins, wages, transportation and processing are recovered through rates, a user pays system or product sales.

This option keeps waste within the districts and significantly reduces the transportation requirements when compared to the regional approach. It would also enable each district to use the green waste collected at their sites as additive to the composting process, thus also minimising the transportation of carbon material across the region.

Pros

- Maximise the number of people who have access to the service
- Some moderate processing efficiencies due to larger volumes of material available
- Increased range of processing options available that can be applied to suit district specific contexts and available waste streams
- Jobs created in each district
- Reduced transportation costs
- Reduced carbon emissions from transportation
- End product produced closer to end use locations

Cons

- Feedstock supply challenges depending on district availability
- Three facilities required so increased capital and operational costs
- Increased costs to rate payers when compared to what they are currently for waste services

4.1.6.3 Community-led Township Kerbside Collection

This model minimizes the transportation of material across the region by dealing with waste as close as possible to its source.

The collection operation would be run by a community organization separate to council waste collection processes, with the collected material processed by community groups to produce a saleable product

Costs are recovered through a user pays system and product sales and include wages, transportation and processing costs.

Pros

- Owned by the community it services, resulting in greater user buy-in and engaged communities
- Jobs created in each district, assuming this is not voluntary and that an income stream can be generated from the waste collection or other funding model

- Reduced transportation costs
- Options for low carbon transportation possible
- Reduced carbon emissions from transportation
- End product produced closer to end use locations

Cons

- Feedstock supply challenges depending on district availability
- Potential for greater reliance on volunteer input
- Higher number of sites required reducing efficiencies

4.2 Organic Waste Processing Methodology

Summary

- The food waste recovery hierarchy prioritises avoiding food waste ahead of recovery of food waste, which could be supported with existing education resources
- Recovering and processing options include:
  - At-home processing, including composting and worm-farming
  - Community-scale composting using hot-box composting or in-vessel composting
  - Larger-scale council or commercial composting using open windrows, vermicomposting, larger in-vessel composting, and anaerobic digestion

- The West Coast's isolation and comparatively small organic waste volumes reduces viability for more technical solutions
- Xtreme Zero Waste provides a strong example of a successful community organisation providing organic waste solutions at a scale that is applicable to West Coast townships

4.2.1 Food Waste Recovery Hierarchy

The food waste recovery hierarchy in Figure 24 prioritises different approaches to dealing with food loss and waste. Solutions near the top of the hierarchy, which keep food directly or indirectly available for eating, are preferred to solutions near the bottom, such as disposal, which is the least favourable option.

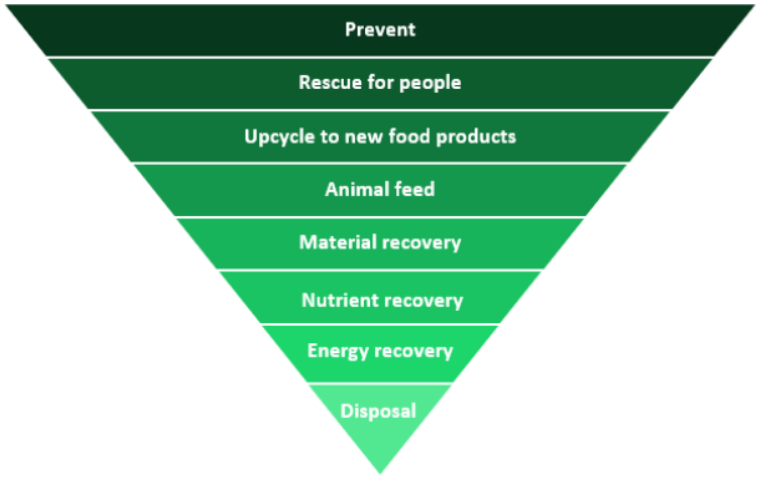


Figure 24: Food waste recovery hierarchy[58]

[58] Beyond the Bin: capturing value from food waste (OPMCSA, 2024)

4.2.2 Preventing Food Waste

Current estimates put global food waste (between farm and fork) at 40%. In New Zealand in 2018, 'avoidable' food waste was estimated at 32kg per person/per year, equating to a national average of $12.38 per household per week, and $644 per household per annum[59].

Preventing food waste is the most effective of all food waste solutions and can result in significant cost reductions to households. Further, it is highly environmentally beneficial as it avoids wastage of resources that went into producing, processing, distributing, and preparing food. When households change their behaviours, it can prevent significant amounts of food entering the waste system. Simple steps include planning meals before shopping and storing food properly.

From a Council perspective, the ideal solution is to work at the top of the waste hierarchy, avoiding the generation of food waste altogether.

Who is doing it?

The Love Food, Hate Waste (LFHW) (Love Food Hate Waste) campaign, being run by 52 councils from around New Zealand in conjunction with WasteMINZ, is a good example of how community education can support food waste reduction (Figure 25).

Figure 25: Participating councils in the Love Food, Hate Waste programme

LFHW has a trusted and familiar brand that can be leveraged to engage with community, and provides:

- SharePoint Hub full of resources
- Dedicated toolkits to join campaigns

  Tools to support behaviour change
- New research insights, clear consistent nationwide messaging
- Webinars to share best practice
- Support to develop, review, or provide feedback on local engagement activities or initiatives.

[59] Microsoft Word - Final 1.0 - New Zealand Food Waste Audit Report 2018

Behaviour trend monitoring from participating councils from 2024 has noted the following[60]:

- Food waste is down by up to 5%
- Households throwing out food that had gone off is down by 4%
- Households putting food waste in the rubbish bin down by 4%

The LFHW campaign toolkits designed to support community engagement both online, internally for staff engagement or externally with the public, are noted as the most effective resources by participating councils. Campaign materials, including posters, free downloadable tools to drive behaviour change (e.g. Meal Planners, Eat Me First Stickers, Recipe Books, storage guides and interactive quizzes) have been praised for their practicality and relevance in promoting behaviour change.

Overall, councils have found that these resources resonate well with residents, helping them to adopt sustainable food practices in a more impactful and engaging way[61].Based on district populations, annual licensing fee for participating in the LFHW campaign is:

	Buller District	Grey District	Westland District
District population	9,670	14,300	8,940
LFHW annual licence fee	$305	$400	$282

There is no discount for multiple councils signing up as the fees are already heavily discounted by WasteMINZ and some of the larger participating councils.

4.2.3 Recovering Food Waste

Although preventing food waste altogether is the best option and sits highest on the waste hierarchy, the primary focus of this Study is food waste recovery for nutrient or energy recovery purposes. Nutrient recovery is defined as capturing nutrients from food waste so that they can be reused in agricultural systems, gardens, and/or to regenerate natural environments. Energy recovery is defined as capturing the energy held in food waste so that it can be used to generate heat or electricity, or as a fuel or natural gas equivalent[62] (Figure 26)

[60] Sophie Wolland, LFHW Programme Manager, pers comm (April, 2025).
[61] Sophie Wolland, LFHW Programme Manager, pers comm (April 2025).
[62] Beyond the Bin: capturing value from food waste (OPMCSA, 2024).

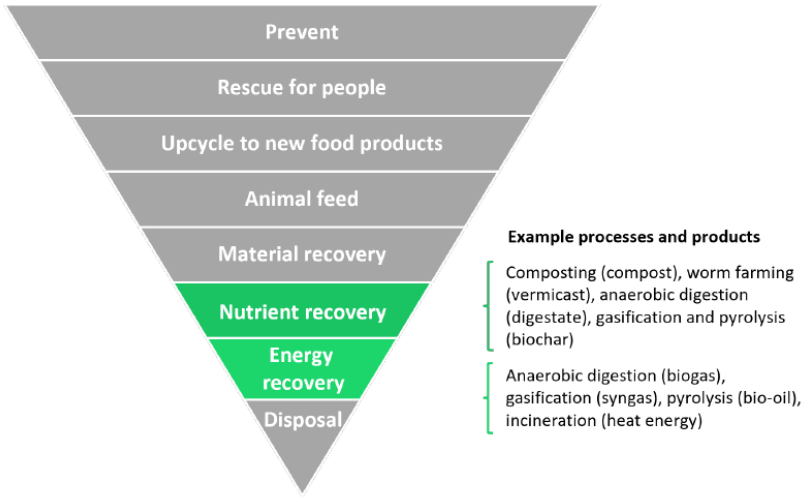


Figure 26: Nutrient and energy recovery within the food recovery hierarchy[63]

4.2.4 At-Home Options

Encouraging households or businesses to appropriately manage organic waste at home, on site or within their operation, avoids the need for council or a third party to collect and process the material.

The community survey undertaken in 2024 as part of this Study confirmed that, currently, the most common method for disposal of food scraps and waste is to home compost or worm farm with almost 43% indicating they undertake this activity at home.

Organic waste management approaches, such as composting, worm-farming or Bokashi, can be better supported at the household level through education and subsidies.

4.2.4.1 Education

Council or community organisation-led education programmes can significantly help communities better manage their waste and there are several resources available for use.

Who is doing it?

The Compost Collective *(Home - Compost Collective)*

The Compost Collective is a collaboration between Auckland Council and a range of community groups, designed to empower individuals and communities to take action on organic waste management. They provide education, resources, and workshops to reduce organic waste through composting for soil health.

[63] Beyond the Bin: capturing value from food waste (OPMCSA, 2024)

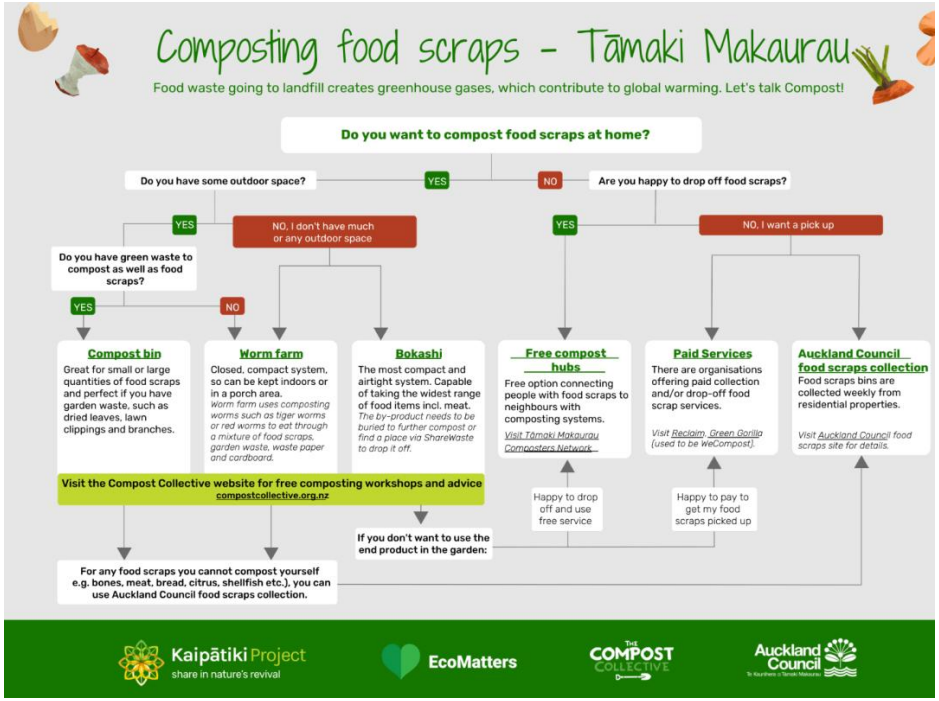


Figure 27: The Compost Collective's composting options flow chart

Xtreme Zero Waste (Home - Xtreme Zero Waste - Whaingaroa, New Zealand)

Xtreme Zero Waste (XZW) is a Raglan-based community group focused on reducing waste from landfill. They deliver a 6-week course for the community focused on the waste hierarchy[64] (Figure 28).

Figure 28: Xtreme Zero Waste provides online courses focused on reducing waste going to landfill

Extreme Zero Waste are an excellent model of community-led waste management that is covered in greater detail later in this Study.

[64] Home - Xtreme Zero Waste - Whaingaroa, New Zealand

4.2.4.2 Subsidies

Some councils in Aotearoa provide subsidies to encourage household composting of food scraps and garden waste.

Who is doing it?

The Nelson City Council provides Nelson and Tasman residents with an entitlement to one subsidy per year per household to a maximum of $20 (inc GST) to go towards the purchase of compost bins, worm farms, worms or bokashi sets[65].

The Auckland Council provides subsidies through The Compost Collective[66].

4.2.5 Smaller-Scale, Community Organisation Led Options

Several community groups successfully operate user-pays food scraps composting systems in New Zealand. Many have strong uptake and community buy-in, with most eventually reaching capacity for their sites[67]. Community groups often provide benefits to local communities beyond the services they provide, including employment opportunities for local people, community gardens, youth mentoring and volunteering opportunities.

When successfully adopted, the integration of community composting with community gardens/urban farming has proven to be a successful model for the reuse of organic material, especially for shared community spaces like schools or maraes. These initiatives require community groups, not for profits or small private enterprises to champion programs.

Feedback received from the community survey conducted in July 2024 indicated strong support for a community approach, with the perspective that this may offer a lower-cost model. There are some established community groups across Tai Poutini / West Coast that have expressed interest in community composting, including the Māra Kai operated by Te Ha o Kawatiri in the Buller District. Coast-wide, EnviroSchools has also expressed some interest in being part of the solution, especially in community education that delivers better waste management outcomes.

Community composting efforts can be broadly divided into volunteer-run ‘compost clubs’ and decentralised social enterprises that have emerged as a community response to food waste. Unlike composting clubs, composting social enterprises are often commercial operations, reliant on contracts and customers to support their business model.

In contrast to larger scale industrial processors of food waste, social enterprises are embedded within the communities they serve, collecting and recirculating resources on local scales. Many composting clubs and social enterprises are keen to scale out across multiple communities to be a larger part of the solution going forward.

4.2.5.1 Smaller-Scale Composting

For the purpose of this Study, community organisation-led composting options have been defined as those with capacity for up to approximately five tonnes of food waste per week, or when the amount of waste

[65] Subsidy voucher for compost bins, worm farms, worms and bokashi sets - Nelson City Council

[66] Claim your discount - Compost Collective

[67] Kaipara District Compost Needs Assessment, December 2020

exceeds the amount of organic waste generated daily by several families[68].

These options work well for small or distributed communities and are likely to be most relevant for the Buller and Westland Districts. Most are modular or scalable, which reduces both transportation costs and associated negative environmental impacts.

The initial and most basic goal of composting is transformative – turning waste into stabilised, value-added product for nutrient cycling and soil regeneration purposes. Facilitating the composting process is relatively simply, as active microbes just need sufficient air and water to maintain decomposition.

Figure 29: Worms and fungal mycelium in maturing compost[69]

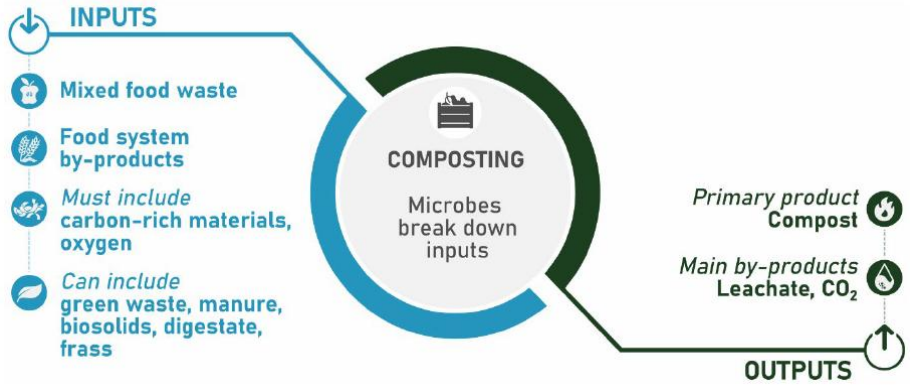


Figure 30: The main inputs and outputs of composting[70]

Table 17 summarizes the key benefits and challenges associated with the composting process.

[68] Classification of Composting Systems: A Proposal -OPA Natura
[69] HotRot composting trials: Three months in, our first update! — Kaicycle
[70] Beyond the Bin: capturing value from food waste

Table 17: Key benefits and challenges associated with composting[71]

Key benefits	Key challenges
Simple process which works at a variety of scales and in multiple contexts	Poor management results in emissions like leachate and GHGs, with methane problematic in piles insufficiently aerated
Decomposition process is thermophilic, reaching temperatures of approximately 65°C, which can neutralize weed seeds and pathogens	External factors such as rainfall and temperature can affect process efficacy in outdoor settings, requiring more careful management
Long-term application of compost can improve nutrient availability in soils	Process requires adequate mix of nitrogen- and carbon-rich feedstocks
Application promotes plant growth, improves soils properties such as water retention, aeration and compaction	Source contamination issues can result in microplastics or chemicals such as PFAS in compost product
Large-scale facilities can handle a variety of feedstocks, including animal products, sewage sludge and digestate	Odours can affect neighbouring communities. Effective aeration mitigates this risk but may require additional investment e.g., compost turners or forced aeration system
When undertaken in communities, composting provides a range of social and environmental benefits	
Net emissions can be close to or better than net zero	

4.2.5.2 Hot Compost Boxes

Small-scale hot composting boxes are generally 1.2m cubes with a capacity of 1,700 litres. The centre of the boxes reach pasteurisation temperatures of over 55°C.

Multiple boxes with removeable sides enable simple turning. If managed properly, they produce good quality compost in around 3 – 6 months and are easily scalable.

[71] Beyond the Bin: capturing value from food waste (OPMCSA, 2024)

Boxes retail at $2,800 per box[72]. Self-built boxes could be produced at a lower cost; however, functionality and pest proofing are very important considerations for self-built boxes.

Figure 31: Vermin proof compost boxes for hot composting[73]

Considerations for hot composting include:

- Vermin and pest issues if odours are not managed effectively.
- Suited to combined food and garden waste or food organics with additional carbon-rich bulking agent.
- Reduced flexibility regarding feedstock acceptance.

Who is doing it?

Kaicycle Wellington (Kaicycle Urban Farm and Composting)

Wellington-based Kaicycle is an urban farming and community-scale composting enterprise that processes food waste for its local community and businesses. Kaicycle uses a subscription-based model, charging fees for collecting and composting food waste from households and businesses.

Food waste is collected around the community with e-bikes and trailers. They employ the equivalent of 4.5 FTE staff, split across full-time and part-time roles in the composting, farm, and community engagement arms of the enterprise. They currently pay at or above the Living Wage. Kaicycle also provides education and community engagement

[72] Shop - The CarbonCycle Company

[73] Urban composting – NUWAO

opportunities through public volunteer sessions, community events, workshops, and an urban farm school[74].

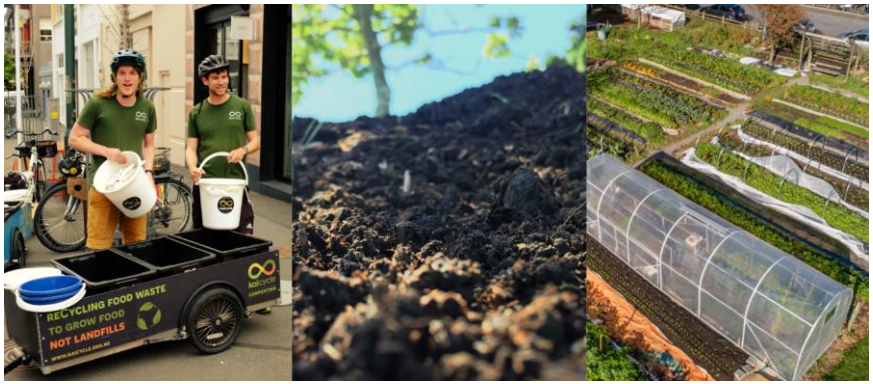


Figure 32: Kaicycle collection, composting, and urban farming

For businesses, Kaicycle provides one or more 20-litre Kaicycle collection buckets, and swaps them out for fresh ones each week. Households use a sealed container to collect food scraps during the week and drop this at a local compost hub at least once a week, to keep things (relatively) fresh. They provide a code to unlock the drop-off wheelie bin, where food scraps can be deposited, and compostable liners can be collected for the next drop off.

Table 18 summarises the costs for subscriptions for organisations and households.

Table 18: Kaicycle subscriptions costs

Organisation subscription cost	Household subscription costs
$90 per week	$20 per month

Figure 33: Hot compost boxes used by Kaicycle[75]

[74] Kaicycle pers comm (November, 2024).

[75] Our story — Kaicycle

There are restrictions on what Kaicycle can and cannot accept for composting, as shown in Figure 34.

Figure 34: Kaicycle and their hot composting box restrictions

4.2.5.3 Community In-Vessel Composting

This method involves feeding materials into a small vessel, such as a drum, silo, or similar enclosed equipment. In-vessel composting reduces odour impacts and can process a variety of organic materials without taking up much space.

In-vessel composting can be flexible with either food, garden or a combined feedstock potentially appropriate. A food only feedstock would require mixing with a carbon rich bulking agent e.g., garden waste, sawdust, or wood chips.

The process actively manages mixing and aeration during the initial phases of composting. Processes are typically designed for several days to weeks residence time with the product then 'matured' in conventional windrows outside. This means, in addition to the infrastructure associated with the in-vessel processing, space is also required for maturing on a pad with appropriate control of stormwater.

Considerations for in-vessel composting include:

- Higher capital costs
- Technically complicated requiring specific skills to ensure continued operation
- Management of odour including venting, materials reception and load out
- Compost maturation requires space for storing compost post the initial intensive in-vessel processing
- Suited to combined food and garden waste or food organics with additional carbon rich bulking agent
- Consenting challenges

Small in-vessel chambers, such as Ecobots[76], range in cost from $54,000 (50kg/day) to $65,000 (100kg/day)[77].

[76] Global Composting Solutions

[77] Dr Peter Robinson, pers comm (March, 2025)

Who is doing it?

Community Compost Nelson (Community Compost)

Community Compost Nelson is a social enterprise that collects and composts approximately 70 tonnes each year of food waste from homes, businesses, and events. They use bEartha, an in-vessel composting machine designed and built by the enterprise. bEartha continuously monitors the compost temperature with sensors, and automatically turns the compost with an electric motor and mixer when the highest optimal temperature is reached. This re-oxygenates and optimises conditions for the composting process.

bEartha also captures methane produced by the composting process using a biofilter, reducing both emissions and odours. Being contained "in-vessel", bEartha eliminates the attraction of pests such as rats and mice.

Community Compost Nelson provides a food scraps collection service. They collect from subscribers' doorsteps each week, collecting full buckets and replacing with clean ones.

Community Compost waste acceptance list is shown in Figure 35.

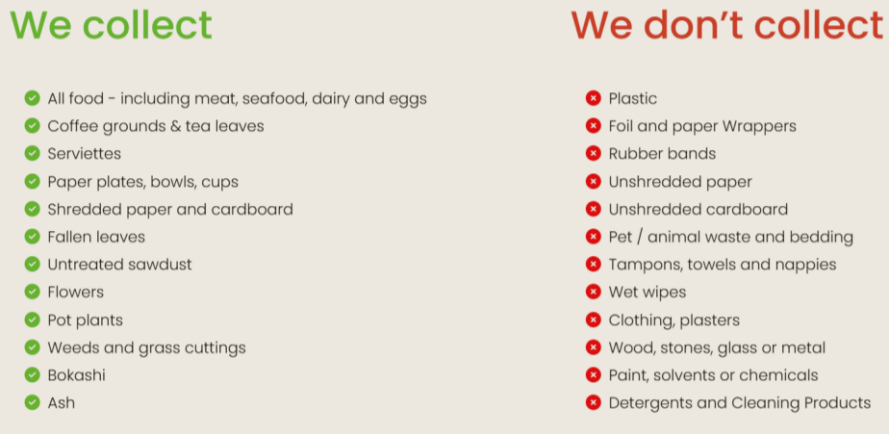


Figure 35: Community Compost Nelson's collection restrictions

Table 19 summarises the costs for subscriptions for households.

Table 19: Community Compost Nelson subscriptions costs

Household costs	
Pay as you go ($1,560)	$30 / week
Pay monthly ($1,300)	$25 / week
Pay annually ($1,400)	$20 / week

Unfortunately, at the time of writing, consenting challenges and associated professional services costs to resolve them, have resulted in the in-vessel composting facility being decommissioned for the foreseeable future.

Case Study in Success: Xtreme Zero Waste Raglan

Home - Xtreme Zero Waste - Whaingaroa, New Zealand)

Referred to as the 'go to' example for community operated schemes[78], Xtreme-Zero Waste Raglan (XZW) began collecting household food waste in the Waikato in 2017. They provide a range of services to the Raglan community to reduce its collective waste to landfill – some of which are delivered under contract with Waikato District Council.

The following information has been provided through interviews with Liz Stanway, Organics Team Leader, XZW undertaken in March 2025, and taken from XZW website.

Food scraps collection service

- Corn starch compostable bags are provided to users for sealing in food scraps before they are placed in kerbside bins. This minimises liquid and waste spillage and helps protect the H&S of collections staff.
- Raglan is divided into 4 sectors. Each sector gets their refuse (in user-pays pre-paid bags), their recycling and their food scraps picked up on the same day every week.
- Collection trucks are designed to hold a 1m^3 sealed metal bin, into which the collections staff tip kerbside food waste.
- 2,300 households are eligible through the rates-funded service to participate in the kerbside food scraps collection service which equates to a population of around 3,880.
- 90% of collections are within 5kms of Raglan centre, but the kerbside service goes out to 10kms from the centre.
- A rural recycling drop-off service is available for small communities up to 25kms from the centre.
- Businesses mostly give their food scraps to pig farmers, but recent waste audits have shown that there are food scraps and coffee grounds from businesses going to landfill. XZW is now re-offering organic waste collection for businesses. It is currently offered for free to get some businesses involved in the Kaupapa.
- Approximately 16 m^3 (or 8 tonnes) of food scraps are collected each month.
- Refuse services have been funded by a 'user pays' rates approach for over 25 years, and this is a key tool for motivating residents to recycle and minimise waste. Council collects the rates and contracts XZW to provide the food scraps kerbside collection service, the management of the transfer station and resource recovery centre, and the street bin collection service. XZW works very closely with Council on many aspects of the contracted services including H&S and waste minimisation education for the community.

Green waste

- A green waste drop-off facility is available, and this receives around 250m^3 (or 125 tonnes) per month.
- Volumes are very seasonal so maintaining a steady supply of mulch to meet food scraps composting needs requires proactive management.

[78] Including Kaicycle, Community Compost Nelson and EnviroSchools

- A Bandit mulcher is used to mulch the woody branch material. However, the Bandit can only mulch about 15% of the green waste and cannot manage larger materials, weeds, vines, cabbage tree leaves etc. A large mulcher company is still required every 6 months to mulch the difficult to mulch or larger material.
- At times, purchase of sawdust from the local sawmill is required during 'green waste droughts'. Sometimes this is free, and sometimes the cost is $15 per m^3.

Processing facility

- Once back at base, the metal bin on the collections truck is forklifted off and taken to the Horizontal Composting Unit (HCU) and tipped directly and immediately into the unit using a rotating head forklift.
- The HCU is an in-ground, enclosed concrete trough system, constructed with high-density, reinforced concrete. It is used for composting various organic wastes, including food waste, garden waste, and other biodegradable materials, but no biosolids.
- To achieve the correct C:N ratio for different compost 'recipes', XZW use the Living Compost Hubs App (described in 4.2.6)
- The HCU was built in 2017 with funding from the Waste Minimisation Fund (WMF), Waikato District Council and XZW investment. It measures 30m in length, 2m wide, and 1.9m deep, and is a controlled composting system, with moving lids and internal drainage. It holds approximately 200m^3 of compost at any one time.
- It was designed to take kerbside food waste mixed with shredded green waste and is turned regularly as it is moved from one end of the unit to the other. The mixture is hot composted through a natural process, reaching up to 65°C which kills weeds, seeds and pathogens. Food scraps compost takes 16 weeks to be sale ready, and green waste carbon compost takes about 6 months.

Figure 36: Raglan XZW Horizontal Composting Unit (HCU)

- The removable roof panels enable rain, humidity, temperature, odour and vermin to be controlled. The HCU does not require electricity although it does need a water supply to drive the compost process. There is a simple leachate collection system which is diverted back into the compost process or used for other organic processes.
- There are no automated aspects to the HCU process. The system was deliberately designed to be 'low tech', to avoid high capital expenditure and maintenance costs. The XZW site is located 60km from Hamilton and service call out costs are expensive.

- The HCU cost approximately $300,000 to construct and has an expected life of over 50 years. Since construction was completed, XZW added a concrete pad extension, storage bunkers, and a sea freight container and covered area.
- Auxiliary equipment required includes Bandit Mulcher (belongs to and is maintained by Waikato District Council), Case Tractor, Hyundai digger, Trommel sieving machine, compost bagger, sump pump, generator and bag stitcher (all owned and maintained by XZW).
- The processing facility, including the HCU, green waste reception and composting area, and bulk sale bunkers, is around 1000m^2, although XZW is looking to expand the operational area currently for mixing and storing high-value compost.
- 1.75 FTE are required to operate the HCU. The total hours are split across three part-time roles. However, the operation also relies on input from other XZW teams, including the maintenance crew and yard reception and payment crew.

Product and market

- Compost product is 'artisanal' which means the process itself creates the quality product and blending and additives are not required.
- Around 25m^3 per month of food scraps compost is produced, equating to around 300m^3 per year.
- Around 200m^3 of green waste compost is produced per year.
- All products are suitable for horticultural purposes, confirmed through laboratory testing with Hill's Laboratories against the compost standard.
- There are occasional bulk sales to local growers, however, most compost product is sold back to the local community.
- Main competitors would be Landscape Supplies in Raglan who sell bulk compost products. Furthermore, some people do still purchase compost from Hamilton from Bunnings, Mitre 10 or Palmers. XZW aims to be price competitive and position their brand as a high quality, 'living' compost without additives such as chicken manure or slow-release fertilisers. XZW also appeal to the community to support local initiatives that provide local employment and avoid unnecessary transport-associated carbon emissions that result from trucking compost across long distances.
- XZW sell a wide range of compost and worm-made products in both small and bulk volumes as summarized in Table 20.

Table 20: XZW product summary

Product	Description	Retail value
Superfood Compost	Composted food waste and shredded garden waste	30 litre bag - $14.50 Bulk scoop (0.3m^3) - $60
Sieved Carbon Compost	Medium nutrient compost	30 litre bag - $11.00 Bulk scoop (0.3m^3) - $25
Superfood Mulch	Coarse chip mulch	50 litre bag - $12.00 Bulk scoop (0.3m^3) - $25
Garden Mix	50:50 Carbon/Superfood Compost	30 litre bag - $12.00
Worm Tonic	Root boosting growth hormone for plants	2.25 litre bottle - $7.50 1.5 litre bottle - $5.00 500ml bottle - $2.00
Worm Castings	Enhance protection against disease	5 litre bag - $8.50

Figure 37: Compost products available from Xtreme Zero Waste[79]

[79] Closing The Loop On Compost - Xtreme Zero Waste - News

Financial model

- XZW is a community Not-For-Profit enterprise, so it is not profit-focused. Instead, XZW's goals include local employment and zero-waste initiatives.
- Income is generated through:
  - Contract with Waikato District Council for running the Transfer Station, delivering the recycling, refuse, and food scraps collection, and delivering the Open Spaces contract i.e., servicing street bins and litter collection
  - Business waste and recycling collections
  - Compost sales and green waste drop offs
  - Re-use sales through the Resource Recovery Centre
  - Materials sales including metal, cardboard, paper, plastics, glass, e-wastes, wood for hogging/chipping
  - Philanthropic grants for capital expenditure

Employment and training

- XZW currently employ 28 FTEs across their whole operation, including roles in management, finance, communications, administration, machinery operation, sales, technical composting, collections management, and site management, and other semi-skilled roles including runners, sorters, and shop assistants.
- Although aiming to pay at least the Living Wage, XZW currently pay just short of it.
- XZW provides opportunities for leadership, growth, and innovation. School leavers get support in first employment, including first aid training, drivers' licenses, and other certifications. One of XZW's key Kaupapa is supporting people into licencing and further training to increase skills and build confidence; with 121 licences and certificates gained over the past 2 years.

Issues management

- Contamination – a small amount of manual removal of waste contamination is required. However, XZW has built a positive relationship with its community over the years, and most contamination issues can be addressed through positive and fun communications, which makes the community feel part of the project.
- Odour – the HCU is turned once each week. This takes 2.5 hours and occasionally there are odour issues for one or two close-by neighbours, although this is dependent on humidity and wind direction. XZW try to minimise odour issues for the neighbours as much as is possible.
- Vermin – not a problem for XZW. The food scraps get loaded on the day of collection and the hot composting system is not 'rat friendly'. However, bait stations are used to ensure rat numbers are not an issue. The roofs keep seagulls and other birds out.
- Shortage of composting skills and experience – the biggest challenge for XZW has been learning how to manage the whole compost system and waste flows, this includes finding experienced staff who know how to compost. Quality, consistency and a diligent approach are key to sales and maintaining a loyal customer base. Training is therefore an essential part of any new hire.
- Long lead-in times – it took around 5 years to perfect the use of the HCU facility and establish a market niche and loyal customer

base i.e., there is a long turn-around time for compost to yield results for someone to think "I'll buy that again".

- Seasonal variation – there is a slight increase in food scraps in summer due to increased summer residency. However, there is also a mid-winter spike. Green waste fluctuates considerably in spring and autumn. Droughts or rainy periods affect green waste drop-off.

Key steps in XZW's journey

- 2012 – Food waste collections and composting trial
- 2014 – Waikato District Council LTP and Raglan Resident Surveys shows support for a food waste collection service
- 2016 – WMF fund Waikato District Council to roll-out food waste collection service and composting consent granted
- 2017 – construction of HCU
- 2019 – Waikato District Council ceases funding food waste collection
- 2020 – XZW and community fund raise to keep food waste collection going and XZW team grows to over 40 staff
- 2022 – Waikato District Council reinstates funded food waste collection
- 2023 – merged with the Whaaingaroa Environment Centre

Relevant Raglan/Whaaingaroa demographics

Raglan, with a population of over 3,800 people[80], is of a similar size to Westport or Hokitika and shares some of the West Coast's waste management challenges, including significant summer tourist surges which can triple or quadruple the population[81].

The Raglan community's socio-economic deprivation profile is slightly better than the West Coast region's having improved significantly over the past decade – moving from an average deprivation of 8 (where 10 is the most deprived) in 2013, to the national average of 5 at the end of 2024 (Figure 38). This means that there will currently be a greater proportion of residents able to afford user-pays schemes such as food waste collection services. This may have contributed to XZW's more recent significant success.

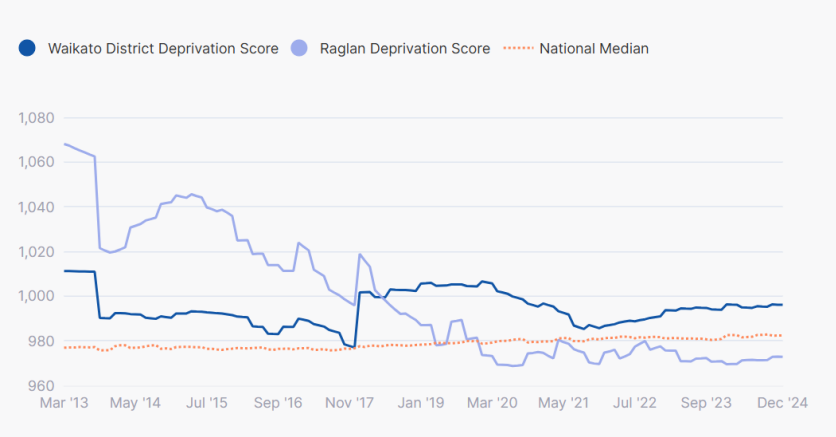


Figure 38: Raglan's improvement in socio-economic deprivation from 2013 to 2024, against the rest of the Waikato District (dark blue line) and the national average (red dotted line)

[80] DotLovesData

[81] www.waikatodistrict.govt.nz

4.2.6 Supporting Technology

The Living Compost Hubs app (app.livingcomposthubs.org.nz), used by XZW and Kaicycle, provides compost information management software that tracks data, provides summary impact reports, and manages food waste customers.

Costs range from:

- Free – for small community composting clubs handling approximately 15 tonnes of compost inputs annually,
- $350 per annum – for small to moderate sized composting operations handling approximately 30 tonnes of compost inputs annually,
- $800 per annum – for moderate sized composting operations handling approximately 50 tonnes of compost inputs annually
- Custom design – for larger operations, a customised package is available

Figure 39: Living Compost Hubs app

4.2.7 Larger-Scale, Council Led or Commercial Options

4.2.7.1 Larger-Scale Composting

For the purpose of this Study, larger-scale options are industrial in scale and process more than 5 tonnes per week. This scale is more applicable to the Grey District scenario.

Larger scale composting comprises a range of approaches, including combinations of:

- Open windrows with turned piles or static piles
- Vermicomposting
- Closed (in-vessel) systems

In 2021, there were 62 active larger-scale facilities that process organic waste in New Zealand, including wood and timber waste, garden waste, animal manures, commercial sludges, and other putrescibles. Most facilities were composters, the most common type being windrow composting (40%) followed by in-vessel processing (15%), vermicomposting (11%), aerated windrow (8%) and mulching (8%)[82].

Open Composting with Windrows

Windrow composting systems are aerobic systems that utilise bacteria that exist in the presence of oxygen. The construction and composition of the pile is important. Anaerobic decomposition utilises bacteria that exist in the absence of oxygen. This is slower and produces methane and ammonia, which has an unpleasant odour. Composting aims to avoid anaerobic decomposition.

[82] Beyond the Bin: capturing value from food waste (OPMCSA, 2024).

Windrow composting is typically used for the processing of garden waste. There are examples in New Zealand of this approach being used for combined food and garden or organics (such as Capital Compost in Wellington) or the processing of other putrescible materials (BioRich in Napier).

Outputs are compost (soil conditioner) suitable for residential (garden centres), council (parks and gardens) and commercial (horticultural) applications.

For an industrial-scale open windrow composting facility, process equipment considerations are summarised in Table 21.

Table 21: Process equipment considerations for composting facility[83]

Process	Equipment
Material acceptance (storage and handling)	Hopper Conveyor or vehicle to load macerator – scale dependent, however most likely vehicle is a front-end loader Air extraction system (odour control)
Decontamination of food waste	Decontamination conveyor Air extraction system (odour control)
Pre-processing of food waste	Macerator Air extraction system (odour control)
Pre-processing of green waste	Shredder / chipper Conveyor or vehicle to load shredder / chipper – scale dependent Concrete pad (outdoors)
Blending – food and green waste	Blender bowl with a twin auger mixing system, or similar Conveyor or vehicle to load macerator – scale dependent, however most likely vehicle is a front-end loader Air extraction system (odour control)
Primary composting	Dependent on methodology used Air extraction system (odour control)
Secondary composting (curing)	Front-end loader, or similar, for turning of curing material
Product refinement (dependent upon end use)	Screens Bagging machine Blender for amendment of compost with other materials

[83] WasteMINZ

Process	Equipment
	Loader to transport / load out product (separate to that used for untreated wastes to avoid recontamination of product with pathogens)
Monitoring	Temperature probes Facility inputs and outputs e.g., weighbridge

Turned Windrows

Open window composting involves forming organic waste into long windrow piles in the open air. The windrows are typically 1.2 – 2.5 metres high, and 4.2 – 5.5 metres wide at the base. This size pile is large enough to generate enough heat and maintain temperatures. The windrows require regular turning to improve oxygen content, distribute heat, and regulate temperature. The compost maturation process typically takes 2 to 4 months, depending on ambient conditions and maturity requirements. These systems are suitable for processing garden waste.

Turned windrow composting is suited for larger volumes such as that generated by entire communities and collected by local governments, and high-volume food-processing businesses (e.g., restaurants, cafeterias, packing plants). It yields significant amounts of compost.

Considerations:

- Higher labour costs associated with turned composting than a static pile system
- Windrow composting often requires large tracts of land, sturdy equipment, a continual supply of labour to maintain and operate the facility, and patience to experiment with various materials mixtures and turning frequencies
- In rainy climates, the shapes of the pile can be adjusted so that water runs off the top of the pile rather than being absorbed into the pile
- Windrow composting can work in cold climates. Often the outside of the pile might freeze, but in its core, a windrow can reach 60°C
- Leachate can contaminate local ground water and surface-water supplies and needs collection and treatment
- Odours need to be controlled. The public should be informed of the operation and have a method to address any complaints about animals or bad odours.

Static Windrows

Static windrows (also known as aerated static piles) do not require manual turning, instead they are actively aerated by fans or blowers that force air into the windrow. It involves a system of perforated pipes to circulate air through the composting mass. The compost pile therefore remains static (not turned) during the primary composting phase. Active aeration offers better process control for rapid biodegradation and is more effective at maintaining required moisture and oxygen levels than manually turned windrows. The composting cycle is also often shorter, with some systems requiring only 30 days till product maturity.

Aerated static windrow composting is suitable for a relatively homogenous mix of organic waste and works well for larger quantities of green waste and compostable municipal solid waste (e.g. food scraps).

Considerations[84]:

- Electricity supply is required
- Since there is no physical turning, this method requires careful monitoring to ensure that the outside of the pile heats up as much as the core
- May require higher cost and technical assistance to purchase, install, and maintain equipment such as blowers, pipes, sensors, and fans
- Having a controlled supply of air allows construction of large piles, which require less land than the turned windrow method
- Applying a thick layer of finished compost over the pile helps alleviate any odours

Who is doing it?

BioRich (BioRich Ltd. \| Composting & Green Waste Management \| Awatoto, Napier)

BioRich use a combination of turned and static composting processes to produce around 40,000 cubic metres of organically certified compost annually. This is produced on its two consented compost sites in Hawke's Bay. The compost is made from a mixture of animal manures, fish waste, paunch grass from abattoirs, waste from food and petfood manufacturers, fruit waste from packhouses and grape waste from wineries. No human waste is included. Bulking material such as bark, sawdust, and shredded municipal green waste is added to the mix to create the optimum carbon-to-nitrogen ratio.

Once the mix is combined, it is placed into aeration bins so that it receives ample oxygen and is maintained at the correct temperature. After 10 to 14 days in the bins the compost is placed in windrows and turned as required for the next 3 to 9 months (Figure 40).

Figure 40: BioRich compost windrows[85]

BioRich supply a range of commercially available compost products (Figure 41).

[84] Kaipara District compost needs assessment (2020)

[85] Waste Management Services | Awatoto, Napier | BioRich Ltd.

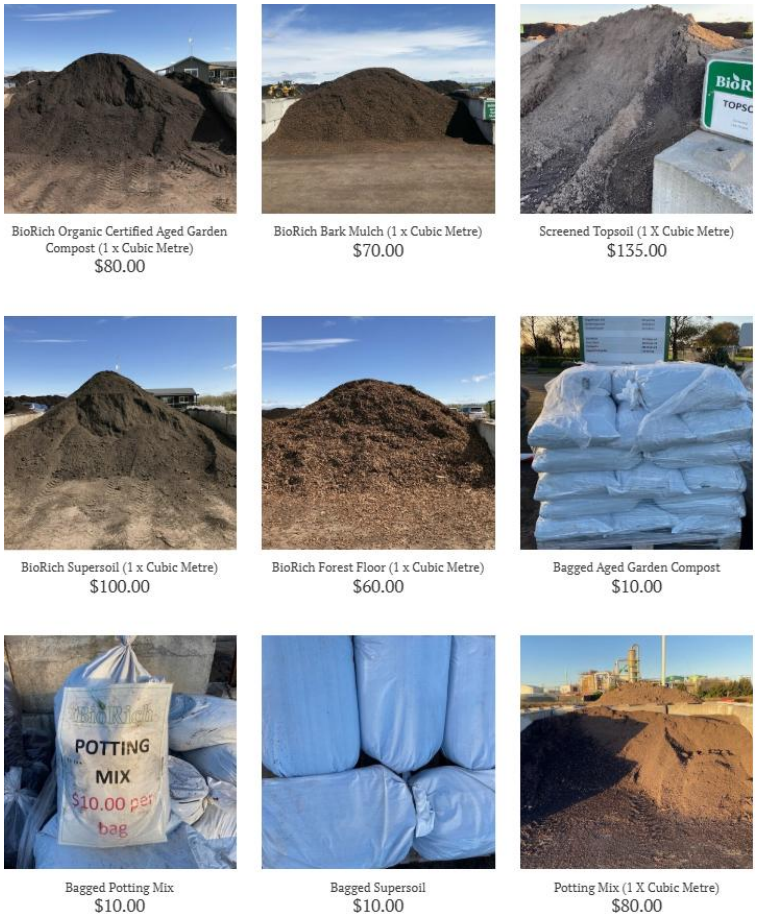


Figure 41: BioRich compost product range

Who is doing it?

EnviroFert (www.envirofert.co.nz)

EnviroFert operates a forced aeration static window composting site in northern Waikato. The facility processes regional green waste, along with food waste and a limited amount of compostable packaging from WeCompost in Auckland. The entire focus of the operation is on the quality of resulting compost, which is made to meet the nutrient requirements of 6-8 large fruit growing customers.

The EnviroFert site is 28-hectares adjacent to the Waikato River. Only 6 hectares are used for composting, with the remainder used to manage and spread leachate. These paddocks are not grazed but are used to grow hay and maize for sale and to reduce nitrogen levels. Gaining and retaining resource consent is one of the biggest challenges for any commercial composter, with the site holding 21 consents[86].

The site takes 30,000 – 40,000 tonnes of inputs (6-8 tonnes food waste and 30 – 40,000 tonnes green waste) per annum. Carbon sources include compostable packaging, sawdust (non-tanalised) sourced from furniture manufactures, wood from shredder, gypsum dust from GIB factory and wood bark from Tauranga wharf.

Capital costs were approximately $1.8M for a shredder and screener system.

EnviroFert produces 15,000 – 20,000 tonnes of high-grade nutrient rich compost per annum, which is screened to 12 – 14mm. Each windrow takes 9 – 10 weeks, plus a maturation period.

[86] Kaipara District compost needs analysis (2020).

Vermicomposting

Vermicomposting uses worms to process organic materials and can take a high proportion of putrescible materials. As a general starting point, food scraps only collections pair well with vermicomposting, as well as anaerobic digestion. Vermicomposting is also employed in some areas processing wastewater solids, municipal biosolids, drilling muds and food waste. Outputs are worm castings which are considered a high-quality soil conditioner appropriate for horticulture and gardens.

Who is doing it?

MyNoke (https://www.mynoke.co.nz/)

MyNoke is the largest vermicomposting operation in the world by volume. The largest of MyNoke's sites is 25 hectares in area and processes 70,000 tonnes of organic waste each year.

Organic waste materials from New Zealand industry and local councils, among others, are accepted at three worm farm locations, known as vermicomposting sites, where carefully managed proportions of carbon-rich wastes (paper and cardboard waste, wood, pulp mill solids, and others) are mixed with nutrient-rich organic wastes (biosolids, food waste, DAF sludge, animal skins, paunch, and others) to create the optimum 'feedstock' for earthworm species.

MyNoke currently operate three sites in New Zealand, all in the North Island – Tokoroa, Taupō and Ohakune. There is currently interest in establishing additional sites in 10 regions across the country, with three of these being in the South Island – Christchurch, Timaru, and Invercargill[87].

All waste streams are delivered to large concrete pads where the various waste feedstocks are mixed according to MyNoke's proprietary worm food recipes (Figure 42).

Figure 42: Taupō concrete pad reception area (left), mixer (right) and loading mixer (bottom)

The mix is then driven out onto the farm and laid out in windrows for around 18 months (Figure 43).

[87] Essence of MyNoke Feb 2024.pdf

Figure 43: Windrows at the MyNoke Ohakune site

The windrow breaks down and reduces volume by about 80%. Once mature, the vermicast product is harvested and run through a screener machine which screens out unwanted contaminants.

The vermicast product is in high demand where there is a full understanding of the importance of enhancing soil fertility to improve health[88]. MyNoke worm castings currently sell in 17 litre bags retail for $29. Bulk 1000 litre product is also available upon request.

The expansion of farms throughout New Zealand is a key component of MyNoke's strategic business plan. Expansion opportunities hinge on several required steps to establish new sites, significant amongst these is having adequate organic waste streams available in the region, council resource consents being approved and local Iwi approvals in particular regions where sites are being considered. Technical feasibility is reliant on land availability requirements and access to the appropriate volumes and types of organic feedstocks.

Enquiry as part of this Study regarding potential interest in a West Coast site unfortunately yielded limited results, with initial enquiries leading to this statement:

> *"Though there is clearly a local need for a sustainable solution, establishing a vermicomposting site in a remote location with relatively small organic waste volumes would not necessarily be a top priority for us at this point in time. We just don't have the resource currently available to make this happen, but having funding confirmed could change this."*[89]

Follow up did not achieve further response from MyNoke.

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[88] Natural Fertilisers Bulk Earthworm Compost & Soil Enhancers | MyNoke Products

[89] Jenny Ford MyNoke, pers comm (June, 2023)

Commercial or Council In-Vessel Composting

Industrial scale in-vessel composting can process large amounts of waste without taking up as much space as the windrow or vermicomposting methods and can accommodate virtually any type of organic waste (e.g., meat, animal manure, biosolids, food scraps). Organic materials are fed into a drum or silo or similar equipment. This allows good control of the environmental conditions such as temperature, moisture, and airflow. The material is mechanically turned to mix and aerate the materials. The size and capacity of the vessel can vary.

This method can produce compost in just a few weeks. However, some systems generate a product that requires a maturation process before it is ready for use.

Considerations:

- Vessels come in various sizes and cater to a range of composting requirements, with the larger units being over 20 metres long, and able to cater to up to 15 tonnes of organic waste per day.
- This method requires considerable capital investment and often requires technical expertise to operate properly.
- Careful control, often electronically, of the climate allows year-round use of this method.
- Very little odour or leachate is produced.
- Uses much less land and manual labour than windrow composting or vermicomposting. However, some land may be required if a maturation stage is required.

Who is doing it?

Global Composting Solutions (In-vessel composting \| Global Composting Solutions)

Estimated capital costs in Table 22 are for HotRot systems from Global Composting Solutions and based on calculated volumes of annual recoverable food waste volumes in each district.

Table 22: Estimated capital costs for larger in-vessel composting units

	Buller District	Grey District	Westland District
Recoverable annual food waste volume (t/year)	161 Small scale	822 Moderate scale	190 Small scale
In-vessel description	A small Ecobot at Reefton A HotRot 1206 in Westport	A HotRot 1811 in Greymouth	A HotRot 1206 in Hokitika
Associated capital cost[90]	**$435,000***	**$740,000**	**$370,000**

*$65,000 (Reefton) and $370,000 (Westport)

[90] Dr Peter Robinson, pers comm (March, 2025)

Importantly, HotRot units require a carbon source, such as wood waste, bark, or woody garden waste, for addition to the food waste at a ratio mix of 1:3.

Ecobots are more suited to smaller volumes (up to 150kg of food waste per day) and differ from HotRot systems in that they are suitable for food waste only but do require more power and produce a soil supplement that must be mixed in with soil in use.

Smaller Ecobots could be used in smaller settlements such as Karamea, Franz Joseph, Fox and Haast. These range in cost from $54,000 (50kg/day) to $65,000 (100kg/day).

Figure 44: HotRot 1206

Figure 45: HotRot 1811

Anaerobic Digestion

Anaerobic digestion is a series of biological processes in which microorganisms break down biodegradable material in the absence of oxygen. It is in essence the same process by which organic material degrades in a landfill, but the digestion occurs in a sealed tank. It is a specifically engineered and controlled process. Anaerobic digestion of organic waste produces biogas, a renewable energy source, and digestate, which can be used as fertilizer.

Anaerobic digestion is suited to putrescible materials including industry wastewater solids, municipal sewage sludge and food waste. It is a relatively straightforward process for large scale commercial/industrial

waste generators but more challenging with inherently variable feedstocks such as household food waste. 'Shocks' in the quantity or strength of feedstock can result in process failure or overproduction of gas.

This technology is used to process high volumes of food waste with economic viability reached at 10,000 tonnes per annum[91].

Who is doing it?

Ecogas (Reporoa Organics Processing Facility — Ecogas)

The Reporoa Ecogas facility in Waikato turns 75,000 tonnes of organic waste, from businesses and kerbside food scrap collections throughout the North Island, into renewable energy products (electricity, heat and biogas) as well as fertiliser. A centralised collections and sorting facility in Papakura acts as the central collection point for the organic kerbside collections for Auckland City. Once received from the kerbside collection trucks, the organic matter is separated from stray inorganic material like plastic and metal and consolidated into larger trucks and then transported to Reporoa on backhaul trips.

A second Ecogas facility is earmarked for Christchurch, subject to regional consent acquisition.

An enquiry to Ecogas (via Otautahi Christchurch Organics Processing Facility — Ecogas contact webpage) was made in February 2025 regarding the potential for receiving the West Coast region's food waste. At the time of writing this Study, no response had been received.

Other Processing Options

Other options, not considered further due to high upfront cost, insufficient waste volumes, and other incompatibility reasons include:

- Pyrolysis
- Gasification
- Hydrothermal deconstruction

[91] Organic Waste Collection and Processing: guidance for local authorities (WasteMINZ, 2024).

CHAPTER 5

FURTHER CONSIDERATIONS

Chapter 5: Further Considerations

Summary:

- Market potential ranges from approximately $150,000 to $450,000, based on the divertible organic food waste volume and end use product quality
- The West Coast's demand for soil amendment products (such as compost) exceeds the volume that could be produced and supplied on the West Coast using residential organic food scraps feedstocks
- Mine rehabilitation demand presents a significant opportunity for high volumes of soil amendment product
- Other potential markets include councils, retail, horticulture, and agriculture
- Potential cost savings for councils from organic waste diversion are modest, equating to approximately $40,000 across the region per annum, based on a 30% diversion rate
- Greatest cost savings would accrue in the Buller District due to current transportation distances to York Valley in Nelson
- Wider socioeconomic benefits from waste minimisation include job creation, with an average 6 – 8 jobs created compared to one job created via sending waste to landfill
- Kaicycle employs 4.5 FTE across composting, urban farming and community gardening operations
- Xtreme Zero Waste employs 26 FTE across waste collection, processing, management, and retail operations
- GHG emission reduction potential from diverting West Coast food scraps from landfill equates to 2,280 tonnes of CO_2e per annum, equivalent to taking 3,000 cars off the road

5.1 Market Potential

The sale of an organic waste processing end product is essential to the ongoing financial viability of any organics processing operation. This section provides a high-level overview of current compost product demand and potential supply and market value for West Coast product. Potential end markets for processed end product are also noted.

5.1.1 Current Demand

A high-level analysis of the existing market for soil amendment, mulch and composting products was undertaken across the West Coast region. Currently, there is between 3,500 – 4,000 tonnes of product sold commercially in the region each year. All product is sourced external to the region, predominantly from Nelson and Canterbury.

5.1.2 Potential Supply

Based on existing food scraps volumes produced in urban centres across the region, and factoring in a potential 30% diversion rate, the estimated maximum volume of product that could be produced on the West Coast is 550 tonnes per annum.

Therefore, even if food scraps collection and processing was maximised, it is unlikely that current regional demand would be exceeded with a West Coast produced product, and some importation of significant product would still be required.

5.1.3 Potential Product Value

Based on estimated volumes and advertised retail rates for a range of compost products, the potential value for a West Coast compost product could range from around $150,000 per annum for lower quality, bulk product to around $450,000 per annum for a premium, small volume, retail product.

5.1.4 End Product Markets

The value and use of the processed organics materials differs substantially depending on the type, location, quality and quantity of materials.

Council Use

Council operations typically use composts and soil conditioners for landscaping (parks and gardens) and land stabilisation. Providing products of appropriate quality for supply to council can support an 'internal market' by utilising the compost produced in the region using food and/or green material managed by the council.

Retail

There is an active retail market for compost with bagged product available from landscaping and garden suppliers and retailers e.g. Farmlands and Mitre 10. Bulk compost is sold by landscaping and garden supplies yards.

Mine Rehabilitation

The West Coast operates several large-scale mining operations with stringent land rehabilitation and mine closure requirements. Very large volumes of soil amendment products can be required to reinvigorate sterile stockpiled soils and improve plant growth rates.

Current demand for mine rehabilitation is being met from outside of the region.

Horticulture (crops and native plants)

Horticulture, although limited on the West Coast, is an important market for compost and soil conditioners across New Zealand. Organic certification has become a de facto standard for this market with BioGrow and Assure Quality the key certification providers.

Application rates to horticulture crops are dependent on the local soil requirements including limits on maximum nutrient loading. As each compost product has a different nutrient content, the maximum application rates can differ.

Plant nurseries have very specific requirements and would require a bespoke, high-quality product to compete with existing Nelson- or Canterbury-based suppliers. A compost produced at a high enough temperature i.e., > 65°C to remove pathogens and weed seed viability, that was frequently turned and covered to exclude rain until it composted to less than a tenth of its original bulk, could be added to aged bark as an organic potting mix. Advice received was that this would be a "fabulous product"[92].

Grassland and Arable Crops

Products from organic processing such as compost can be applied to land used for growing crops or for dairy, beef and sheep farming. The application rates of compost to grasslands differ from the application rates for horticulture.

[92] Lisa McDowell, native plant nursery owner, pers comm (September, 2024).

5.2 Cost Savings from Food Waste Diversion

There are some modest potential cost savings from food waste diversion to be realised as summarised in the following sections.

5.2.1 Buller District

- Current cost for disposing of 161 tonnes of food waste per annum to York Valley landfill in Nelson is $65,205
- A 30% waste diversion rate would result in cost savings of $19,600 in disposal, transport and Waste Disposal Levy costs per annum
- Given Buller District Council operates a user pays system, these potential savings would go directly to ratepayers

5.2.2 Grey District

- Potential savings relate to the reduction in Waste Disposal Levy payments @ $65 per tonne
- A 30% waste diversion rate would result in cost savings of $16,000 that would go to the Council

5.2.3 Westland District

- Potential savings relate to the reduction in Waste Disposal Levy payments @ $65 per tonne and transport @ $20 per tonne
- A 30% waste diversion rate would result in cost savings of $4,850 that would go to the Council

Regional annual cost savings to be realised from 30% food scraps waste diversion rate would equate to $40,450.

The Waste Disposal Levy is signalled to increase to $75 per tonne by 2027, resulting in further modest additional potential cost savings.

5.3 Wider Economic and Community Benefits

On average, waste minimisation, prevention and reuse creates 6 – 8 jobs compared to one job created through sending waste to landfill. It is estimated that for every $1 paid in wages to a community-based employee, local economic activity increases by $2.80 due to local staff spending[93].

Community organisation-led organic waste collection and processing initiatives in New Zealand report several non-market benefits as a result of their operations. These include:

- Economic diversification and local jobs, such as collection, processing, and compost distribution, which can be accessible to residents facing employment barriers
- Improved soil health for urban agriculture, community gardens, local food systems, and green infrastructure projects
- Social inclusion and empowerment, including participation from diverse groups in local sustainability efforts
- Delivery of local programs co-designed and managed by community members that reflect local needs and priorities

[93] Waikato District Council 2017 Waste Assessment pg. 42-43.

- Functioning as community for environmental education, offering hands-on learning opportunities for all ages and raising awareness about sustainable practices.

5.3.1 Kaicycle

- Employ 4.5 FTE across composting, urban farming and community gardening
- Pay Living Wage
- Deliver education for high school students as part of a year-long NCEA accredited programme

5.3.2 Xtreme Zero Waste

- Employ over 26 FTE
- Almost pay the Living Wage
- Offer leadership, growth, and innovation opportunities to team members
- More than just a job – their Kaupapa is about supporting people into licensing and further training to increase skills and build confidence

Figure 46: Kaicycle and XZW report a wide range of community benefits from their operations

5.4 Emissions Savings

In terms of the West Coast's food waste diversion potential, the total potential CO_2 savings from diverting 1,200 tonnes of food waste from the waste stream each year would be approximately 2,280 tonnes of CO_2e.

This is roughly equivalent to taking 3,000 cars off the road[94].

5.5 Consenting Requirements

All activities that have the potential to adversely affect the environment are regulated by the Resource Management Act 1991 (RMA). Specific controls are set out in district and regional plans and vary between districts and regions.

5.5.1 District Plans

The region's three district plans are currently being reviewed and combined into the Te Tai o Poutini Plan which is likely to become operational within the coming 12 – 18 months. Until this happens, each district plan remains operational and has specific consenting requirements.

Most composting operations will require a land use consent from the district council. District plans specify where composting is permitted, controlled, restricted discretionary, discretionary, non-complying, or prohibited. The district plan addresses land use issues such as site location, proximity to sensitive land uses (e.g., residential areas), and zoning requirements.

District plans include controls to reduce adverse effects on public health and amenity, including:

- Odour management
- Vermin and pest control
- Noise limits
- Traffic impacts from increased vehicle movements
- Dust generation and mitigation

5.5.2 Regional Plan

While district plans focus on land use and amenity issues, regional councils regulate discharges to air, land, and water, and may require additional consents for these activities.

If a composting operation plans to bring waste in from other properties (i.e., not solely from the site), or if there is risk of environmental effects, such as water contamination, a regional council resource consent would be required. There may also be regional air quality requirements regarding dust discharges from compost stockpiles.

Larger-scale or commercial composting operations, or those involving non-biodegradable or hazardous materials, would require consent. The Council may impose controls related to treatment systems, design and operation, storage capacity, maintenance, monitoring, and contingency planning if a consent is required.

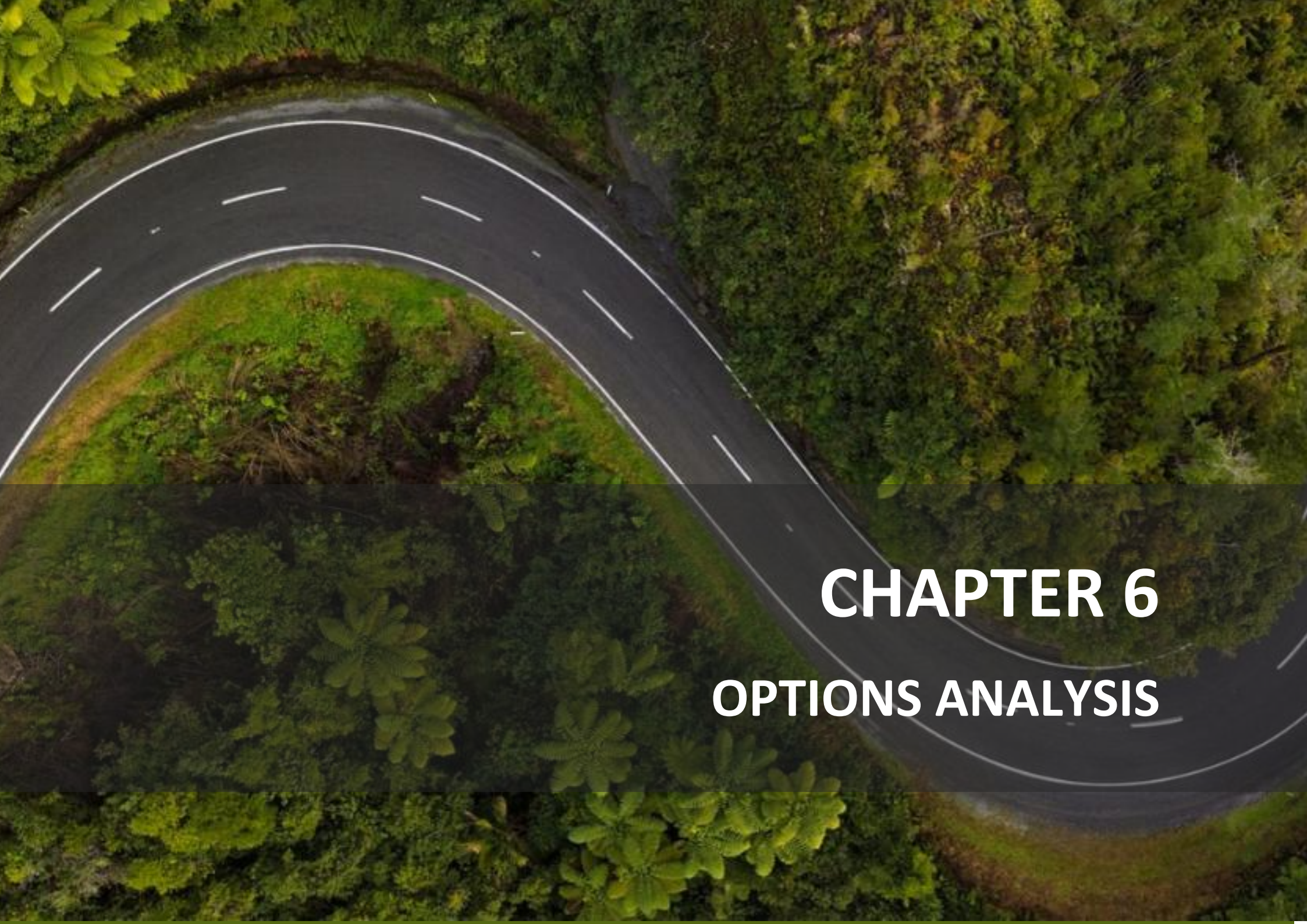
Applications for consent should provide comprehensive information so that affected parties, and the council can understand the activity and its potential impacts. Applications should demonstrate how potential effects would be managed, often through a detailed site management plan and proposed monitoring programme. The management plan should detail

[94] Kaipara Feasibility Study (2020).

acceptable feedstocks, stockpile locations, maximum residence times, preparation methods, and record-keeping for incoming materials.

If the consenting authority determines that the composting proposal will have only minor adverse effects and affected parties have given written consent, the application may be processed as non-notified, speeding up approval. Early engagement with potentially affected neighbours and stakeholders is recommended to address concerns and avoid delays.

Once consent is granted, consenting authorities monitor compliance, which may involve annual administration charges and requirements for regular reporting.



CHAPTER 6

OPTIONS ANALYSIS

Chapter 6: Options Analysis

6.1 Long List of Options

The collections and processing option combinations that could feasibly work in practice are shown in Table 23.

Table 23: Collections and Processing Options Matrix

Collection option	Processing option			
	Avoid food waste	At home processing	Community processing	Industrial processing
No collection	Education	x	x	x
Collect at home	x	Education; equipment subsidies	x	x
Drop-off	x	x	In-vessel; windrowing; hot box	x
Community-led township kerbside collection	x	x	In-vessel; windrowing; hot box	x
Council-led district kerbside collection	x	x	In-vessel; windrowing	In-vessel composting; windrowing
Council-led regional kerbside collection	x	x	x	In-vessel composting; windrowing; vermicomposting; anaerobic digestion

6.2 Assessment Methodology and Evaluation Criteria

Summary:

- Evaluation criteria were developed to assess the 16 long-listed options
- Two priority evaluation criteria were identified – 'cost' and 'diversion potential'
- Six further evaluation criteria were identified, including:
  - Economic and community wellbeing outcomes
  - Value from waste and market potential
  - Technology maturity and reliability
  - Technical constraints
  - Alignment with national and regional strategy
  - Stakeholder, iwi and community perspectives (not already addressed)
- The two priority criteria were used to screen the 16 long-list of options, and resulted in 7 short-listed options for further consideration
- The short-listed options were assessed against the full evaluation criteria, and the resulting 4 final options were described and analysed

The following factors have been used to identify and define a set of criteria to evaluate collections and processing options and confirm the best approach for the improved management of organic waste streams across the region:

- Tai Poutini / West Coast's notable regional characteristics and constraints
- Relevant national and regional policies and plans
- Iwi and Hapū perspectives
- Stakeholder and community priorities

Evaluation criteria are included in Table 24.

Table 24: Evaluation criteria for collection and processing options assessment

#	Criteria	Why is this relevant and what do we need to consider?
1	**Affordability and cost effectiveness**	**Existing community socio-economic deprivation (especially in northern West Coast), rates affordability issues, and cost-of-living crisis continuing into first quarter 2025. Waste Disposal Levy is currently $65/tonne and signalled to increase to $75/tonne by 2027[95].** **In response, we need to consider the following:** • **Costs need to be acceptable for households.** • **Maximising cost-effectiveness of the establishment phase and ongoing operation of the service or facility.** • **Maximising market value from organic waste product.** • **Explore community or industry partnerships that increase affordability.**
2	**Organic waste diversion and reduction in GHG emissions**	**Driven by both national and regional strategies. Considerable environmental benefits. Extending the life of landfills by reducing waste volumes. Reflected in Iwi and Hapū, stakeholder, and community perspectives.** **In response, we need to consider:** • **How to maximise the recovery of organic waste.** • **Emissions reduction as a key environmental performance indicator (KPI).** • **Transportation emissions as a secondary emissions source.**
3	Economic and community well-being outcomes	Economic diversification is very important for the West Coast. The creation of new employment opportunities has been identified in multiple regional and local strategies focused on improved economic and community well-being. In response, we need to consider: • Operational models that best support local economies. • Jobs that may be created through waste diversion options. • Educational and other community opportunities.

[95] Factsheet: Waste Levy changes - 30 May 2024

#	Criteria	Why is this relevant and what do we need to consider?
4	Value from waste and market potential	Creating a viable, marketable product capable of enabling economic returns to offset organic waste collection and processing costs. Options analyses need to consider the delivery of a product at a quality suitable for existing regional markets.
5	Technology maturity and reliability	Multiple technological solutions are available for organic waste processing. Options must be sufficiently mature and reliable to minimize risk and be appropriate for the West Coast. Waste volumes vary, depending on seasonally influenced activities such as tourism and home gardening, which peak in the warmer seasons. Waste streams from industry or commercial operations may be accessed under future collaborative agreements. In tourist hot spots, commercial food waste provides further opportunities to reduce waste to landfill and associated costs. Options analysis needs to consider: • Retaining flexible infrastructure to accommodate scalability should other waste streams be identified, particularly from industry or tourist hotspots. • Enabling future innovations through the ability to pilot or adapt if improved technologies or systems are developed. • Processing location(s) should be strategic with opportunities for wider collaboration.
6	Technical constraints	The West Coast presents specific challenges to organic waste collection and processing, including low organic waste volumes, towns and settlements with sparse populations, and limited large-scale carbon feedstocks not already being utilized. Feedstock quality dictates the quality of the end product. Contaminants like heavy metals, microplastics, and 'forever-chemicals' are particularly difficult to manage. Site requirements vary depending on options. Options analysis needs to consider: • Organic waste feedstocks, volumes, locations, and seasonal fluctuations. • Availability of carbon feedstocks to achieve effective process ratios (for composting). • Risk of over-capitalisation. • Controlling input quality. • Site(s) need to match processing option(s) requirements.

#	Criteria	Why is this relevant and what do we need to consider?
7	Alignment with national and regional strategy	The 2023 NWS signals a move towards circular economy, with the first phase of the NWS focus on embedding circular thinking into our systems. The ideal scenario is that organic materials are eventually returned to the soil to enrich it. The WMMP (2024) prioritises: • Increased circular activity. • Reduced emissions and improving environmental indicators. • Value recovery from waste. • Regional collaboration. Our approach must: • Maximise the diversion of organic material from landfills. • Reduce GHG emissions (including those from waste transportation). • Be a shift towards a circular economy. • Leverage systems thinking and regional opportunities to recover value. • Consider opportunities for a network of regional facilities.
8	Stakeholder, iwi and community perspectives (not included above)	Stakeholders include West Coast District Councils, Ministry for the Environment, and Development West Coast. Iwi include Ngāti Waewae and Makaawhio. Community is represented by community responses to surveys, and additional feedback received from other community groups and EnviroSchools. Additional priorities to consider include: • Community preferences for collection frequency, types of wastes (food only, or FOGO) and funding models. • Community driven solutions and community delivered education. • Ways to support other community initiatives and aspirations like Maraa Kai, community composting, and local food production. • "Local is best" – waste produced and processed on Te Tai Poutini should be used on Te Tai Poutini. • Avoid importing materials into the region from outside, especially human biosolid waste. • Protection of rivers and waterbodies (wai). • Apply circular systems thinking – organic waste is not 'waste'. It is a resource that should be used and returned back to build our soils. • Consider full lifecycle costs. • Consider intergenerational benefits, including future employment and educational opportunities.

The first two highlighted criteria in Table 24 have been treated as **'priority criteria'** to screen the long list of 16 combinations shown previously in Table 26.

- Affordability and cost effectiveness was rated on a comparative scale from 1 – 5, where a high score of 5 means the option has very low comparative cost requirements (capex and first year opex).
- Organic waste diversion and reduction in GHG emissions was rated on a comparative scale from 1 – 5, where a high score of 5 means the option has very high comparative waste reduction potential.

Table 25 shows the comparative rating methodology applied.

Table 25: Priority criteria rating methodology.

1. Cost score (1 – 5) 2. Waste reduction potential score (1 – 5)	**Cost** 1 = very high comparative cost (capex and first year opex) 2 = high comparative cost (capex and first year opex) 3 = moderate comparative cost (capex and first year opex) 4 = low comparative cost (capex and first year opex) 5 = very low comparative cost (capex and first year opex) **Waste reduction potential** 1 = very low comparative potential 2 = low comparative potential 3 = moderate comparative potential 4 = high comparative potential 5 = very high comparative potential

The two scores were then multiplied together to achieve a numerical basis for option comparison.

The screening process results are summarised in Table 26.

Table 26: Screening outcomes from long list of options combinations

Long-List Evaluation and Screening																
Priority Criteria	Education to avoid food waste	Education to increase at home processing	Equipment subsidies to increase at home processing	Drop-off to multiple community organisation in-vessel processing	Drop-off to multiple community organisation windrowing processing	Drop-off to multiple community organisation hot box processing	Community organisation-led township kerbside collection to multiple community organisation in-vessel processing	Community organisation-led township kerbside collection to multiple community organisation windrowing or hot box processing	Council-led district kerbside collection to 3 community organisation in-vessel processing	Council-led district kerbside collection to 3 community organisation windrowing processing	Council-led district kerbside collection to 3 industrial in-vessel processing	Council-led district kerbside collection to 3 industrial windrowing processing	Regional kerbside collection to 1 industrial in-vessel processing	Regional kerbside collection to 1 industrial windrowing processing	Regional kerbside collection to 1 industrial vermi-composting processing	Regional kerbside collection to 1 industrial anaerobic digestion processing
Cost Score (1-5) *	5	5	4	3	4	4	3	4	1	3	1	2	1	2	2	1
Waste reduction potential score (1-5) **	2	2	2	1	1	1	3	3	3	4	4	5	5	5	5	5
TOTAL	**10**	**10**	**8**	**3**	**4**	**4**	**9**	**12**	**3**	**12**	**4**	**10**	**5**	**10**	**10**	**5**
SHORT-LIST Y/N	**Y**	**Y**	N	N	N	N	N	**Y**	N	**Y**	N	**Y**	N	**Y**	**Y**	N

* 1 = highest comparative cost, 5 = lowest comparative cost

** 1 = lowest waste reduction potential; 5 = highest waste reduction potential

6.3 Short List of Options

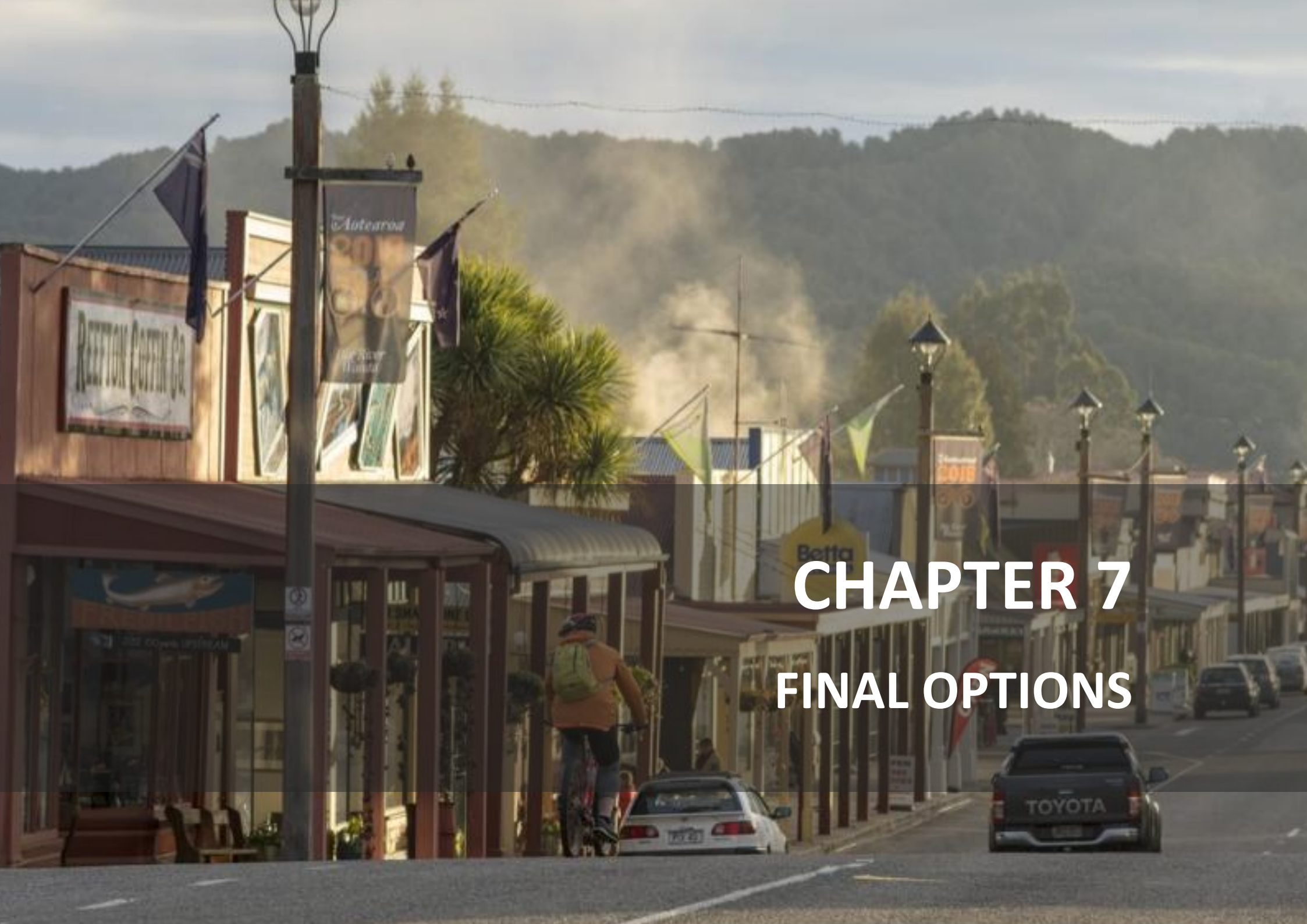
The screening process identified the following most viable short-listed options:

1. Education to avoid food waste
2. Education to increase at home processing
3. **Community organisation-led** township kerbside collections to **multiple small community organisation-led** windrow or hot box composting processing facilities
4. **Council-led** district kerbside collections to **three (one in each district) community organisation-led** windrow compost processing facilities
5. **Council-led** district kerbside collections to **three (one in each district) Council** or **commercial organisation-led** windrow compost processing facilities
6. **Council-led** regional kerbside collections to **one centralised Council** or **commercial organisation-led** windrow compost processing facility
7. **Council-led** regional kerbside collections to **one centralised Council** or **commercial organisation-led vermicompost** processing facility

Each of these shortlisted options was then assessed for alignment with the full evaluation criteria (Table 24) using a numerical 'traffic light' system. The results of this assessment are summarised in Table 27 and confirm four options for more detailed consideration.

Table 27: Assessment of short-listed options against evaluation criteria

Short-List Evaluation								
#	Evaluation Criteria	**Option 1** Education to avoid food waste	**Option 2** Education to increase at-home processing	**Option 3** Community organisation-led township kerbside collection to multiple community organisation windrowing or hot box processing	**Option 4** Council-led district kerbside collection to 3 community organisation windrowing processing	**Option 5** Council-led district kerbside collection to 3 industrial windrowing processing	**Option 6** Regional kerbside collection to 1 industrial windrowing processing	**Option 7** Regional kerbside collection to 1 industrial vermi-composting processing
1	Affordability & cost effectiveness	5	5	5	3	1	1	1
2	Organic waste diversion & reduction in GHG emissions	3	3	5	5	5	5	5
3	Economic & community well-being outcomes	3	3	5	5	3	1	1
4	Value from waste & market potential	1	3	3	5	5	5	5
5	Technology maturity & reliability	5	5	5	5	5	5	3
6	Technical constraints	5	5	3	3	3	3	5
7	Alignment with national & regional strategy	5	5	5	5	5	5	5
8	Stakeholder, iwi & community perspectives	5	5	3	3	3	1	1
	Total Score	**32**	**34**	**34**	**34**	**30**	**24**	**24**
Comparative evaluation: Good, average, poor (5, 3, 1)								



CHAPTER 7

FINAL OPTIONS

Chapter 7: Final Options

Summary:

- The four final options assessed include:
  - Education to Avoid Food Waste
  - Education to Increase At-Home Processing
  - Community Organisation-Led Township Kerbside Collections and Distributed Composting Facilities
  - Council-led District Kerbside Collections to Three (one in each district) Community-Led Composting Facilities
- Option 1 and/or Option 2 could be used independently or in combination with either Option 3 or Option 4
- Option 1 and Option 2 are considerably more affordable than Option 3 or Option 4, but are unlikely to achieve the same degree of organic waste reduction as the more expensive options

There are four recommended options for consideration, and it is intended that Option 1 and/or Option 2 could be used independently or in combination with either Option 3 or Option 4. Benefits and risks for each option are further discussed below.

Each final option is described below along with their benefits and risks. High-level costs associated with each option and an estimate of each option's organic waste reduction potential are also provided.

This Study does not address potential site locations or detailed costings as these will need to be addressed in the next stages of this project, during development of a detailed business case.

7.1 Option 1: Education to Avoid Food Waste

This option involves the delivery of community education campaigns to build community awareness and skills in avoiding food waste at home. Household food waste can be prevented through changes in people's practices. Households can also upcycle food at risk of going to waste and share surplus with their communities. The Love Food Hate Waste (LFHW) programme is delivered by WasteMINZ in partnership with 52 councils.

7.1.1 Regional Cost Considerations

	Cost estimate / year ($)
Love Food Hate Waste annual subscription	1,000
Campaign Coordinator	20,000
Funding for community groups to support initiatives in each district	30,000

7.1.2 Waste Reduction Potential

- Goal of LFHW programme is 10% reduction in food waste generation
- Current monitoring by participating councils indicates 4 – 5% reduction after approximately 2 years (official report pending).

7.1.3 Benefits

- Comparatively affordable, and has potential for considerable cost savings for the community
- Preventing food waste is the priority action in the food recovery hierarchy – avoiding the generation of waste, resource consumption and GHG emissions
- Consistent, region-wide campaigns will likely achieve the best outcome and be most cost effective
- Consistent with national and regional policy, and stakeholder, iwi and community perspectives
- No consenting requirements
- Could be run from within councils, however, there is likely to be better reception across communities if delivered by existing community groups
- May create a small number of jobs to deliver regional campaigns

7.1.4 Considerations and Risks

- Needs a Campaign Coordinator to 'champion' and drive the campaigns
- Community groups would require external funding to enable effective delivery
- Reliability of community groups operating with volunteer effort
- Campaigns may not be effective if inadequately resourced and may not achieve significant food waste reduction outcomes
- Multi-year committed campaigns may be required resulting in greater ongoing costs
- Regardless, additional organic waste interventions are likely to be required to achieve waste reduction targets set within 2025 NWS and the Regional WMMP
- No product produced and therefore no market potential

7.2 Option 2: Education to Increase At-Home Processing

This option involves the delivery of community education campaigns to build community awareness and skills in at-home organic waste processing e.g., composting or worm farming.

The community survey indicated that approximately 43% of West Coast households currently compost or otherwise process their food waste at home, which sits slightly below the national average of 55%.

7.2.1 Regional Cost Considerations

	Cost estimate / year ($)
Campaign Coordinator	20,000
Funding for community groups to support initiatives in each district	30,000

7.2.2 Waste Reduction Potential

- Survey indicates 43% home composting/worm farming already which is 12% less than the national average
- Estimated this could be increased by 5 – 10%

7.2.3 Benefits

- Comparatively affordable
- Retention of value in waste for at-home soil amendment practices
- By managing food waste at home, emissions from transporting food waste are avoided, and individuals become part of the waste management solution, which can motivate broader sustainability behaviours.
- Consistent, region-wide campaigns will likely achieve the best outcome and be most cost effective
- Consistent with national and regional policy, and stakeholder, iwi and community perspectives
- No consenting requirements
- Could be run from within councils, however, there is likely to be better reception across communities if delivered by existing community groups
- May create a small number of jobs to deliver regional campaigns

7.2.4 Considerations and Risks

- Needs a Campaign Coordinator to 'champion' and drive the campaigns
- Community groups would require external funding to enable effective delivery
- Variable reliability of community groups operating with volunteer effort
- Campaigns may not be effective if inadequately resourced and may not achieve significant food waste reduction outcomes
- Multi-year committed campaigns may be required resulting in greater ongoing costs
- Regardless, additional organic waste interventions are likely to be required to achieve waste reduction targets set within 2025 NWS and the Regional WMMP
- Product produced at home, and therefore no market potential
- Some at-home set-up costs required

7.3 Option 3: Community Organisation-Led Township Kerbside Collections and Distributed Composting Facilities

This option involves the provision of multiple food scraps kerbside collection services at small community or township scales across the region. The collected food scraps would be processed at multiple small-scale composting facilities.

7.3.1 Regional Cost Considerations

	Cost estimate ($)
Supporting community groups to establish and deliver food scraps collection service for 30% of regional dwellings – 5,166	$50 per household / year $250,000 / year This could either be through rates or user-pays.
Collection equipment[96] [97]	$12 per household $60,000
Establishment of open windrow processing facility, includes equipment, site establishment	$50,000 per facility
Open windrow processing facility operation	$20,000 per year per facility
Advice, consenting	$10,000 per facility

7.3.2 Waste Reduction Potential

- Based on the experience of Xtreme Zero Waste, the community survey, and other national research, it is estimated that the West Coast could anticipate around 30% participation in an organic waste collection scheme which should equate to approximately 30% reduction of organic waste to landfill
- Total diversion capacity depends on catchment serviced and scale of operation.

7.3.3 Key Attributes

- Collection services and processing facilities would be delivered by community organisations, as opposed to councils or commercial enterprises
- Collection services would be provided on a user-pays, voluntary basis to multiple urban residential (and business) catchments
- A food scraps waste drop-off option could also be considered
- Processing facilities would use simple composting processes, such as turned or static windrows or hot box composting that require lower capex investment
- This approach align well with the provision of other community services such as community urban gardens or Maara Kai, food rescue and distribution, and/or community education
- Once fully effective and operational, it is possible that the collection services and processing facilities could achieve financial viability, as demonstrated in other small communities in New Zealand.

[96] 7L kitchen caddy and 23L food only bin

[97] Includes MfE subsidy

7.3.4 Benefits

- May provide more affordable alternatives to rates-based council collection services
- Supports feedback from the community that indicated most (71%) did not want a rates funded council collection service
- Would provide a viable way to reduce organic waste to landfill, and associated costs to ratepayers from waste disposal gate fees and transportation
- Would avoid the generation of waste, resource consumption and GHG emissions
- Value in waste would be retained for composting and soil amendments
- With time, would likely be capable of achieving waste reduction targets set within 2025 NWS and the Regional WMMP
- May create a moderate number of new jobs if delivered at multiple locations across the region
- Market potential for composting product generated
- Successful community models exist across New Zealand that could be learnt from to reduce risk.

7.3.5 Considerations and Risks

- Need to start small and grow the service and processing facility slowly to prove the approach before scaling for greatest effect across urban areas and the region. A single 'pilot' approach could be used to minimise risk. However, this means significant organic waste reductions will not be made in the short to medium term.
- There is a risk that uptake across the community may be low, reducing the long-term viability of the operation. This is based on existing home composting rates and feedback received within the community survey that only 28% of people would pay for a food scraps collection service.
- Community groups would require considerable external funding during the establishment phase to enable effective delivery in the short term.
- Reliability of community groups operating with too much reliance on volunteer inputs.
- Would need multiple locations for composting across the region i.e., in each community or urban area. If windrow composting, land area demands would be sizeable.
- Could be combined with a green waste drop-off service. However, additional carbon sources would likely need to be purchased to achieve effective carbon to nitrogen composting ratios.

7.4 Option 4: Council-led District Kerbside Collections to Three (one in each district) Community-Led Composting Facilities

This option involves the provision of a council provided food scraps kerbside collection service within each main urban centre (e.g., Westport, Reefton, Greymouth, and Hokitika). The collected food scraps would be centralised at a single, larger locality within each district. Processing of the food scraps would be via windrow composting, and could be undertaken by community organisations.

7.4.1 Regional Cost Considerations

	Cost estimate ($)
Establish a Council-led food scraps collection service for 30% of regional dwellings – 5,166	$100[98] per household / year $500,000 / year This could either be through rates or user-pays.
Collection equipment[99] [100]	$12 per household $60,000
Establishment of open windrow processing facility, includes land, equipment, site establishment	$500,000 per facility
Open windrow processing facility operation	$50,000 to $70,000 per year per facility (depending on population)
Advice, consenting	$25,000 per facility

7.4.2 Waste Reduction Potential

- Based on the experience of Xtreme Zero Waste, the community survey, and other national research, it is estimated that the West Coast could anticipate around 30% participation in an organic waste collection scheme which should equate to approximately 30% reduction of organic waste going to landfill
- Total diversion capacity depends on catchment serviced and scale of operation.

7.4.3 Key Attributes

- As there is currently no appetite within any of the three district councils for rates funded approaches, council collection services would need to be provided on a user-pays, voluntary basis to large urban residential (and business) catchments.
- A food scraps waste drop-off option could also be considered.
- Processing facilities would use simple composting processes, such as turned or static windrows or hot box composting that require lower capex investment
- This approach aligns well with the provision of other community services such as community urban gardens or Maara Kai, food rescue and distribution, and/or community education
- Once fully effective and operational, it is possible that the collection services and processing facilities could achieve financial viability, as demonstrated in other small communities in New Zealand.

[98] Council-provided collection service estimate, Dr Niki Bould, pers comm (2024).
[99] 7L kitchen caddy and 23L food only bin
[100] Includes MfE subsidy

7.4.4 Benefits

- Council involvement in the provision of collection services would enable consistent approaches across the region, and reduce risks for less resourced community groups
- Supports feedback from the community that indicated most (71%) did not want a rates funded council collection service
- Would require a single composting site in each district. Alternatively, Hokitika's food scraps could be combined with Greymouth's at a single facility in the Grey District.
- Would provide a viable way to reduce organic waste to landfill, and associated costs to ratepayers from waste disposal gate fees and transportation
- Would avoid the generation of waste, resource consumption and GHG emissions
- Value in waste would be retained for composting and soil amendments
- With time, would likely be capable of achieving waste reduction targets set within 2025 NWS and the Regional WMMP
- May create a moderate number of new jobs if delivered at multiple locations across the region
- Highest volume of composting product generated resulting in high market potential.

7.4.5 Considerations and Risks

- Would still need to start small. Could start with a small catchment within a single urban centre. However, this means significant organic waste reductions will not be made in the short to medium term.
- There is risk that uptake across the community may be low, reducing the long-term viability of the operation. This is based on existing home composting rates and feedback received within the community service that only 28% of people would pay for a food scraps collection service.
- Community groups would require considerable external funding during the establishment phase to enable effective delivery in the short term.
- Would need multiple locations for composting across the region i.e., in each community or urban area. If windrow composting, land area demands would be sizeable.
- Could be combined with a green waste drop-off service. However, additional carbon sources would likely need to be purchased to achieve effective carbon to nitrogen composting ratios.

CHAPTER 8

RECOMMENDATIONS AND NEXT STEPS

Chapter 8: Recommendations and Next Steps

8.1 Recommendations

While other possibilities could be considered, it is the view of this Study that localised solutions that limit transportation, employ local people and produce high quality outputs should be prioritised.

Key recommendations for further consideration include the following:

1. Use community education to avoid food waste and reduce food waste disposal in general rubbish
2. Subscribe to Love Food Hate Waste campaign to support community waste avoidance
3. Investigate how education would be delivered to increase at home organic waste processing
4. Identify and work with existing West Coast community groups to understand capability and capacity across the region to deliver food scraps collection and processing services
5. Provide support to community groups for the identification of potential external grants to progress planning and business case development
6. Any processing of food waste will require additional carbon sources. Councils should collaborate to develop the most appropriate regional use of the green waste asset
7. Collection of food scraps only should be the focus of any future work, not combined food and green waste collection
8. Weekly collections are most likely to maximise community uptake of the service
9. User pays collection service subscription and drop-off service, with an aim to use product

   sales to offset costs to the community
10. Community organisation-led or council-led distributed township or district approach to material processing
11. Utilise lower technology processing methodologies with lower capital investment requirements; noting that these may require more hands-on management to operate
12. Consider a pilot approach to confirm and test the operational model, ideally engaging Xtreme Zero Waste as project advisors
13. Investigate the opportunity presented by the WMF “targeted investment packages” signaled in government’s recently released work programme
14. Complete a detailed business case to better define the cost breakdown of delivering the preferred option.

8.2 Next Steps

In July 2024, WasteMINZ released "Organic Waste Collection and Processing Guidance for Local Authorities". The Guide identifies six key steps that councils will need to work through to roll out a successful organic waste collection service and associated processing facility(ies). These steps are illustrated at a high level in the roadmap graphic in Figure 47[101].

This Study has taken West Coast district councils from Step 1 through partial completion of Step 4. The next recommended steps in the process include:

1. Establish the business case for the final options, including comparative cost-benefit analyses
2. Consult and identify option preferences
    - Run a consultation with communities and confirm preferred option(s) and funding models
    - Elected Member option(s) approval and funding models
3. Confirm community partnership or commercial agreement models
4. Achieve funding contributions through AP / LTP

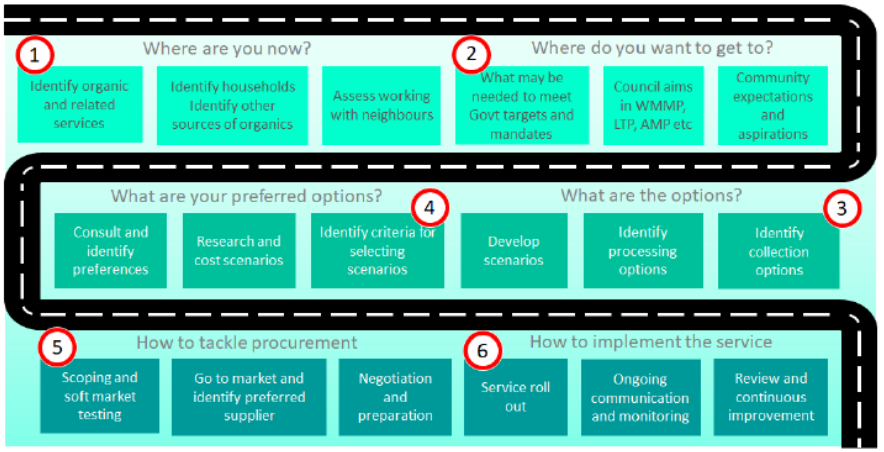


Figure 47: Roadmap to a successful organic waste collection service

8.3 Using a Pilot Approach for the West Coast

Using a pilot project approach could be a viable way of testing a council / community partnership model for the West Coast. This Study proposes that a pilot project be developed and delivered in the Buller District, for the following reasons:

- Buller District currently sends its landfill waste to Nelson and so stands to realise the greatest economic and environmental gains of all West Coast councils from reducing organic waste volumes disposed to landfill
- There are existing community organisations in Westport with interest in upscaling to deliver organic waste management solutions for the community

[101] Organic Waste Collection and Processing Guidance for Local Authorities (WasteMINZ, 2024)

- There is an additional high-volume problematic biosolids waste stream produced by the Westport Wastewater Treatment Plant that requires a management solution
- There is significant market potential presented by the rehabilitation needs of the Stockton coal mine, located on the northern West Coast
- There is significant socio-economic deprivation and high unemployment within the Buller District.

It is recommended that further consideration be given to this pilot study and, in particular, how funding could be achieved through the WMF and a wider partnership approach.

The findings from this pilot study could then be adapted to inform organic waste management implementation across the wider region.

8.4 Future Funding

This Study has confirmed that affordability is the key constraint for improving organic waste management on the West Coast. Understanding how the funding opportunity presented by the Waste Minimisation Fund targeted investment packages could overcome the cost barrier is therefore important.

Guidance provided by the Ministry for the Environment regarding available funding for West Coast council kerbside collections is as follows:

1. **Kerbside organics pre-implementation funding package – for feasibility studies and business cases**
    - Partial costs towards the completion of a business case and options assessment
    - Councils can contact MfE's West Coast Investment Manager directly for more advice and information on accessing this funding
    - It is recommended that councils inform MfE as early as possible
    - MfE noted there is no guaranteed amount of funding, and the request will be assessed based on reasonable costs and a case-by-case basis.
2. **Kerbside organics implementation funding package – for implementation**
    - Councils can contact MfE's West Coast Investment Manager directly for more advice and information on accessing this funding
    - Funding provided includes:
        - purchase of food and/or food and green waste bins (set amount per property)
        - the design, and distribution costs for communications and promotional marketing/education materials and related collateral (set amounts)
        - coordination and project management costs for rollout (not ongoing costs) — up to $50k for one year.
3. **Other projects**
    - Funding for other projects, such as a pilot project for a council / community partnership model could be submitted via the usual process of applying to the WMF by first submitting a short enquiry form
    - Details, including co-funding parameters can be accessed at: WMF Guide for applicants .

Financial support has been received for this project from Te Pūtea Whakamauru Para - Waste Minimisation Fund (WMF), which is administered by the Ministry for the Environment. The Ministry for the Environment does not necessarily endorse or support the content of this publication in any way.

About the Fund

The purpose of Te Pūtea Whakamauru Para – the Waste Minimisation Fund (WMF) is to boost New Zealand's performance in waste minimisation. The WMF invests in infrastructure, services, and educational activity throughout New Zealand. The fund is primarily enabled through the waste disposal levy.

There is considerable scope in New Zealand to reduce waste and increase the recovery of useful resources from waste. Lifting our performance in recovering economic value from waste also provides environmental, social, and cultural benefits and reduces the risks of harm from waste. More information about the fund can be found on the Ministry for the Environment website (https://environment.govt.nz/what-you-can-do/funding/waste-minimisation-fund).

Strategy I Research I Feasibility

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