WASTE MANAGEMENT AND MINIMISATION PLAN REVIEW

Department: Waste and Environmental Solutions

EXECUTIVE SUMMARY

1 The purpose of this report is to seek Council's approval to publicly consult on the proposed draft Waste Management and Minimisation Plan 2025 (draft WMMP 2025), following a Special Consultation Procedure in accordance with section 44 of the Waste Minimisation Act 2008 (WMA, or the Act).

2 All Territorial Authorities are required to adopt a Waste Management and Minimisation Plan (WMMP), as per WMA section 43. The process for adopting a WMMP is also provided in the WMA s43.

3 The draft WMMP 2025 was informed by a review of the WMMP 2020, the Otago Regional Waste Assessment 2023 (Waste Assessment), and stakeholder engagement.

4 If a Territorial Authority does not adopt a WMMP, following the correct process, the Ministry for Environment can withhold waste levy funding from that Territorial Authority. Dunedin City Council currently uses waste levy funding for waste minimisation grants and waste minimisation activities.

5 Territorial Authorities must carry out a Special Consultation Procedure with their draft WMMP, in accordance with the WMA section 44. The documents to meet these requirements are attached to this report.

6 If approved, the public consultation will be carried out with the 9 Year Plan in March-April 2025. This approach is being taken to enable staff to include actions in the 9 Year Plan 2025-2034 that align with the direction of the Waste Management and Minimisation Plan 2025.

RECOMMENDATIONS

That the Council:

a) **Approves** the proposed draft Waste Management and Minimisation Plan 2025 for public consultation, following a Special Consultation Procedure.

b) **Approves:** The proposed draft Waste Management and Minimisation Plan 2025 to be publicly consulted on alongside the 9 Year Plan.

c) **Authorises** the Chief Executive to make any minor editorial changes to the draft Waste Management and Minimisation Plan 2025 and associated consultation documents.

d) **Decides:**

i) To publicly consult on the proposed draft Waste Management and Minimisation Plan 2025.

ii) To appoint members to a hearings panel for the public consultation.

iii) If any further amendments should be made before the draft WMMP 2025 is presented for public consultation.

e) **Notes** the Summary of Information, Summary of Engagement, Statement of Proposal, Consultation Method, the submission feedback form, and drop-in schedule which are attached to this report, and will be used as part of the public consultation. The Otago Regional Waste Assessment 2023 will be notified with the Statement of Proposal.

BACKGROUND

7 The draft WMMP 2025 was prepared using Te Rautaki Para - the New Zealand Waste Strategy, Waste Assessment, Dunedin's Zero Carbon Plan 2030, early engagement with key stakeholders, and a Steering Group which includes representatives of mana whenua.

8 On 15 August 2023 Council noted completion of the Otago Regional Waste Assessment2023, as per section 51 of the WMA, and resolved to proceed with amending the WMMP 2020. Accordingly, staff have proceeded on preparing this work and are seeking approval to publicly consult on the draft WMMP 2025.

OTAGO REGIONAL WASTE ASSESSMENT AND REVIEW OF DUNEDIN WASTE MINIMISATION AND MANAGEMENT PLAN

A report provided the Committee with the Regional Waste Assessment that had been completed in partnership with the four other Otago territorial authorities.

Cr Andrew Whiley left the room at 10.27 am and returned to the meeting at 10.37 am.

The Group Manager Waste and Environmental Solutions (Chris Henderson) responded to questions.

Moved (Cr Jim O'Malley/Cr Mandy Mayhem):

That the Committee:

a) **Notes** the 2023 Otago Regional Waste Assessment is now complete, as per section 51 of the Waste Minimisation Act 2008.

c) **Nominates** the Chair and Deputy Chair of the Infrastructure Services Committee to participate in a Waste Minimisation and Management Plan Steering Group.

d) **Invites** mana whenua to identify Rūnaka representatives to participate in a Waste Minimisation and Management Plan Steering Group.

Motion carried (ISC/2023/034)

Moved (Cr Jim O'Malley/Cr Mandy Mayhem):

That the Committee:

b) **Resolves** to proceed with an amendment to the Dunedin Waste Minimisation and Management Plan.

Motion carried (ISC/2023/035) with Cr Lee Vandervis recording his vote against

9 The review and subsequent amendments for the WMMP 2025 seek to:

- Align the Waste Minimisation and Management Plan with Te Rautaki Para - The New Zealand Waste Strategy 2023.
- Refine and update the content of the Dunedin Waste Minimisation and Management Plan 2020 to take account of actions already delivered or programmed.
- Provide for regional collaborative actions, where these will achieve effective and efficient waste minimisation and management across the Otago region.
- Add focus areas to the WMMP to give more direction and concentrate on fewer areas. These focus areas are construction and demolition waste, community-based resource recovery, expanding work on diverting organics from landfill, and taking a regional approach.

10 The WMA provides specific and direct guidance to Territorial Authorities in relation to waste management and minimisation planning;

- S(42) Territorial Authorities to encourage effective and efficient waste management and minimisation.
- S(43) Waste management and minimisation plans.
- S(44) Requirements when preparing, amending, or revoking plans.
- S(50) Review of waste management and minimisation plan.
- S(51) Requirements for waste assessment.

11 The draft WMMP 2025 has been prepared in accordance with WMA Part 4 Responsibilities of Territorial Authorities in relation to waste management and minimisation in relation to;

- S(42) Territorial authorities to encourage waste minimisation and a decrease in waste disposal in order to –
  a) Protect the environment from harm; and
  b) Provide environmental, social, economic, and cultural benefits.
- S(43) Waste management and minimisation plans.
  a) For the purposes of s(42), a Territorial Authority must adopt a waste management and minimisation plan.

- S(44) Requirements when preparing, amending, or revoking a plan.

DISCUSSION

12 Territorial Authorities receive waste levy money from the Ministry for Environment each financial year, in accordance to WMA section 31.

13 A Territorial Authority may only spend the waste levy money it receives on matters to promote or achieve waste minimisation and, in accordance with its WMMP (WMA section 32).

14 Implementing the WMMP 2025 would largely be funded from waste levy. Funding methods are provided in the draft WMMP 2025, as required by WMA section 43. The amount of waste levy being received by Council has increased as the landfill levy fee is being increased by central government.

15 The WMMP 2025 will support outcomes for Te Ao Tūroa - Dunedin's Environment Strategy and incorporates key actions for achieving Dunedin's Zero Carbon Plan 2030.

WMMP 2025 Amendments – What has changed?

16 We have updated the title of the WMMP to align with terminology used in the WMA.

17 We have updated the vision to indicate a wholistic approach will be taken, and remove the target year. The vision is an aspirational statement, to achieve this by a target year would require a more specific statement.

18 We have removed goals from the WMMP. Territorial Authorities are not legislatively required to set out goals in the WMMP, and those included in the WMMP 2020 were either difficult to measure, or did not align with the objectives and targets. Therefore, instead of goals, the proposed draft WMMP 2025 has updated actions and targets, which can be measured, monitored, and reported on more easily.

19 Targets have been updated. The three waste minimisation targets adopted under Dunedin's Zero Carbon 2030 Plan have already been achieved, or are very close to being achieved. Therefore new targets have been written to align with Te Rautaki Para – the New Zealand Waste Strategy.

20 Focus areas have been added to set more direction. These are construction and demolition waste, community-based resource recovery, expanding work on diverting organics from landfill, and taking a regional approach to achieve effective and efficient waste minimisation and management across the Otago region.

21 If authorised to do so by its WMMP, Territorial Authorities may make grants for the purpose of promoting or achieving waste management and minimisation (WMA section 47). If the Territorial Authority wishes to make grants, their WMMP must provide the framework for doing so. Accordingly, the proposed draft WMMP 2025 includes a new, more detailed framework for waste minimisation grants. This framework seeks to build more clarity and consistency when awarding funding to applicants, and to improve outcomes from these grants.

OPTIONS

Option One – Recommended Option

22 Approves the proposed draft WMMP 2025 for public consultation using a special consultation procedure without amendment, alongside the 9 Year Plan.

Advantages

- Complies with Council's obligations under the WMA as a Territorial Authority. Therefore, the DCC remains eligible to receive waste levy money from the Ministry for Environment.
- Progresses work to amend the WMMP 2020 as per Council's decision on the 15 August 2023.
- Will keep the work plan on track alongside the Long-Term Plan and the WMMP 2025 for work planning and budgeting purposes.
- Progresses towards aligning the WMMP with Te Rautaki Para - The New Zealand Waste Strategy 2023.
- Progresses towards refining and updating the content of the WMMP 2020 to take account of actions already delivered or programmed.
- Provides for regional collaborative actions, where these will achieve effective and efficient waste minimisation and management across the Otago region.
- Continues progress towards Council's environmental goals.

Disadvantages

- No disadvantages identified.

Option Two – Status Quo

23 Does not approve the proposed draft WMMP 2025 for public consultation using a special consultation procedure.

Advantages

- No advantages identified.

Disadvantages

- The work programme will not meet the timeline required to align the 9 Year Plan and WMMP 2025 for work planning and budgeting purposes.
- Delays progress towards Council's environmental goals.
- Risks not meeting Council's obligations under the WMA, therefore the Ministry for Environment may withhold waste levy funding from Council.

Option Three – Approve with amendments

24 Approves the proposed draft WMMP 2025 for public consultation using a special consultation procedure with amendments, alongside the 9 Year Plan.

Advantages

- Complies with Council's obligations under the WMA as a Territorial Authority. Therefore, the DCC remains eligible to receive waste levy money from the Ministry for Environment.
- Progresses work to amend the WMMP 2020 as per Council's decision on the 15 August 2023.
- Will keep the work plan on track to align the 9 year Plan and the WMMP 2025 for work planning and budgeting purposes.
- Progresses towards aligning the WMMP with Te Rautaki Para - The New Zealand Waste Strategy 2023.
- Progresses towards refining and updating the content of the WMMP 2020 to take account of actions already delivered or programmed.
- Provides for regional collaborative actions, where these will achieve effective and efficient waste minimisation and management across the Otago region.
- Continues progress towards Council's environmental goals.

Disadvantages

- No disadvantages identified.

NEXT STEPS

25 Following approval of the draft WMMP 2025 for consultation, with or without amendments, public consultation material will be prepared.

26 The public consultation period will be held over March-April 2025.

27 A hearings period will be arranged to be held in mid 2025.

28 A summary of the feedback received and the final draft WMMP 2025 will be prepared for ISCOM following public consultation and hearings. This is currently scheduled for July- August 2025.

29 The final WMMP 2025 document will go through the graphic design process following consultation.

Signatories

Author:	Leigh McKenzie - Waste Minimisation Officer, Waste and Environmental Solutions
Authoriser:	Chris Henderson - Group Manager Waste and Environmental Solutions Scott MacLean - General Manager, Climate and City Growth

Attachments

	Title	Page
A	Draft Waste Management and Minimisation Plan 2025 *(Under Separate Cover 1)*	
B	Summary of Engagement - Draft WMMP 2025 *(Under Separate Cover 1)*	
C	Statement of Proposal - Draft WMMP 2025 Public Consultation *(Under Separate Cover 1)*	
D	Summary of Information - Draft WMMP 2025 *(Under Separate Cover 1)*	
E	Draft Consultation Document WMMP 2025 *(Under Separate Cover 1)*	
F	Draft Consultation Method - WMMP 2025 *(Under Separate Cover 1)*	
G	Webform for Submissions on Draft WMMP 2025 *(Under Separate Cover 1)*	
H	Drop In Sessions for WMMP 2025 Public Consultation *(Under Separate Cover 1)*	
I	Otago Regional Waste Assessment 2023 *(Under Separate Cover 1)*	

SUMMARY OF CONSIDERATIONS

Fit with purpose of Local Government

This decision enables democratic local decision making and action by, and on behalf of communities, promotes social, economic, environmental, and cultural well-being of communities in the present and for the future.

Fit with strategic framework

	Contributes	Detracts	Not applicable
Social Wellbeing Strategy	✓	☐	☐
Economic Development Strategy	✓	☐	☐
Environment Strategy	✓	☐	☐
Arts and Culture Strategy	☐	☐	✓
3 Waters Strategy	☐	☐	✓
Future Development Strategy	✓	☐	☐
Integrated Transport Strategy	☐	☐	✓
Parks and Recreation Strategy	✓	☐	☐
Other strategic projects/policies/plans	✓	☐	☐

Dunedin's Zero Carbon Plan 2030.

Māori Impact Statement

The proposed draft WMMP 2025 has been prepared with input from the Steering Group which included representatives of mana whenua, and the Māori Partnerships Team to ensure the work aligns with te ao Māori, Te Taki Haruru, and the Treaty of Waitangi.

Sustainability

The WMMP 2025 will enhance outcomes for the environment by reducing waste being sent to landfill, and avoiding harm upon the environment.

LTP/Annual Plan / Financial Strategy /Infrastructure Strategy

The draft WMMP 2025 contains actions which seek funding through Annual Plans and/or the Long Term Plan.

Financial considerations

Deciding to consult upon the proposed draft WMMP has no significant financial implications, and is required as a step to adopting an amended WMMP, as required by the WMA to continue receiving waste levy funding from the Ministry for Environment.
Funding methods for the proposed actions are provided in the draft Action Plan.

Significance

This decision is considered to be medium in regard to Council's Significance and Engagement Policy. Council has reviewed its WMMP and decided to amend it. This is not a new Plan.

Engagement – external

In preparation of the draft WMMP 2025, external engagement was carried out with; community, non-profit organisations, commercial businesses, private waste companies, the construction and demolition sector, the Zero Carbon Alliance, Community Boards, the University of Otago, and Otago Polytechnic, and representatives from Ōtākou marae and Puketeraki marae.

SUMMARY OF CONSIDERATIONS
Engagement - internal In preparation of the draft WMMP 2025, internal engagement was carried out with Community Development, Events, City Development, Parks and Recreation, Building Services, City Planning, Corporate Policy, Māori Partnerships Team, Legal, Waste and Environmental Solutions, and Zero Carbon.
Risks: Legal / Health and Safety etc. Following the special consultation procedure is required for meeting our obligations as Territorial Authority under the WMA.
Conflict of Interest There are no known conflicts of interest.
Community Boards Community Boards will have the opportunity to submit on the draft WMMP 2025 during the special consultative procedure.

Draft Waste Management and Minimisation Plan 2025

Draft Waste Management and Minimisation Plan 2025

Table of Contents

Introduction

This Plan directs the development of a stronger, more positive, circular economy that fosters the health of the environment and our community (Figure 1).

It has been well established that the current linear system for production and consumption negatively impacts the environment, is wasteful, inequitable, and vulnerable to unforeseen future changes[1][2][3]. For this reason, New Zealand introduced the Waste Minimisation Act (WMA) in 2008. This legislation enables and requires the Dunedin City Council (DCC) to act in waste minimisation, and work to avoid harm to the environment. The DCC is similarly obliged to responsibly manage waste from a public health perspective.

The WMA requires territorial authorities to adopt a Waste Management and Minimisation Plan (WMMP), to direct how they will use waste levy funding received from the Ministry for Environment to achieve waste minimisation. This Plan gives the direction of DCC's leadership and work with partners, local communities, businesses, neighbouring regions and other stakeholders. Waste is not something that can be addressed by local government alone. Our economic system involves many parts and sectors, and each part needs to adapt for waste minimisation to be achieved.

Everyone can participate in change towards less waste. The DCC aims to help ease the community through the process with wide-ranging actions laid out in this Plan. From helping households make best use of their kerbside recycling and rubbish bin collection system, to assisting the region's construction and demolition industry both in waste diversion and in waste minimisation through thoughtful design.

This Plan is one part of a wider movement toward making waste reduction opportunities accessible to the community. It complements existing initiatives such as the work toward a safer tertiary area by Sophia Charter signatories and the city's Zero Carbon Plan 2030 which aims to reduce carbon emissions. It's community funding aspects support projects by local community groups and businesses. It upholds regional work for minimising waste through joint advocacy, developing consistency, shared resources, and gathering data to highlight key issues and provide for facts-based decision-making.

The ultimate outcome of minimising waste is the achievement of a circular system for producing and consuming, benefitting our health and well-being and that of the environment.

[1] Circle Economy Foundation (2023) 'The Circularity Gap Report', URL:https://www.circularity-gap.world/2023, accessed 18.06.2024.
[2] International Panel for Climate Change (2023) 'Climate Change 2023 Synthesis Report', URL: IPCC_AR6_SYR_SPM.pdf, accessed 18.06.2024.
[3] Ministry for Environment (2022) 'Ōhanga āmiomio - Circular economy', URL: https://environment.govt.nz/what-government-is-doing/areas-of-work/waste/ohanga-amiomio-circular-economy, accessed 18.06.2024.

Figure 1: The current linear economy vs circular economy.

Acknowledgements

We would like to acknowledge the hard work, time, and thought that has been generously given to us for preparing this Plan. Thank you to the members on the Steering Group, including our mana whenua representatives, Marlene McDonald, Moana Wesley, and Donna Matahaere-Atariki, our elected Councillors, Brent Weatherall and Jim O'Malley. Also to everyone who attended our engagement workshops out of their own time, and gave their knowledge and let us pick their brains. Dunedin City Council staff and the Waste and Environmental Solutions team have been invaluable and enormously generous in their advice and assistance.

Executive summary

The Dunedin City Council has developed a Waste Management and Minimisation Plan that sets a vision, objectives, targets, and actions to improve waste minimisation over the next six years. This WMMP takes an approach that includes collaborating with the other districts in Otago with the aim of making waste minimisation and management more cohesive, achievable, and effective in Otago. It also complements Dunedin's Zero Carbon 2030 Plan, and Te Rautaki Para – New Zealand's Waste Strategy. The vision for this Plan is:

Ōtepoti Dunedin is actively committed to preventing waste, reducing emissions, and building a circular economy to respect and protect people and the natural environment's mauri.

The objectives below have been set to achieve this vision.

Objectives

Objectives have been informed by the recurring themes which came from stakeholder engagement workshops and meetings for the review of the WMMP.

1. Circular economy – The top of the waste hierarchy will be prioritised in investment, design, and purchasing decisions.

2. Infrastructure and services – Improve resourcing of local infrastructure, and services to make good practice in waste minimisation convenient and easy.

3. Networking and collaboration – Enable wider collaboration with local community and business partners and with regional Territorial Authorities.

4. Education and communication - Provide waste minimisation education and communication to local community and business partners to enable best practice.

5. Advocacy, incentives and regulation – Using a variety of means to achieve waste minimisation best practice.

6. Data - Ensuring mechanisms are in place for tracking and reporting progress and to inform decision making.

This WMMP addresses the key issues identified in the Otago Regional Waste Assessment (2023) through these objectives and an Action Plan. The Action Plan was developed through engagement workshops and through analysis carried out in the Waste Assessment. The Action Plan describes the actions that will be carried out over the next six years, to achieve the waste minimisation and greenhouse gas emission reduction targets in this Plan.

The targets this Plan aims to achieve are:

Target 1: Waste generation: Reduce the amount of material entering the waste management system, by 10 % per person by 2030.

Target 2: Waste disposal: Reduce the amount of material that needs final disposal, by 30 % per person by 2030.

Target 3: Waste emissions: reduce the biogenic methane emissions from waste, by at least 30 %.

These targets complement Te Rautaki Para – New Zealand's Waste Strategy. They aim to reduce the quantity of waste being generated, being sent to landfill, and greenhouse gas emissions from waste.

Waste cannot be minimised by one organisation. It requires everyone to act and work together. This Plan includes actions that will improve collaboration across sectors and districts, and to develop networks to bring us closer to achieving a circular economy.

The purpose of the Plan

This Waste Management and Minimisation Plan (WMMP or the Plan) was informed by the Otago Regional Waste Assessment 2023 (Waste Assessment). The Plan sets out how Ōtepoti Dunedin will make change for waste minimisation, over the next six years, under the WMA. It complements Te Rautaki Para, New Zealand's Waste Strategy, and the Zero Carbon Plans that have been adopted nationally and in Ōtepoti Dunedin, and supports the goals of Te Ao Tūroa – Dunedin's Environment Strategy. The focus for this Plan is to:

- Develop diversion for and design out construction and demolition waste. This is also a priority in Ōtepoti Dunedin's Zero Carbon Plan 2030.
- Improve opportunities for community-based resource recovery – a community-based approach to resource recovery is often more effective and builds better social outcomes. This is also a priority in Ōtepoti Dunedin's Zero Carbon Plan 2030.
- Divert organics from landfill – Ōtepoti Dunedin is developing new composting infrastructure and services for diverting residential organic waste from landfill. This infrastructure has the potential to expand the diversion of organics further (e.g. from businesses and events).
- Take a regional approach to waste management and minimisation as opposed to focusing solely on Ōtepoti Dunedin.

What does this WMMP mean for you?

Table 1: Summary of changes anticipated from this Plan for residents and organisations.

	What changes you can expect and how you can get involved
Residents	More opportunities for items to be repaired, improved access to resource recovery, and more options for waste minimisation.
Community groups and non-governmental organisations	Collaborative spaces where resources can be reused, shared, repaired, and recovered more efficiently and build positive community outcomes. Increased, and more flexible waste minimisation funding.
Businesses	Collaboration across sectors so that resources are shared more efficiently and build more sustainable practices. Consider how your business could be placed to create a more circular economy by rethinking and redesigning your purchases, processes, products, and packaging to reduce waste. Support in accessing waste minimisation funding, whether it be advice for a national fund application, or DCC's waste minimisation grants. More education will be available to upskill staff in waste minimisation in a range of sectors.
Private waste companies	More communication and collaboration to diversify options for waste minimisation and management in Ōtepoti Dunedin.
Local Government	The DCC aims to collaborate with other councils in the Otago and Southland regions. The focus for the collaboration will be to increase the scale and efficiency of waste minimisation, circularity in the economy, and local processing of diverted material.

Central Government	More advocacy from Ōtepoti Dunedin in a coordinated fashion to represent many voices.

Summary of the waste situation

The WMMP is intended to improve waste management and minimisation in Ōtepoti Dunedin and the Otago region over the next six years. The Plan is informed by the Waste Assessment which analysed and reported the waste situation for these areas in compliance with sections 50 and 51 in the WMA. The findings are summarised here for context.

Quantity of waste to landfill

The quantity of waste going to Green Island Landfill per capita per year (including special wastes) is given in Table 2. The other districts in Otago, the region, and national average are also provided for context.

Table 2: Tonnes of waste to Class 1 Landfills per Capita per Year in descending order, for Dunedin, Otago, and New Zealand. These values were calculated using Statistics New Zealand population estimates and Class 1 Landfill data attained from Solid Waste Analysis Protocol surveys carried out by Waste Not Consulting (Otago Regional Waste Assessment, 2023).

Overall Waste to Class 1 Landfills including special waste	**Tonnes per capita per annum**
Queenstown Lakes 2020	0.833
New Zealand 2021	0.685
Otago Region 2020	0.608
Dunedin 2018	0.554
Central Otago 2021	0.527
Clutha 2022	0.505
Waitaki 2022	0.466

Composition of waste to landfill

Knowing what kinds of waste are being sent to landfill is a good place to start when considering how we can minimise waste. It means we can identify what waste streams we can reduce with existing channels, and where the most significant gains can be made. The two pie charts below show what materials were going to Green Island Landfill in Ōtepoti Dunedin in 2022, compared to the average waste composition across the country in 2020 (Figure 2).

The main material types going to landfill are quite different between the two charts. Potentially hazardous material is the main type being disposed of to landfill across the country, but at Green Island Landfill in 2022, the main material was organic waste. This difference reflects the disposal practices of different Councils; with Clutha District Council sending what is not suitable for disposal at Mt Cooee Landfill in Clutha to Green Island Landfill in Ōtepoti Dunedin. Other landfills in the country have access to infrastructure to divert organics from landfill. Ōtepoti Dunedin introduced an organics diversion service in mid-2024, which is reflected in the difference of organic waste in the two compositions.

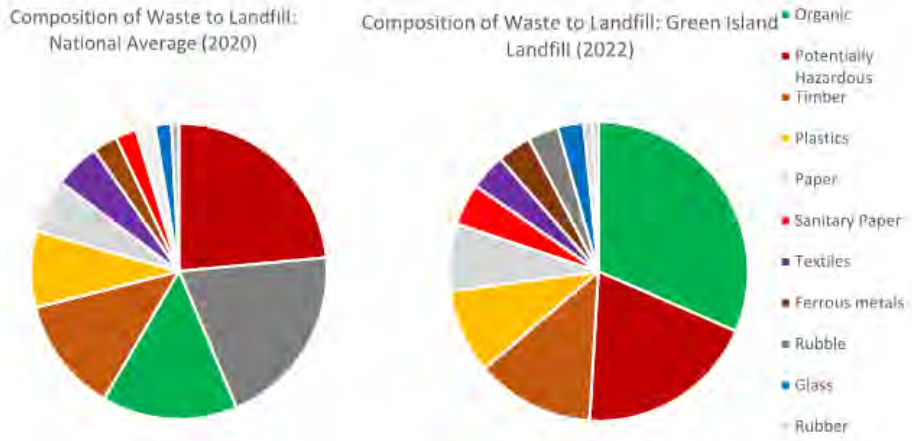


Figure 2: Compositions of waste to landfill. A national average from 2020 is compared with Green Island Landfill in 2022. Data source: Otago Regional Waste Assessment, 2023.

Diversion potential

The proportion of the materials that could have been diverted through existing recycling collections, and straightforward composting is provided in Table 3 below. This table confirms why this plan focuses on diverting organics and construction demolition materials from landfill.

Table 3: The percentages of waste to Green Island Landfill that could be diverted through existing recycling channels or composting (Otago Regional Waste Assessment, 2023).

Material type	Green Island Landfill
Organics – food scraps	19.2%
Organics – green waste	11.5%
Paper – recyclable	5.3 %
Ferrous metals	4.6%
Timber – reusable	3.5%
Timber – unpainted, untreated	3.5%
Paper – cardboard	2.4 %
Textiles – clothing	2.1%
Glass – recyclable	2.0%
Plastic - recyclable	1.8%
Rubble - cleanfill	1.0%
Non-ferrous metals	0.8%
Rubble – new plasterboard	0.2%
As percentages of the overall waste stream (excluding potentially hazardous waste)	

Sources of divertible materials

The main ways that easily divertible materials are reaching landfill, based on the Waste Assessment 2023 are:

- Food scraps:
  - Overwhelmingly end up in landfill through household kerbside rubbish collections.

- Compostable green waste reaches landfill via two main pathways:
  - Household kerbside rubbish collections
  - General residential, Construction and Demolition (C&D), and Industrial, Commercial, Institutional (ICI) waste directly to transfer stations and landfills (excluding landscaping).
- Recyclable paper and cardboard:
  - Household kerbside rubbish collections (particularly large, wheeled bins).
  - Residential and ICI channels to transfer stations and landfills.
- New plasterboard, timber, ferrous metals, and rubble:
  - Arrive directly at transfer stations (partially) and landfill (mainly) from the C&D sector.
- Recyclable plastic and glass:
  - Reach landfill through household kerbside and ICI waste.
- Textiles:
  - Mainly from household kerbside rubbish and ICI waste to transfer stations and landfills.

Ability of services and infrastructure

The Waste Assessment 2023 identified that Otago's limited processing infrastructure is negatively affecting waste diversion. Efforts to improve capture of recyclables and food scraps could worsen the situation. To address this, the Plan includes actions for improving processing infrastructure and services. Initiatives by the Waste Futures work programme are enhancing the capacity and quality of processing in Ōtepoti Dunedin and Otago.

Summary of forecast future demand and gap analysis

Predicting the future demand for waste management and minimisation is inherently uncertain. Key factors that influence demand are:

- population growth
- economic activity
- changes in lifestyle and consumption
- changes in waste management approaches.

Key Issues from Waste Assessment

The key issues and gaps related to waste management and minimisation for future demand, as identified in the Waste Assessment 2023 are:

1) Infrastructure:
   a) Limited access to waste infrastructure, especially material reprocessing.
   b) Material Recovery Facilities (MRFs) face challenges in material quality and capacity.
   c) Landfill disposal availability depends on new facility consents.
   d) Landfill provision in coastal Otago districts could be more efficient.
   e) Variable Class 2-5 landfill availability.

2) Data and monitoring:

   a) Data gaps exist for private waste collections, Class 2-5 fills, and farm waste practices.
   b) Access, understanding, and transparency for the public in data on diversion and resource recovery.

3) Services:

   a) Some districts such as Waitaki and Clutha have lower Council service levels.
   b) Service variability hinders collaboration in education and behaviour change.
   c) High contamination in household recycling collections.
   d) Low market share for Council-provided kerbside services.

4) Specific materials:

   a) Opportunities to manage waste materials better (biosolids, C&D waste, etc.).
   b) Challenges with commercial, industrial, and institutional waste streams.

5) Leadership and collaboration:

   a) Less focus on waste prevention and reuse compared to recycling.
   b) Variable contract timeframes hinder collaboration.
   c) Lack of formal mechanisms for joint funding and regional waste projects.
   d) Staff shortages and delays in vehicle procurement.
   e) Disaster waste planning and strategic direction variability.

f) Variation in Council's strategic direction across the region for waste management and minimisation.
g) Changes in national direction and priorities due to changes in central government.

Efforts to address these gaps will be crucial for effective waste management and minimisation.

Legislative and policy framework

This WMMP fits within an ecosystem of national legislation and other strategies, plans, and policies, all working together to make change. This Plan needs to fit with, and complement these others, while providing leadership in waste management and minimisation locally. The key surrounding strategies and policies, and how this Plan fits with them, is described below in Table 4.

Table 4: A summary describing how legislation fits together, creating an ecosystem of change.

Legislative Framework						**Other tools**
The Treaty of Waitangi						
Waste Minimisation Act 2008	The Litter Act 1979	The Local Government Act 2002	The Hazardous Substances and New Organisms Act 1996	The Climate Change Response Act 2002	The Resource Management Act 1991	
Te Rautaki Para New Zealand Waste Strategy (bylaw ability here too)	Infringements and criminal offences	Bylaw for waste management Criminal offence if bylaw breached	Regulations and group standards related to waste	The Emissions Trading Scheme	The National Environmental Standards	International conventions
Waste Management and Minimisation Plans		Long Term Plans		Te Hau Mārohi Ki Anamata Emissions Reduction Plan	District and regional plans and resource consents.	Central government guidelines, codes of practice and voluntary initiatives
Waste Disposal Levy						Local government strategies, policies, and plans such as the Dunedin Zero Carbon Plan 2030, Te Ao Tūroa and Te Taki Haruru – The DCC Māori Strategic Framework.
Waste Minimisation Fund						
Product Stewardship						
Other regulations						

DCC Strategic Context

The DCC Strategic Framework incorporates eight high-level strategies, underpinned by Council's commitment to the Treaty of Waitangi and the principle of sustainability. The overarching vision to guide outcomes for the city is to ensure Dunedin is one of the world's great small cities. This includes managing the use and development of waste resources, in a way that enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety.

The DCC is refreshing its wellbeing strategies (Ara Toi, Economic Development Strategy, Social Wellbeing Strategy and Te Ao Tūroa). This work, combined with developing approaches that embed

Council's commitment to the Treaty of Waitangi and sustainability, is intended to improve Council's ability to strategically lead the DCC toward realising community outcomes that consider future challenges while meeting its legislative responsibilities.

The Waste Management and Minimisation Plans' guiding wellbeing strategy is Te Ao Tūroa.

The Treaty of Waitangi

This Plan has been developed with the Treaty of Waitangi (the Treaty) in mind. The Plan has been prepared and developed alongside mana whenua within the WMMP Steering Group. By developing the Plan with mana whenua, the contents and direction of the plan embody Article 2 of the Treaty in not only mana whenua maintaining tino rangatiratanga (self-determination) in governmental affairs but doing so over a great taonga within te ao Māori - te taiao (the environment).

Actions in this Plan reflect processes of tapu and noa, and aim to protect and enhance the natural environment.

Te ao Māori - the Māori worldview

The environment is of paramount importance in te ao Māori. It provides food, drinking water, as well as shelter. As a result, protecting and limiting harm to our environment is of high priority to mana whenua in Ōtepoti Dunedin and across the country.

Te Taki Haruru (the Māori Strategic Framework for the DCC) is based in the values of mana whenua in Ōtepoti Dunedin. The Waste Management and Minimisation Plan reflects the needs of mana whenua by aligning with key directions within Te Taki Haruru. There is a particular focus across all four pou, within the environmental wellbeing; the cultural wellbeing across the Autūroa and Autakata pou, as well as the social wellbeing across the Autaketake and Autakata pou. By actively involving mana whenua in the Steering Group, this uplifts the mana of mana whenua and recognises their whakapapa connecting to the whenua of Ōtepoti Dunedin. Furthermore, this plan utilises mātauraka from mana whenua for the benefit of the environment, which in turn uplifts the mauri of Ōtepoti Dunedin and recognises the balance of tapu and noa in keeping residents safe from waste.

Te Ao Tūroa – The Natural World: Dunedin's Environment Strategy

While the Waste Management and Minimisation Plan sits under the WMA, within the DCC's strategic framework, the WMMP fits under the Te Ao Turoa – The Natural World, Dunedin's Environment Strategy. The WMMP contributes more specific direction, actions, and commitment to achieving Te Ao Tūroa's reductions in greenhouse gas emissions and to manage resources more sustainably.

Protecting public health

Protecting public health is one of the original reasons for local authority involvement in waste management. Te Rautaki Para refers to public health as being one of the outcomes of successful recovery of resources. The Waste Assessment 2023 identified key waste management issues that are likely to be of concern in terms of public health after consulting with the Medical Officer of Health[4]. These risks will primarily be managed by providing waste services and infrastructure. For example, assisted collections and additional medical waste bins have also been introduced as services to further protect public health. Appropriate performance standards for waste service contracts will be

[4] Otago Regional Waste Assessment (2023) Appendix 1 – Medical Officer of Health Statement.

monitored and reported on. There are appropriate structures within contracts for addressing issues when they arise. Private waste services can be regulated through a bylaw where necessary.

Uncontrolled disposal of waste such as in clean fills or in rural areas, can be regulated on the local, regional, or national level. The DCC will work with the Otago Regional Council to ensure that waste issues are appropriately reflected in their regional plans.

Other areas that this Plan provides for to protect public health are:

- Continuously review reprocessing infrastructure.
- Engage with private operators to obtain better information on quantities of waste generated.
- Continue to support and deliver education and minimisation programmes.
- Review opportunities for better management of biosolids.
- Communicate and engage with communities, including iwi on changes to services.
- Review workforce planning in light of delivering waste management.
- Continue work to standardise waste management practices across Otago.
- Continuously improving on the services and infrastructure offered.

Guiding principles

Guiding principles are included in this Plan to influence decision-making and contribute to positive and holistic outcomes from the actions carried out. The guiding principles for this Plan are to: follow the waste hierarchy, provide leadership, ensure accessibility, work regionally, and diversify waste minimisation solutions.

Waste hierarchy

Figure 3: The Waste Hierarchy, as used in Te Rautaki Para, New Zealand's Waste Strategy, Ministry for the Environment.

The waste hierarchy guides best practice and the order of preference for how to manage waste, to gain the best outcomes for the environment (Figure 3). Focusing on the top part of the waste hierarchy, prevention and reuse, has several benefits. It helps prevent greenhouse gas emissions, reduces pollutants, saves energy, conserves resources, creates jobs, and promotes green technology. By emphasising these steps, we can move toward a more sustainable approach to resource use. Tackling the top of the waste hierarchy requires changes in behaviour and culture around waste.

Councils have largely been focussing investment and resourcing on the lower part of the waste hierarchy, recycling and waste management. With this solid foundation in place, we are in a position to shift our focus to the higher parts of the waste hierarchy (avoid, reuse, repair). This is a difficult area to influence, invest in, and measure. However, there are actions that community groups, businesses, and Council can work on together to make progress. Such as establishing zero waste event services and infrastructure, building on the repair movement, and community-led resource recovery which can offer services like reuse, repair, recycling, product take-back, and reverse reuse logistics. Businesses can design to avoid waste, for durability, and reuse, offer take back programs, and reduce packaging. Council can assist by helping with resourcing and collaboration and planning infrastructure and services to support these activities. This Plan embraces these actions, to shift our investment and resourcing to the top parts of the waste hierarchy.

Leadership

The DCC will model best practice in waste minimisation by reducing waste and shifting to a circular economy. Best practice will be integrated across the organisation's culture, operations, decision making, and procurement. Furthermore, the DCC will adopt leadership as a frame of mind, and enable others in the community to effect waste minimisation and get involved in achieving this Plan.

Accessibility

DCC waste services are designed and funded to suit most residents. However, local government plays a crucial role and is responsible for ensuring that waste services are accessible to all residents and businesses within our jurisdiction as far as practicable.

There are different demographics in the community with unique needs. Making services accessible to all needs to be part of this Plan's actions. For instance:

- Providing convenient access to recycling centres, transfer stations, waste collection points, and assisted collections.
- Engaging in educational campaigns to raise awareness about waste minimisation and management practices and offering the information in a range of media forms.
- Inclusive infrastructure - investing in infrastructure that accommodates diverse needs.

Working locally and regionally

Local waste minimisation, processing, and services will be prioritised to reduce greenhouse gas emissions from transporting recycling and improve local economic opportunities. Recycling usually has to be transported long distances from Ōtepoti Dunedin to be processed. However, by working locally, we can reduce this conflict upon the environment between reducing waste and producing greenhouse gas emissions. Regional collaboration is also key for gaining scale and efficiency of quality materials in demand by recyclables markets for improving waste minimisation.

In preparation for this Plan, the DCC worked with the other districts in Otago to write a joint regional Waste Assessment. This identified opportunities for working together, to get the best waste minimisation outcomes. This Plan seeks to work in close collaboration with the other Otago districts (Clutha, Waitaki, Central Otago, and Queenstown Lakes) and Southland where appropriate. This could involve Councils in Otago:

- Agreeing to adopt a consistent waste minimisation bylaw.
- Jointly collecting data from waste operators and using this information to identify issues and options from this information.
- Jointly advocating for access to centrally held data. For example, waste levy reporting.
- Sharing a regional human resource that engages across sectors and districts, to build on waste minimisation opportunities.
- Collaborating to consistently and proactively engage with target communities to minimise contamination.
- Promoting public participation in local authority rubbish and recycling services.
- Supporting shared resources for digital trading systems for materials.
- Collaborating to design a scalable Circular Resource Network for the region, with any infrastructure projects being designed to fit with this network. Smaller community-led infrastructure and services are actively encouraged and prioritised over large commercial infrastructure, where appropriate.
- Committing a portion of funding to deliver priority collaborative regional projects.
- Territorial Authority (TA) Officers advocating for regional infrastructure when engaging in collaboration at a national level.
- Exploring further regional co-operation, such as establishing a regional waste entity.

Diversify waste minimisation solutions

To enable people to reduce and minimise waste, more options need to be available. In Ōtepoti Dunedin, some materials cannot be diverted from landfill because the necessary services and

infrastructure are not available locally. To improve waste minimisation in Ōtepoti Dunedin, we need to increase our range of waste minimisation opportunities, such as reuse systems and drop-off sites for textiles and timber.

Te ao Māori

To give effect to a Māori worldview, the actions in this Plan should be carried out in a way that uses the principles from Te Takiharuru, Dunedin's Māori Strategic Framework, so that key concepts for a Māori worldview can be incorporated into operations and outcomes from this Plan. Te Taki Haruru is the name gifted to the DCC's Māori Strategic Framework by mana whenua. In Māori, taki translates as 'to cry' and haruru 'to roar'. Takiharuru (Pilots Beach) is named because of the roar of the ocean. In the context of the strategic framework, the name Te Takiharuru is a metaphor that connects Ōtepoti Dunedin residents to the past, to the place where the Treaty was signed in Ōtepoti Dunedin, and like the constant roar of the ocean, is a constant reminder of our Treaty of Waitangi relationship.

Kaitiakitaka is an essential and centralised aspect of the DCC's commitment to the Treaty of Waitangi regarding the WMMP, which is reflected in Te Takiharuru. The primary key directions that promote, or relate to, kaitiakitaka within the WMMP are "Māori are leaders in the management of our natural resources and built environment," and "Te Ao Māori informs policy, planning and decision-making." These key directions ensure that mana whenua's priority of caring for te taiao (the environment) is utilised in the management of te taiao and relevant kaupapa (activities) that are related to, or have an impact, on te taiao. The application of this priority, seeing kaitiakitaka actioned, will be guided by the two-remaining environmental-based key directions, "Mātauraka is incorporated through the co-design and co-management of our environment and resources," and "The environment is regenerated and a sustainable future is secure." The key directions, within the environmental wellbeing strand of Te Takiharuru, show how kaitiakitaka can be, and will be, utilised within the WMMP.

An artistic design was created for Te Takiharuru, to represent the important cultural landmarks, principles and values in Ōtepoti Dunedin. Each quadrant of the design represents a principle from the Māori Strategic Framework, and the value connected with it (Figure 4).

Figure 4: Te Takiharuru as a design, to represent the principles and values of the Māori Strategic Framework for te ao Māori in Ōtepoti Dunedin.

Developing the Action Plan

Engaging key sectors and stakeholders

In preparation of this Plan, the DCC carried out stakeholder engagement as follows:

- Workshops with key sectors – construction and demolition, community/non-profits, businesses in partnership with Business South, and private waste operators.
- Meetings with tertiary stakeholders – The University of Otago and Otago Polytechnic
- Meetings with:
    - Ōtepoti Dunedin Community Boards
    - Zero Carbon Alliance
    - DCC departments including Waste and Environmental Solutions, Events, Community Development, Parks and Recreation, City Planning, Building Services, Legal, Corporate Policy, and Procurement.
    - The Waste Management and Minimisation Steering Group included mana whenua representatives.

Feedback from the engagement process was used as the basis for the objectives and the Action Plan.

Vision

Ōtepoti Dunedin is actively committed to preventing waste, reducing emissions, and building a circular economy to respect and protect people and the natural environment's mauri.

Objectives

Objectives have been informed by the recurring themes which came from stakeholder engagement workshops and meetings for the review of the WMMP.

1. Circular economy – The top of the waste hierarchy will be prioritised in investment, design, and purchasing decisions.

2. Infrastructure and services – Improve resourcing of local infrastructure, and services to make good practice in waste minimisation convenient and easy.
3. Networking and collaboration – Enable wider collaboration with local community and business partners and with regional Territorial Authorities.
4. Education and communication - Provide waste minimisation education and communication to local community and business partners to enable best practice.
5. Advocacy, incentives, and regulation – Using a variety of means to achieve waste minimisation best practice.
6. Data - Ensuring mechanisms are in place for tracking and reporting progress and to inform decision making.

Targets

When considering targets for this Plan, there are two pre-existing areas of targets for waste minimisation and greenhouse gas emissions that we must consider. This Plan will use the financial year 2022/23 as a baseline year.

1. Te Rautaki Para, the New Zealand Waste Strategy - this provides ambitious but achievable targets for Aotearoa New Zealand. The DCC needs to incorporate these targets in its own waste minimisation strategies, to align with national aims.
2. Zero Carbon Plan 2030 – on the local level, DCC has already adopted local waste diversion and emission reduction targets in the Zero Carbon Plan 2030. The three targets for waste in the Zero Carbon Plan 2030 have already been achieved, or are very close to being achieved. Therefore, this Plan has new targets that align with Te Rautaki Para – the National Waste Strategy.

The 9 Year Plan 2025-34 also has targets for waste, but since it covers a longer time-frame than this plan, the targets have been extended proportionately to cover the longer period.

Table 5: The WMMP targets and how they fit with targets in Dunedin's Zero Carbon Plan 2030, 9 Year Plan, and Te Rautaki Para, New Zealand's Waste Strategy. The year 2022/23 is used as the baseline for the WMMP 2025 and 9 year Plan targets.

WMMP 2025 Targets (also Te Rautaki Para Targets)	**Dunedin Zero Carbon Plan 2030**	**9 Year Plan Targets**	**Notes**
Target 1: Waste generation: Reduce the amount of material entering the waste management system, by 10 % per person by 2030.	10% reduction in waste production per capita	Waste generation: Reduce the amount of material entering the waste management system, by 15 % per person.	The targets for waste generation/production between the local Zero Carbon Plan and national waste strategy are aligned. The target for reducing waste generation has been extended proportionately for the 9 Year Plan to account for the longer term covered by that Plan.
Target 2: Waste disposal: Reduce the amount of material that needs final disposal, by 30% per person by 2030.	Waste disposal: Reduce the amount of material that needs final disposal, by 30%	Target 2: Waste disposal: Reduce the amount of material that needs final disposal, by 45% per person.	The national target aligns with the level of ambition in Dunedin's Zero Carbon Plan 2030.

	per person by 2030.		The target for reducing waste to landfill has been extended proportionately for the 9 Year Plan to account for the longer term covered by that Plan.
Target 3: Waste emissions: reduce the biogenic methane emissions from waste, by at least 30%.	To achieve 2030 targets, Ōtepoti Dunedin needs to make resource use more circular and reduce emissions from waste by 37% below 2018/19 levels	Target 3: Waste emissions: reduce the biogenic methane emissions from waste, by at least 45%.	The Ōtepoti Dunedin target for waste emissions in the Zero Carbon Plan 2030 has been achieved. Therefore, this Plan uses the national target for waste emissions. The target for reducing emissions from waste has been extended proportionately for the 9 Year Plan to account for the longer term covered by that Plan.

Work priorities for achieving the 2030 targets and actions

Setting priorities provides direction and focus, enabling greater gains by concentrating resources into fewer areas. The key areas for the actions to be applied to during the term of this plan are:

- Construction and demolition waste – work with the sector and develop infrastructure to implement waste minimisation and improve practices.
- Community based resource recovery – develop community-based resource recovery and reuse to enhance social and environmental outcomes, make waste minimisation more accessible, and diversify solutions.
- Organics - extend organics diversion services, concentrating on diverting food and garden waste, divertible timber, paper, and textiles as priority waste streams identified in the Zero Carbon Plan 2030.
- Regional development – work with other districts in Otago to improve waste minimisation and management regionally.

Performance standards

The Ministry for Environment can set performance standards for the implementation of Waste Management and Minimisation Plans under s 49 WMA. In September 2023, a performance standard was introduced for accepted materials, excluded materials, and discretionary materials for Territorial Authority-managed household kerbside collection services. The performance standards in the DCC's kerbside collection's contract meet the set criteria. DCC staff will monitor the contractors' performance, and its own as contract partner, and report to the Ministry for Environment annually. The method for this is laid out in the 'Monitoring progress and reporting implementation' section of this Plan.

Action plan

This section lays out the actions that will be carried out to achieve the objectives and targets of this WMMP. The objectives are the broad outcomes being sought and the actions are how we will achieve

these outcomes. These actions were sourced from the Otago Regional Waste Assessment, external engagement workshops, internal engagement meetings, WMMP Steering Group meetings which included mana whenua representation, and the Zero Carbon Plan 2030 – Implementation Plan.

The Action Plan is divided into tables covering topics for the core focus areas of this WMMP (Table 6-13). These are overarching actions that will help waste minimisation broadly, construction and demolition, community-based resource recovery, organics, and regional actions. There are separate tables for rural, internal, and supplementary actions to ease navigation of the Plan. The actions are arranged based on the waste hierarchy, the impact upon their relevant objectives, targets, and key issues identified in the Waste Assessment 2023. Implementation methods, funding methods, and timeframes are also detailed against each action.

The impact of each action is noted as high, medium, or low, according to how directly the action is expected to impact upon the key waste issues identified in the Waste Assessment 2023, and targets. Actions which have a less direct impact on our targets and have outcomes that are difficult to measure, such as behaviour change, education, and advocacy, are classed as lower impact. Actions regarding national and regional regulatory reform have been classed as high impact.

The actions are then ordered based on placement in the waste hierarchy, the key issues from the Waste Assessment 2030 that the actions will address, the level of impact expected and whether it was an action raised in external engagement. For example, collaborating with community partners to establish a network of community-based resource recovery centres fits with the top of the waste hierarchy, will have a high impact on Target 1 and 2, and addresses key issue 1a from the Waste Assessment 2030, and it was raised as an action in external engagement workshops. Therefore, it is the top action in the plan for community-based resource recovery.

Funding the Plan

Section 43 of the WMA requires councils to provide information about how they will fund the implementation of their WMMPs. The actions in this Plan will be funded through a variety of methods, depending on the scale, type of project, whether it is a new action or part of existing operations, and who will be delivering the action. The funding options include:

- The waste levy will be used for establishing new projects, services, and provide the resourcing required to achieve more waste minimisation in Ōtepoti Dunedin, in accordance with this WMMP. The waste levy can also be used to offer Waste Minimisation Grants, in accordance with the grants framework set out in this WMMP. The use of waste levy is prescribed by s32 of the WMA. DCC uses waste levy funding to cover waste minimisation staff salaries (including a contribution towards an Enviroschools facilitator) and associated employment costs such as ACC and Superannuation.
- Long Term Plans - projects that require large investment will be funded through Long Term Plans, such as city-wide infrastructure and services.
- Annual Plans – Ongoing, operational costs will be funded through Annual Plans.
- Users Pay Charges – (also known as the 'polluter pays' method). It means those using a service, or disposing of waste, pays the full cost for the service or disposal.
- Penalty Fees and Infringement Fees and Charges - These are used to fund resourcing for enforcement of regulation.
- Targeted Rates – Kerbside collection services are funded through targeted rates, meaning those who receive the service are charged for it. This makes it more equitable, as households that do not receive the kerbside collection services do not have to pay for it. This could be

expanded and varied, depending on the development of administrative capacity and coverage of services.

Health and safety for implementation

Waste management and minimisation activities have inherent risks for people working in the sector. Legal compliance and DCC standards for health and safety will be met throughout the implementation of this WMMP, monitored by contractor reports and audits. Industry standards have been prepared by WasteMINZ (the sector representative organisation), which will be useful guidance for implementation by external organisations. DCC staff will be proactive, working with our contractors, community groups, and residents to continue to improve health and safety outcomes and meet the requirements of the Health and Safety at Work Act, 2015.

Table 6: Overarching actions that will broadly support waste minimisation. These are in order of the waste hierarchy.

	Overarching Action	Waste Hierarchy Level	Objective	Target *See Table 5*	Key Issue # (Waste Assessment) *See page 11*	Impact High/Med/Low	Implementation Method	Funding method	Timeframe	Source
1	To create an online platform for Ōtepoti Dunedin that facilitates waste minimisation communication and co-action among businesses, community groups, and residents to enable active participation in a sharing economy. Case studies and best practice guidance will be included where appropriate.	Avoid, Reduce, Reuse	1,3,4,	T1, T2	4a, 4b, 5a	High	To work with community organisations and businesses to establish a sharing platform for resources.	Waste levy, Annual Plans	2030	External engagement workshop, Internal engagement
2	Investigate implementing regulation in the form of a waste minimisation bylaw, to lift the baseline of standard practices. Adopt and implement a bylaw as appropriate.	Avoid, Reduce, Reuse	5	T2, T3	4b, 5a	High	Council led	Annual Plans, Waste Levy	2030	External engagement workshop
3	Continue to offer grants to community groups and businesses to achieve and deliver waste minimisation.	Avoid, Reduce, Reuse	2, 3, 5	T1, T2	4a	High	Council led. A new Waste Minimisation Grants Framework is included in this Plan to instigate these changes (Appendix 1).	Waste Levy	Ongoing	External engagement workshop, Zero Carbon Implementation Plan: R1.2.1

4	Advocate to central government to regulate against all single use cups, endorse the right to repair, eliminate waste via design, introducing a Container Return Scheme, and further product stewardship schemes.	Avoid, Reduce, Reuse	5	T2	5g	High	Council led.	Annual Plans, Waste Levy for staff time.	2025 to 2030.	External engagement
5	Investigate financial incentives to encourage businesses to reuse and recycle. Align with the work priorities of this Plan, with an emphasis on construction and demolition. Implement as appropriate.	Avoid, Reduce, Reuse	5	T1	5a	High	Waste and Environmental Solutions leads	Waste Levy and Annual Plans	2030	External engagement.
6	Establish collaborative structures and communication, such as a cross-city circular economy collaboration group or groups to support local resource reuse initiatives and infrastructure, and to promote resource circularity especially in the business community.	Avoid, Reduce, Reuse	1,2,3, 4	T1, T2	5a	Medium	Networking events will identify key and willing organisations. Waste and Environmental Solutions and Zero Carbon will work with these key organisations to establish the collaborative structure.	Waste levy	2025-2030.	External engagement workshop, Zero Carbon Plan 2030 – Implementation Plan R1.2.2

7	Improve waste minimisation at DCC run and DCC grant funded events. This may include assisting with services or resources, educational opportunities, working with venues, or advice on waste minimisation event plans.	Avoid, Reduce, Reuse	2, 3, 4	T2, T3	5a, 4a	Medium	Council led. Progress in waste minimisation by non DCC events will be measured through voluntary reporting.	Waste Levy, Annual Plans	From summer season 2026, after composting services are available for events. Achieve 40% diversion by 2030.	Internal engagement
8	Offer cross sector and public waste minimisation educational workshops and courses. These may be in person or online and in collaboration with external providers.	Avoid, Reduce, Reuse	1, 4	T2, T3	4a, 4b	Medium	Waste and Environmental Solutions develops courses with a provider.	Waste Levy, Annual Plans	From 2027 to 2028, once the Construction and Demolition Sorting Facility is established.	External engagement workshop Zero Carbon Plan 2030 – Implementation Plan. R1.5.1.
9	Continue to develop and support existing resource recovery parks including Green Island, Waikouaiti, and Middlemarch. Plan for how reuse systems could be supported.	Avoid, Reduce, Reuse	2	T2, T3	NA	Medium	Council led.	Long Term Plan.	From 2025-2030.	Zero Carbon Plan 2030 – Implementation Plan. R1.1.1
10	Engage with businesses to undertake waste audits and develop waste minimisation plans. Aim to support four businesses each year.	Avoid, Reduce, Reuse	1, 4, 6	T1, T2	4b	Medium	Waste and Environmental Solutions works with businesses, with support from Zero Carbon as needed.	Waste Levy, Long Term Plan	2030	Zero Carbon Plan 2030 – Implementation Plan, Action R1.1.5.4, R1.5.5

11	Continue to communicate services and facilities available in Dunedin in order to motivate and enable residents, community organisations, and businesses to practice and improve waste minimisation.	Avoid, Reduce, Reuse	4	T1, T2	NA	Medium	Waste and Environmental Solutions leads.	Waste Levy and Annual Plans	2025-2030	External engagement
12	Expand the range and the accessibility of waste minimisation facilities that are available in Ōtepoti Dunedin for further materials/products.	Recycle	1, 2	T1, T2, T3	4a	High	Council led.	Waste Levy and Annual Plans	2030	External engagement Internal engagement
13	Explore the provision of recycling services for businesses, and the Central Activity Area (CAA), including the South Dunedin Precinct. Implement as appropriate..	Recycle	2	T1	3a, 4b	High	Council led in partnership with waste operators.	Targeted rates or User's Pay Charges, Long Term Plan.	2030	External engagement workshop
14	Construct a new resource recovery park at Green Island to provide infrastructure for waste diversion.	Recycle	1, 2	T1, T2, T3	1a	High	Council led.	Long Term Plan, Waste Levy.	2030	Zero Carbon Plan 2030 – Implementation Plan Action R1.5.2.
15	Collect data to identify opportunities for improving waste reduction, and to inform the public.	Recycle	6	T1, T2	2a, 4a	Medium	Council led,	Waste levy	2030	External engagement workshop.

16	Council Kerbside Collection bin use is monitored to ensure proper use of the service. Terms and Conditions of the kerbside services are being met (See Appendix 1).	Recycle	5, 6	T1, T2, T3	3c	Medium	Council led.	Annual Plan, targeted rates, Waste Levy, Penalty fees and infringement fees.	Ongoing from 2025.	Internal engagement
17	Hazardous and contaminated waste will be disposed of and treated responsibly to avoid harm to the environment and comply with regulations.	Treatment	2	T2, T3	4a	Low	Council led.	Annual Plans	Ongoing	Otago Regional Waste Assessment and internal engagement.
18	Purchase and install gas engine at Green Island Landfill.	Disposal	2	T3	1c	High	Council led.	Long Term Plan	2025-2026.	Zero Carbon Plan 2030 – Implementation Plan Action R3.8.2
19	Continue work to optimise gas capture and destruction at Green Island Landfill.	Disposal	2	T3	1c	Medium	Council led.	Long Term Plan	2030	Zero Carbon Plan 2030 – Implementation Plan Action R3.8.3
20	Old landfills are monitored and managed to minimise any harm on the environment.	Disposal	6	N/A	5e	Medium	Council led in conjunction with Otago Regional Council	Long Term Plan	2030	External engagement workshop, Internal engagement.

21	A Litter Compliance Policy will be maintained to curb littering and illegal dumping.	Disposal	5	T2	N/A	Low	Council led.	Annual Plans and penalty feeds for non-compliance.	Ongoing until 2030.	Internal engagement

Table 7: Actions for waste minimisation and management in construction and demolition.

	Construction and Demolition Action	Waste Hierarchy	Objective	Target *See Table 5*	Key Issue # (Waste Assessment) *See page 11*	Impact High/Med/Low	Implementation Method	Funding method	Timeframe	Source
22	Explore the potential for and support the establishment of construction and demolition waste re-use hub(s) with community partners. Implement as appropriate.	Avoid, Reduce, Reuse	2, 3, 4	T2, T3	4a	High	Council led with community and construction sector partnerships.	Annual Plans, Long Term Plan, Waste Levy.	2030	Zero Carbon Plan 2030 – Implementation Plan Action R1.4.3, R1.4.4
23	Explore ways and opportunities to support the establishment and operation of building deconstruction services. Implement as appropriate.	Avoid, Reduce, Reuse	2, 3, 5	T2, T3	5a	High	Council led with community and construction sector partnerships.	Annual Plans, Waste Levy.	2030	Zero Carbon Plan 2030 – Implementation Plan, Action R.1.4.7, R1.4.8
24	Explore and implement as appropriate options for incentives and education to encourage low carbon, circular, low waste design for construction projects, including case studies and publishing information about best practice.	Avoid, Reduce, Reuse	5	T2, T3	4b, 5a	High	Council led with community and construction sector partnerships.	Annual Plans, Waste Levy.	2030	Zero Carbon Plan 2030 – Implementation Plan, Action R1.4.5, R1.4.6, R1.4.10, R1.4.11.

25	Deliver a pilot programme for on-site sorting of construction waste.	Recycle	2	T2, T3	NA	High	Council led with construction sector and waste operator partnerships.	Waste Levy, Long Term Plan.	2030	Zero Carbon Plan 2030 – Implementation Plan Action R1.4.9 and External engagement workshop.

Table 8: Actions for developing and supporting community-based resource recovery.

	Community Based Resource Recovery Actions	Waste Hierarchy Level	Objective	Target *See Table 5*	Key Issue # (Waste Assessment) *See page 11*	Impact High/Med/Low	Implementation Method	Funding method	Timeframe	Source
26	Collaborate with successful community partners to establish a network of community-based resource recovery centres, including a central location. These centres, supported by Waste and Environmental Solutions, promote circularity, transparency in destination of materials, and self-sustainability.	Avoid, Reduce, Reuse	2, 3	T1, T2	1a	High	Council led with community partnerships	Waste Levy, Long Term Plan, to be confirmed following completion of business case.	2030	External engagement workshop Zero Carbon Plan 2030 Implementation Plan, actions R1.1.2, R1.1.4, R.1.1.5, R.1.1.6, R.1.1.7.
27	Continue to support/run and grow a calendar of community events and education to divert household items from landfill.	Avoid, Reduce, Reuse	4	T1, T2, T3	5a	Medium	Council enabled.	Long Term Plan, Waste Levy.	2030	Zero Carbon Plan 2030 – Implementation Plan. Action R1.5.1, R1.1.8.

28	Support localised community waste minimisation systems to establish and become consented.	Recycle	2, 4	T1, T2, T3	1a, 4a, 5a	Medium	Waste and Environmental Solutions works with community groups to support them in gaining access to land to use, and step through the consenting process.	Waste Levy, Annual Plans	From 2025 to 2030.	External engagement workshop

Table 9: A table of actions for avoiding, diverting, and minimising organics from reaching landfill

	Actions for Organics	Waste Hierarchy Level	Objective	Target *See Table 5*	Key issue # (Waste Assessment) *See page 11*	Impact High/Med/Low	Implementation Method	Funding method	Timeframe	Source
29	Explore and implement as appropriate opportunities to divert construction timber from landfill.	Avoid, Reduce, Reuse	1, 2, 5	T2, T3	5a, 4a, 1a	High	Waste and Environmental Solutions designs and builds the facility at Green Island Resource Recovery Park, or alternate site.	Long Term Plan, Waste Levy.	2025-2026.	Internal engagement Zero Carbon Plan 2030-Implementation Plan R1.4.1
30	Develop options for re-use of soils which could be diverted from landfill. Implement as appropriate.	Avoid, Reduce, Reuse	1, 2	T2, T3	1a, 4a	Medium	Waste and Environmental Solutions develops the soil library at a Council resource recovery site. A soil library could be established at a resource recovery park, to accept	Waste Levy and Long-Term Plan	By 2028.	Internal engagement

							soils that could be reused, diverting them from landfill. The soils can be categorised based on their source and reuse options, to ease compliance with consent conditions for users.			
31	Investigate how food scrap collections can be made be available for businesses in the Central Activity Area, including the South Dunedin Precinct. Implement as appropriate.	Recycle	2	T1, T2, T3	3a, 4a, 4b	High	Services by private collection companies or DCC expands upon the organics services already being made available.	Private collections or Long-Term Plan	By the end of 2029.	External engagement workshop
32	Explore and implement options for a long term biosolids solution.	Disposal	2	T2, T3	4a	High	Three Waters, Waste and Environmental Solutions, and Zero Carbon work together.	Long Term Plan	2025-2030	Zero Carbon Plan 2030 – Implementation Plan R3.7.1

Table 10: Actions that will support regional development for waste management and minimisation.

	Regional Actions	Waste Hierarchy	Objective	Target *See Table 5*	Key Issue # (Waste Assessment) *See page 11*	Impact High/Med/Low	Implementation Method	Funding method	Timeframe	Source
33	Collaborate with other territorial authorities to develop a regional circular resource network	Recycle	1, 2, 3	T1, T2	1a, 2b, 3a, 4a,5c	High	Councils lead, provides, and facilitates	Waste Levy, Long Term Plans	2025-2030	Otago Regional Waste Assessment

34	Encourage and support waste-related improvements to the Land and Water Regional Plan including improving provisions for composting.	Recycle	5	T1	2a	High	Council led.	Annual Plan	2025	Zero Carbon Plan 2030 – Implementation Plan R1.3.4 Internal engagement.
35	Collaborate with other territorial authorities, regional authorities, and private waste companies to upskill and plan for disaster waste management and responses.	N/A	2, 3	T2	5e	Medium	Waste and Environmental Solutions	Annual Plans, Long Term Plan, Waste Levy	2025-2030.	Otago Regional Waste Assessment and Internal engagement

Table 11: Actions that will support rural communities with waste management and minimisation.

	Rural Actions	Waste Hierarchy	Objective	Target *See Table 5*	Key Issue # (Waste Assessment) *See page 11*	Impact High/Med/Low	Implementation Method	Funding method	Timeframe	Source
36	Improve the provision of recycling services for rural households and agricultural items. Implement as appropriate.	Recycle	2	T1, T2, T3	3a, 2a	Medium	Waste and Environmental Solutions work with rural stakeholders and waste contractors.	Waste Levy, Long Term Plan	By 2028.	External engagement workshop Zero Carbon Plan 2030, Implementation Plan Action R1.5.3.

Table 12: Actions the DCC will complete to improve waste minimisation and management

	Internal DCC Actions	Waste Hierarchy	Objective	Target *See Table 5*	Key Issue # (Waste Assessment) *See page 11*	Impact High/Med/Low	Implementation Method	Funding method	Timeframe	Source
37	The DCC leads by example in waste minimisation, across all departments.	Avoid, Reduce, Reuse	1, 5	T1, T2	5f	Medium	Waste and Environmental Solutions works internally to improve waste minimisation across the DCC.	Annual Plans, Waste Levy for staff time.	2025-2030.	External engagement

Table 13: Supplementary actions that will be undertaken if resourcing is available.

	Supplementary Actions	Waste Hierarchy	Objective	Target *See Table 5*	Key Issue # (Waste Assessment) *See page 11*	Impact High/Med/Low	Implementation Method	Funding method	Timeframe	Source
1	Undertake study to determine sources of paper sent to landfill and identify actions to reduce, reuse, or recycle paper.	Avoid, Reduce, Reuse	1, 6	T3	4a, 4b	Medium	Waste and Environmental Solutions leads the study, procuring services where needed. Support from Zero Carbon as needed.	Long Term Plan, Waste Levy.	2026-2027	Zero Carbon Plan 2030 – Implementation Plan Actions R1.6.3, R1.6.4.
2	Undertake study to determine source and composition of textiles sent to landfill and identify actions to reduce, reuse, or recycle textiles.	Avoid, Reduce, Reuse	1, 6	T3	4a	Medium	Waste and Environmental Solutions leads the study, procuring services where needed. Support from Zero Carbon as needed.	Long Term Plan, Waste Levy.	2027-2028.	Zero Carbon Plan 2030 – Implementation Plan Action R1.6.5 and R1.6.6.

3	Investigate further procurement tools to incentivise businesses and producers to improve their waste minimisation. Implement as appropriate.	Avoid, Reduce, Reuse	3, 4, 5,	T2	4b	Low	Council led.	Waste levy and Annual Plans	2030	External engagement workshop Zero Carbon Plan 2030 Implementation Plan, Action R.1.2.3
4	The DCC will advocate and incentivise through procurement, for product stewardship so that the responsibility of disposal/end of life belongs to the manufacturer/supplier.	Avoid, Reduce, Reuse	1, 5	T2	5a	Low	Waste and Environmental Solutions leads, working with procurement and other teams in the DCC.	Annual plans	2025-2030.	External engagement
5	Investigate establishing awards to incentivise good practice in waste minimisation and innovative reuse of materials in a variety of sectors. Implement as appropriate.	Avoid, Reduce, Reuse	5	T2	4b	Low	Council led	Waste Levy and Annual Plans	2030	External engagement workshop
6	Advocate to businesses to improve waste minimisation. E.g., packaging, standardised designs.	Avoid, Reduce, Reuse	1, 3, 5	T2	4b	Low	Waste and Environmental Solutions works with businesses to improve their practices to align with best practice in waste minimisation.	Annual Plans, Waste Levy for staff time.	2030	External engagement
7	Investigate how tenders can be structured to include additional pricing lines to specify costs for waste minimisation, and	Avoid, Reduce, Reuse	1, 5	T2	5a	Low	Waste and Environmental Solutions works with Procurement to develop tender	Annual Plans and Waste Levy.	2025-2030.	External engagement

	recycling. Implement as appropriate.						documents to encourage waste minimisation.			
8	Expand waste minimisation education by Enviroschools to early childhood centres and further secondary schools. Expand appropriately.	Avoid, Reduce, Reuse	3, 4	T1	5a, 5d	Low	Council led.	Waste Levy and Annual Plans	From 2025 and ongoing.	Internal engagement
9	Public Places Recycling and litter bins are provided appropriately, according to DCC policy and the Reserves Management Plan.	Recycle	2	T2	NA	Low	Council led. Council will provide bin infrastructure and collection services according to their criteria and assessment.	Annual Plans	Ongoing	Internal engagement

Monitoring Progress and Reporting on Implementation

An essential part of making change, is monitoring progress to check that we are achieving what we intend to. This monitoring needs to be reported to Council and the Ministry for the Environment. This section lays out how progress will be monitored and reported (Table 14). Each target will use 2022/23 as the baseline year to measure progress from.

Table 14: A monitoring and reporting framework for achievement of targets in this WMMP.

WMMP Target	Monitoring	Evaluation and Reporting
Target 1: Waste generation: Reduce the amount of material entering the waste management system, by 10% per person by 2030.	Diversion records, Landfill 3000 data from Ministry for Environment levy reports, and population estimates (such as from Stats NZ population census, 'Usual residents').	A quantified measure of waste entering the waste management system per person annually, using Landfill 3000 data and diversion data. Reporting of progress toward this target will be reported for the Long Term Plan via Levels of Service, and actions summarised in Activity Reports to the Infrastructure and Services Committee as appropriate. Limitation: Current data available is not sufficient to give a full and accurate picture of waste generated per person due to waste being sent out of district and private waste services. The value reported will be the best assessment possible but should be taken as indicative.
Target 2: Waste disposal: Reduce the amount of material that needs final disposal, by 30% per person by 2030.	Ministry for Environment Levy reports and population estimates (such as from Stats NZ population census, 'Usual residents').	Use Ministry for the Environment levy reports to report the total quantity of waste being sent to landfill annually, and divide by the population. Reporting of progress toward this target will be reported via Long Term Plan Levels of Service, and actions summarised in Activity Reports to the Infrastructure and Services Committee as appropriate.
Target 3: Waste emissions: reduce the biogenic methane emissions from waste, by at least 30%.	The total landfill gas being generated by the landfill before destruction, minus the landfill gas captured and destroyed (from UEF reports), to attain the quantity of emissions being generated that are escaping the landfill gas capture system.	To account for the expanding landfill gas capture system and landfill field, this measure will focus on reducing the amount of emissions generated, that are escaping the landfill gas capture system. The aim is for these remaining emissions to reduce. Progress for this target will be reported via Long Term Plan Levels of Service, and actions summarised in

		Activity Reports to the Infrastructure and Services Committee as appropriate.

Further reporting carried out for waste management and minimisation for Ōtepoti Dunedin, is required by the Ministry for Environment as following:

- Activity sources of waste to landfill – Ministry for Environment
  - Facility operators are required by the Ministry for the Environment to record and report the activity category of waste they receive at their facilities. As a facility operator, the DCC fits under this requirement. The method for this recording and reporting is detailed in guidance from the Ministry for Environment[5].
- WMA Gazette performance standards –- Ministry for Environment
  - The Ministry for Environment set performance standards for the implementation of Waste Management and Minimisation Plans under section 49 of the WMA. In September 2023, a performance standard was introduced for accepted materials, excluded materials, and discretionary materials for Territorial Authority managed household kerbside collection services. This standard will be met through performance standards in the DCC's kerbside collection's contract. Meeting this standard will be monitored and reported to the Ministry for Environment as per Section 86 (1c) annually.
- Spending of waste levy – Ministry for the Environment
  - The spending of waste levy money will be recorded, and related to the objective it is achieving. This will be submitted annually to the Ministry for Environment, as per Section 86 of the WMA.

Further monitoring and reporting is carried out internally to assess progress and report on implementation.

- Key Performance Indicators in the DCC's contracts are reported by the contractor to the DCC. This is used to evaluate whether they are meeting their performance standards or not and take corrective action accordingly.
- Health and safety performance is reported by contractors to the DCC. This is monitored and corrective actions are taken as needed.
- Outcomes from the Waste Minimisation Grants will be reported annually to the Infrastructure and Services Committee.

Continuing Improvement and Progress

The DCC needs to consider a second approach in case progress is not being made as required by this WMMP. The future is inherently uncertain. Unforeseen circumstances may require alternative funding sources or approaches to achieve waste minimisation and management in Ōtepoti Dunedin. Some alternative arrangements could be:

- Seeking funding from national or international grants
- Increase human resourcing through external contracts
- Working collaboratively with community partners and non-governmental organisation

[5] Ministry for Environment (2024) 'Waste data – Overview of Activity Category Reporting', URL: Waste data – Overview of activity category reporting | Ministry for the Environment, accessed 19.06.2024.

- Changing emphases or methods for a particular objective or action.

Glossary

Autakata – Part of Te Taki Haruru, this guiding principle refers to people. Whakapapa is the foundation from which everything is explained and connected in te ao Māori. Pivotal to identity, whakapapa is knowing who you are and where you belong. The outcome is for traditional authority of mana whenua in Ōtepoti Dunedin being recognised through partnerships based on reciprocity and respect.

Biosolids – The organic residue from sewage treatment processes, and the processing of organic materials[6].

Circular Economy – A circular economy designs out waste and pollution, keeps products and materials in use, and regenerates natural systems[7]. In a circular economy, items people use to live, work and play is designed to be reused, repaired, or safely returned to the environment, so the materials they are made of are rarely wasted.

Circular Resource Network – Reorganising how the recovery of materials in the economy works, by establishing a 'Circular Resource Network'. These can follow a range of models, as described in the Waste Assessment 2023.

Linear economy - In a linear economy, most of the things people use to live, work and play are made from natural resources, used and then disposed of, usually to a landfill.

Product stewardship - When manufacturers, importers, distributors and retailers of a product share responsibility for reducing the environmental impact of their product[8].

Tapu and noa – Provide an element of safety over an activity or resource[9]

Territorial Authority – means a city council or a district council named in Part 2 of Schedule 2 of the Local Government Act 2002.

Zero waste – achieving zero waste (e.g. for events) means to have no waste produced that needs to be sent to landfill.

[6] WasteMinz (2022) 'Technical Guidelines for Disposal to Land – Revision 3', URL: wasteminz.org.nz/files/Disposal to Land/TG for Disposal to Land_12Oct22_FINAL.pdf
[7] Ministry for Environment (2022) 'Ōhanga āmiomio - Circular economy', URL: www.environment.govt.nz/what-government-is-doing/areas-of-work/waste/ohanga-amiomio-circular-economy
[8] Commerce Commission New Zealand (2023) 'Product stewardship schemes', URL: https://comcom.govt.nz/business/your-obligations-as-a-business/product-stewardship-schemes
[9] Dunedin City Council (2023) 'Te Taki Haruru'.

Appendix 1

Waste Minimisation Grants Framework

Under the WMA, Territorial Authorities can provide grants using waste levy money, to encourage and enable waste minimisation in accordance with their WMMP. If the Territorial Authority wishes to, the WMMP must provide the framework for doing so (s43 (2d) WMA).

This next section gives a framework to outline the structure and guidelines for distributing contestable and non-contestable grants to organisations and projects. It ensures transparency, fairness, and effective allocation of grants.

These grants are to enable waste minimisation action by external organisations, in accordance with the guiding principles, vision, goals, objectives, and actions in this WMMP.

Decisions on the award of grants will be based on the following priorities:

1. Top of the waste hierarchy - enable residents or businesses to avoid waste, reuse, or repair items.
2. Waste streams - alignment with the material diversion targets in this Plan and the Zero Carbon Plan 2030.
3. Delivery - the applicant's ability to deliver their project, expand local capability, and achieve strong waste minimisation outcomes.
4. Expand opportunities for diversion – increase the variety of sustainable waste minimisation solutions available and develop new capabilities in Ōtepoti Dunedin.
5. Scale - The quantity and volume of material that will be minimised from reaching landfill by an applicant's project.

The DCC's Grants Management Policy also applies to the management of waste minimisation grants.

Other considerations could include collaborative and joint applications (i.e., between businesses or between community organisations), whether the organisation is local, creates equity for Māori, Pacifica, and new migrant communities, and whether the project contributes towards social, economic, environmental, and cultural outcomes.

Types of Grants

A range of waste minimisation grants are available to community groups and businesses This section describes the types of grants available and eligibility.

Small Waste Minimisation Project Grants

These are available to enable 'quick wins' for small projects throughout the year. For example, a worm farm for a school, or materials for a repair workshop.

Eligibility

- For registered not-for profits (e.g., social enterprise, charities).
- For projects that take place within the DCC administrative boundary.
- Meets some or all WMMP objectives

Waste Minimisation Community Grants

These are available twice a year to support community waste minimisation projects. For example, a series of waste minimisation workshops, establishing a new waste minimisation programme or supporting community events conducting waste minimisation.

Eligibility

- For registered not-for profits (e.g., social enterprise, charities).
- For projects that take place within the DCC administrative boundary.
- Meets some or all WMMP objectives
- Applicants can provide a 30% contribution to the total project cost, which can be in-kind.

Waste Minimisation Commercial Grants

These are available once a year to support commercial waste minimisation projects that build local capability and capacity in the reuse or resource recovery sector. They are intended to support innovations, achieve local economic benefit and employment opportunities, and enable design solutions that retain the value of materials and/or minimises waste.

Eligibility

- Registered New Zealand businesses
- For projects that take place within the DCC administrative boundary.
- Meets some or all WMMP objectives
- Applicants provide a 30% contribution to the total project cost which can be in-kind.

Requirements

Projects must be completed within 12 months of the grant being paid unless a longer service agreement is in place. Completion of an accountability report is required within the 12 month period, which should review the project outcomes, and state how the grant money was used in accordance with the original application (and any additional criteria that the decision was subject to). If the project is not completed within the timeframe, the grant may have to be repaid in part or in full.

The project criteria for the respective grant type is available on the DCC website and through other promotional material.

Non-Contested Waste Minimisation Service Agreements

This non-contested funding is available to provide more certainty and better support to well established organisations (community or commercial) for a project, service, or waste minimisation infrastructure that cannot be provided by other organisations in Ōtepoti Dunedin.

Eligibility

- For registered groups/organisations
- For proven and successful initiatives only, by way of a formal proposal to DCC (where the council, in its discretion, accepts that an initiative is achievable and proven).
- The DCC may seek Registrations of Interest in alignment with DCC Procurement and Contract Management Policy.
- For projects that take place within the DCC administrative boundary.
- Meets some or all WMMP objectives.
- Able to commit to an agreement of up to three years.

Requirements

- Quarterly reports which provide quantitative and qualitative information for the preceding three-month period and other relevant project deliverables.

Ethical Considerations:

When awarding funding, it is important to address conflicts of interest, confidentiality, and any potential biases in the decision-making process. To control for these:

- Conflicts of interest will be declared, and the people involved will be removed from the assessing and decision-making process.
- Confidentiality – all information will be publicly available except where required by law.
- Potential biases – This grants framework lays out clear priorities for how funding should be allocated. The final decisions on allocating community and commercial waste minimisation grants allocation are made by the Grants Subcommittee. Small Waste Minimisation grants are awarded by the Chair of the Grants Subcommittee, and the Deputy Chair when the Chair is unavailable or if a conflict of interest exists.
- Non-Contested Waste Minimisation Service Agreement Grants are awarded upon staff assessment of proposals, under the Group Manager's delegation, and making the Grants Sub-Committee Chair aware of the proposal and the intention to fund.

Appendix 2

Terms and Conditions of Using Kerbside Collection Services

When using the Council kerbside collection services, the following terms and conditions must be met. This is to ensure the service complies with the kerbside collection service standards set in national legislation under s49 WMA, keep our streets clean and safe, and protect the safety of the collection contractors. Improper use is unacceptable and will lead to suspension of the collection service, the bin being removed, or charged for the administration and delivery of a new bin.

The Terms and Conditions are:

- Complying with the correct, accepted materials for the correct bins.
- Not depositing prohibited materials in the bins
- The kerbside collections inspection programme follows three inspections, then if there is no improvement by the third one, the non-compliant bin is removed for three months. The bin can then be returned, at the owner/occupier's cost.
- Complying with maximum weights
    - Yellow-lidded mixed recycling bins (240L) must weigh no more than 60kg
    - Yellow-lidded mixed recycling bins (80L) no more than 20kg.
    - The blue glass recycling bin must not weigh more than 12kg.
    - The red lidded rubbish bin must weigh no more than 30 kg in the 140 L bin, 20 kg for the 80L bin.
- Bins are placed on the footpath by the road by 7am and brought back in by 7pm on collection days.
- Putting the bin facing the correct way for collection.
- Using the lid clip
- If a bin is damaged by using it for anything other than the council service, then the cost for administration and delivery of a new one will be upon the owner/occupier.

DUNEDIN CITY COUNCIL | kaunihera a-rohe o Ōtepoti

Summary of Engagement for Reviewing the Waste Management and Minimisation Plan

Ōtepoti Dunedin's key stakeholders in waste management and minimisation were engaged to inform the new Waste Management and Minimisation Plan (WMMP or this Plan). Dunedin City Council (DCC) staff sought their input to help define the overall direction, work priorities, objectives, and actions for waste over the next six years. The engagement carried out is summarised below.

Project Steering Group

A dedicated project steering group provided input throughout the process of drafting the new Plan, meeting five times between November 2023 and August 2024. It was made up of:

- Councillors
- Representatives from Ōtākou marae and Puketeraki marae
- DCC General Manager Climate and City Growth
- Zero Carbon team
- Waste and Environmental Solutions

Internal engagement

Workshops and meetings were held with:

- Community Development
- Events
- City Development
- Parks and Recreation
- Building Services
- City Planning
- Corporate Policy
- Māori Partnerships Team
- Legal
- Waste and Environmental Solutions.

Stakeholder meetings

- Community Board members
- Zero Carbon Alliance
- Tertiary precinct stakeholders (University of Otago, Otago Polytechnic).
- Workshops with Councillors – 1 August 2024 and 9 October 2024
- Councillor meeting – 8 October 2024.

External engagement

Four external engagement workshops were held, targeting the following sectors: construction and demolition, businesses, community organisations and not-for-profits, and private waste management companies. The external workshops were attended by approximately 120 people representing the organisations listed in Table 1 below.

DUNEDIN CITY COUNCIL | kaunihera a-rohe o Ōtepoti

Table 1: Organisations that were represented at the four external engagement workshops for the WMMP review.

Private Waste Companies (Tue, 27 Feb, 9am-12pm)	**Construction and demolition (Wed, 28 Feb, 7am-9.30am)**	**Community and Not-for-Profits (Wed, 28 Feb, 12-2pm)**	**Businesses (Thu, 7 March, 3.30pm-6.30pm)**
Cargill Enterprises	Ahha Architects	Cargill Enterprises	Beca
EnviroNZ	Cook Brothers	Com2tech	Business South
EZ Grab	CPB Contractors	Dunedin Community House	Calder Stewart
Hall Brothers Transport Ltd	Eco Design, DCC	Dunedin Curtain Bank	CPB Contractors
Nash and Ross	EnviroNZ	Eco Matters	Dunedin Craft Distillers
Save Money Skips	Foleys	ID Fashion	EnviroNZ
Waste Co NZ	Hall Brothers Transport Ltd	Midwinter Carnival	Foleys
	Isaac Construction Ltd	One Coast	Gilbert's Fine Food
	ITM	Otago Farmers Market	Holy Cow
	Kainga Ora	Our Food Network	Isaac Construction Ltd
	Latitude Homes	Re:Gear	Presbyterian Support Otago
	Nash and Ross Ltd	Recycle a Device	Save Money Skips
	Naylor Love	Res.Awesome	Taste Nature
	Otago University Trade Services	Seniors Climate Action Network	
	Property Team, DCC	Sew On	
	Save Money Skips	South Dunedin Community Network	
	SB 2 Build Ltd	Southern Youth Development	
	Southbase	Stitch Kitchen	
	Stevenson and Williams	Sustainability Office University of Otago	
	Waste Co NZ	Taieri Network	
	Wilson Builders	Te Oraka	
		Valley Community Workspace	
		Village Agrarians	

DUNEDIN CITY COUNCIL | kaunihera a-rohe o Ōtepoti

There was a lot of consistency in the feedback from the various workshops. The feedback received was categorised and themed, as summarised in Table 2 below. These themes were then used as the base for the objectives in the draft WMMP 2025.

Table 2: The recurring themes and feedback raised in the external engagement workshops.

Theme	Recurring Feedback	Example Quotes from Workshops
Infrastructure	• Local • Incentivise through providing service hubs. • Storage and coordination • Transportation • Accessible to all • Sorting facilities – portable	"More resource recovery facilities and spaces to facilitate movement of materials and resources - Commercial - community- council and support with platforms, apps, etc." "A physical place for community groups to meet/plan/exchange knowledge. Have one hub for all groups."
Networks & collaboration	• Networks • Mapping of information, infrastructure, and contacts • Joint investment • Collaborating across groups, businesses, and council • Sharing - data, learning, resources, research, innovation • Council leadership/coordination • Celebrations and awards	"Information easily found and centralised" "Bring people together = collaborative" "Communication and co-action to reduce logistical barriers",
Resourcing	• Increase funding amount and time. • Offer more partnerships. • Fund recovery costs • Provide expertise. • Business & community has resource too - knowledge, time, ideas. • Capacity and capability building • Administrate/resource collaboration	"Funding for community. Increase access, more money and ongoing". "Ease access to waste levy funds for small-large companies. Particularly aiding with applications for the national fund. Council support with applications" "More facilities - $$$ savings to do the right thing "
Regulation	• Incentivised pricing • Regulating according to hierarchy	"Use of bylaws for waste min."

DUNEDIN CITY COUNCIL | kaunihera a-rohe o Ōtepoti

	• Advocacy for govt. to follow suit	"Building compliance - issue best practice local guide for C&D sites."
Education	• Capacity and capability building • Schools in the loop • Enabling skill sharing • Recognition • Across sectors and levels • Use good information. • Utilising tertiary sector	"Education of our team and trade partners and clients" "Competitions to empower our tamariki and rakatahi to be our advocates". "More effort and education around sorting waste - separate bins" "Non regulatory action - educate companies on waste".
Communication	• Relationships • Trust • One source of truth • Centralised - council hold information. • Understanding our waste • Product stewardship/producer responsibility • Push for local solutions. • Widening waste stream at higher level • Designing out waste • Procurement changes at govt. level	"Everyone wants to be sustainable - and wants to know how". "Monitoring and reporting - back into community/ sector not just within council." "Share up-to-date information. Be more explicit and transparent about what happens to Dunedin's recycling - celebrate the stories and our success to bring the community along with us."
Advocacy	• Product stewardship/producer responsibility • Push for local solutions. • Widening waste stream at higher level • Designing out waste • Procurement changes at govt. level	"Advocating to govt. for regulations (single-use cups)" "Lobby to Government for changes in legislation for better procurement and packaging and right to repair". "Energy into the TOP part of the hierarchy. Join voices to advocate/lobby to deal with the problems, rather than deal with solving them once created".
Data	• Measurement • Sharing data • Reporting info to everyone • Access to tools	"Monitor waste so we can work on reduction". "Support for data measurement processes to be put in place - software and expertise access".

DUNEDIN CITY COUNCIL | kaunihera a-rohe o Ōtepoti

		"Effective measurement of results of our work - good and bad - automation/reducing user or individual error. Turning this into comms that is accessible/layman's language".
Circular Economy	• Job opportunities • Social procurement practices • Invest in recovery. • Reuse in business • Cost of labour to recover.	"Discontinuance of choice to dispose - allowing others to take opportunity for re-use - and make $$$" "Prevention - divert funds at the bottom of the supply chain to the top to create a culture of prevention."

STATEMENT OF PROPOSAL

PROPOSED CHANGES FOR THE WASTE MANAGEMENT AND MINIMISATION PLAN 2025

INTRODUCTION

The Dunedin City Council (DCC) would like to know what you think about the proposed, amended Waste Management and Minimisation Plan 2025 (WMMP 2025).

This statement of proposal sets out:

- Background information
- What is being proposed, reasons for the proposal
- How submissions on the proposal can be made
- How long the consultation period will run for.

The statement of proposal has been prepared as part of the Special Consultative Procedure in accordance with *section 83 of the Local Government Act 2002,* and *Part 4 - Responsibilities of Territorial Authorities in relation to Waste Management and Minimisation* in the Waste Minimisation Act 2008 (WMA).

BACKGROUND

The Otago Regional Waste Assessment 2023[1] (Waste Assessment 2023) is a supporting document to the Waste Management and Minimisation Plan. It provides an analysis of our situation in waste and options for addressing key waste issues informed by a forecast of future demand.

- The Waste Assessment 2023 sets the context of where we are now, provides a stocktake of known waste services and facilities in Ōtepoti Dunedin and, evaluates a range of options for meeting future demand for collection, recovery, recycling, treatment, and disposal whether provided by council or otherwise.
- The Waste Assessment 2023 takes a regional approach and recommends how the DCC and district Councils in Otago may be able to work together to enhance waste minimisation and management across the region.

The WMMP 2025 is a guiding document which outlines Ōtepoti Dunedin's aspirations and approach:

- The WMMP 2025 provides the strategic context; sets out the Vision, Guiding Principles and Targets.
- The WMMP presents a vision for where we want to end up as a city, objectives for achieving this vision, and an Action Plan including implementation and funding methods.

The DCC has a statutory responsibility to: *promote effective and efficient waste minimisation,* and for this purpose, to *adopt a waste management and minimisation plan.* This requires a review of the current WMMP under *Section 50 - Review of Waste Management and Minimisation Plans of the WMA.* I.e., before undertaking the review, Council must prepare a new Waste Assessment.

[1] Otago Regional Waste Assessment (2023) URL: https://infocouncil.dunedin.govt.nz/Open/2023/08/ISC_20230815_ATT_2224_EXCLUDED_WEB.htm

The DCC has reviewed its current WMMP 2020 and has decided to amend its WMMP in accordance with *Section 44 Requirements when Preparing, Amending, or Revoking Plans of the WMA.*

Waste Assessment 2023

Every effort was made to make a full and balanced assessment of waste and resource recovery education, services, and facilities in Ōtepoti Dunedin, including analysing existing data and undertaking audits, talking with community groups, and requesting information and data from commercial waste service providers in the city.

The DCC's draft Waste Management and Minimisation Plan 2025 was informed by the Waste Assessment 2023, Dunedin's Zero Carbon Plan 2030 and engagement with key sectors and stakeholders.

Why is the DCC proposing an amended WMMP?

The waste and resource recovery sector is in a time of rapid change and growth. The issues and demands of the future mean that there will need to be more planning and investment in services and infrastructure across New Zealand to deal with the challenges ahead, build resilience, and support a circular economy.

In addition to the DCC's role, Ōtepoti Dunedin's people and industries are integral to the success of this WMMP 2025.

WHAT WE'RE PROPOSING

Changing the title of the plan

Previously, the name put Waste Minimisation ahead of Waste Management, to reflect the waste hierarchy i.e. reduce, re-use, recycle, resource recovery, treatment, and disposal. However, through the process of reviewing the WMMP 2020, it was decided to keep the name consistent with legislation (WMA) and change its name to the: 'Waste Management and Minimisation Plan 2025'.

Protecting Public Health

Consultation with Manatū Hauora, Ministry of Health, was done as part of the Waste Assessment 2023 (as required by WMA s51(5)(b)). The statement of impact on public health is included in Appendix 1 of the Waste Assessment 2023.

The Waste Assessment 2023 identified issues that are likely to be of concern in terms of public health. The risk of key waste management issues will be managed adequately by: providing waste services, appropriate performance standards for waste service contracts, ensuring performance is monitored and reported on, and that there are appropriate structures within contracts for addressing issues when they arise.

Alignment with the Treaty of Waitangi and te ao Māori (the Māori Worldview)

The proposed Plan has been developed to have a stronger alignment with the Treaty of Waitangi (the Treaty) and te ao Māori (the Māori Worldview). The WMMP 2025 has been prepared and developed alongside mana whenua within the WMMP Steering Group. Therefore, the contents and direction of the WMMP 2025 embody Article 2 of the Treaty in not only that mana whenua maintain tino rangatiratanga (self-determination) in governmental affairs, but do so over a great taonga (property, goods or effects that are treasured or prized, including socially or culturally valuable objects, resources, ideas and techniques) within te ao Māori - te taiao (the environment)[2].

The environment is of paramount importance in te ao Māori. It provides food, drinking water, as well as shelter. As a result, protecting and causing limited harm to our environment is of high priority to mana whenua in Ōtepoti Dunedin and across the country. By actively involving mana whenua in the Steering Group, this uplifts the mana of man whenua and recognises their whakapapa connecting to the whenua of Ōtepoti Dunedin. Furthermore, the WMMP 2025 utilises mātauraka (knowledge) from of mana whenua for the benefit of the environment, which in turn uplifts the mauri of Ōtepoti Dunedin and recognises the balance of tapu and noa in keeping residents safe in the waste space.

Te Takiharuru – the Māori Strategic Framework

Te Takiharuru is a framework based in the values of mana whenua in Ōtepoti Dunedin. It was formally adopted by Council in September 2023. The WMMP 2025 reflects the needs of mana whenua by aligning with several key directions within Te Takiharuru. There is a particular focus across all four pou, within: the environmental wellbeing; the cultural wellbeing across the Autūroa and Autakata pou; as well as the social wellbeing across the Autaketake and Autakata pou. Ensuring the WMMP 2025 is aligned with Te Takiharuru shows strong acknowledgement and partnership with mana whenua, while ensuring plans and actions moving forward are made in conjunction with, and using the mātauraka of mana whenua.

Our Vision for the future has been updated to reflect changes within the waste sector and people's attitudes towards waste; it communicates that a more holistic approach will be taken. The target year has been removed because the vision is an aspirational statement that paints a picture. Achieving the vision by a particular year would require a more specific, measurable statement.

> *Ōtepoti Dunedin is actively committed to preventing waste, reducing emissions, and building a circular economy to respect and protect people and the natural environment's mauri.*

Updating our Targets: The DCC's plan complements the focus and level of ambition in Te Rautaki Para, the New Zealand Waste Strategy (2023) by using the following targets:

[2] The DCC supports using Kāi Tahu mita when spelling words in te reo Māori - such as using 'kā' instead of 'ngā.' In this case, 'tino rangatiratanga' and 'taonga' have not been changed into Kāi Tahu mita as they're in reference to the wording of the Māori text in the Treaty of Waitangi (te Tiriti o Waitangi).

- *Target 1: Waste generation: Reduce the amount of material entering the waste management system, by 10 per cent per person by 2030.*
- *Target 2: Waste disposal: Reduce the amount of material that needs final disposal, by 30 per cent per person by 2030.*
- *Target 3: Waste emissions: reduce the biogenic methane emissions from waste, by at least 30 per cent.*

OTHER PROPOSED CHANGES

Measuring Success:

The WMMP 2020 set out goals; however, these were difficult to measure against. Territorial Authorities are not required in legislation to set goals in the WMMP. Therefore, to simplify measuring, monitoring, and reporting, the proposed WMMP 2025 does not contain goals; instead, it has updated actions and targets which are better suited for measuring progress against.

Updated Objectives: The objectives in the proposed plan have been drafted based on recurring themes that arose from external engagement workshops during preparation of the WMMP 2025. The key themes that arose were supporting a circular economy, infrastructure and services, networking and collaboration, education and communication, advocacy, incentives, and regulation, and data.

Updated Action Table

The actions in the proposed WMMP 2025 have been updated to reflect feedback gathered in the preparation of the WMMP through external engagement workshops. They also reflect the options to address key waste management and minimisation issues that were identified in the Waste Assessment 2023, and incorporate actions from the Zero Carbon Implementation Plan 2030.

Adding a Grants Framework for Waste Minimisation Funding

The proposed WMMP 2025 has a new grants framework. This is because the DCC's Waste Minimisation grants are funded by waste levy, which, under section 32, 43, and section 47 of the WMA, must be spent in accordance with the WMMP. Therefore, the way grants are awarded must be set out in our WMMP.

The new framework also aims to give more clarity and achieve better consistency in how waste minimisation grants are awarded. This will build better outcomes for the WMMP, such as prioritising certainty of delivery, the scale of materials being addressed, diversifying solutions in Ōtepoti Dunedin, and encouraging collaboration through allowing joint applications.

How will the DCC implement the Plan?

The proposed new Action Plan addresses the key issues identified in the Waste Assessment 2023, and reflects actions requested through external engagement workshops. An implementation method and a funding mechanism is indicated against each action. Implementation of the actions will involve DCC, community organisations, residents, and businesses.

HAVE YOUR SAY

Your feedback will help shape the proposed WMMP 2025. Public consultation will be open from March-April 2025 alongside the consultation for the 9 Year Plan 2025.

HOW TO GIVE FEEDBACK

Submissions can be made online or in writing. There will also be drop-in sessions if you wish to discuss your ideas in person.

- Webpage www.dunedin.govt.nz/consultation
- Email: wmmp.submissions@dcc.govt.nz
- Schedule of drop-in sessions: www.dunedin.govt.nz/consultation

WHAT HAPPENS NEXT?

Feedback received by the DCC through the public consultation is considered by the Council and fed into the final WMMP 2025.

- The submission period is from March-April 2025.
- Waste and Environmental Solutions staff will review feedback and adjust the draft WMMP 2025.

Please note: Your name and submission will be made public as part of the DCC's decision-making process. This information will be included in papers available to the public and the media but will only be used for the WMMP 2025 consultation.

Late submissions may not be accepted.

Thank you for your submission.

Summary of Information – Waste Management and Minimisation Plan 2025

The Dunedin City Council (DCC) is reviewing the Waste Management and Minimisation Plan (WMMP) in accordance with the Waste Minimisation act 2008 (WMA). This Plan will guide how waste is managed and minimised in Ōtepoti Dunedin. This Summary of Information (in accordance with section 83 of the Local Government Act 2002) gives an overview of the proposed WMMP, so that you can provide your feedback more easily if you wish.

You will be able to provide feedback on the proposed WMMP 2025, from March-April 2025. Your feedback can be provided online using this webpage www.dunedin.govt.nz/consultation , or by emailing wmmp.submissions@dcc.govt.nz. You can also join a drop-in session during the consultation period. The schedule for these can be found here xxx.

A Statement of Proposal is also available on the Dunedin City Council website here xxx, and states the changes we are proposing to the current WMMP 2020, for the new WMMP 2025.

We look forwards to hearing your thoughts and feedback on the new WMMP for Ōtepoti Dunedin.

Overview

This WMMP is intended to protect the environment and improve social outcomes. It aims towards a more circular, community orientated, and local economy. The Plan sets out how waste minimisation will be improved in Ōtepoti Dunedin over the next six years. It complements Te Rautaki Para, New Zealand's Waste Strategy, and Dunedin's Zero Carbon Plan 2030, and aligns with Te Takiharuru (the DCC's Māori Strategic Framework).

This Waste Management and Minimisation Plan (WMMP, or this Plan) was informed by the Otago Regional Waste Assessment 2023, and external engagement with key stakeholder groups.

Core Focus Areas

The Plan has four core focus areas have been chosen. These are:

- Construction and demolition waste
- Community-based resource recovery
- Diverting organics from landfill
- Taking a regional approach.

Guiding Principles

Guiding principles are included in this Plan to influence decision-making and contribute to positive and holistic outcomes:

- Top of the waste hierarchy (focusing on reducing waste and reusing materials).
- Leadership
- Accessibility
- Working locally and regionally
- Diversifying waste minimisation solutions
- Aligning with Te ao Māori, the Māori Worldview

Vision

The vision for this Plan has been updated to:

Ōtepoti Dunedin is actively committed to preventing waste, reducing emissions, and building a circular economy to respect and protect people and the natural environment's mauri.

Objectives

Objectives have been informed by the recurring themes which came from stakeholder engagement workshops and meetings for the review of the WMMP.

1. Circular economy – The top of the waste hierarchy will be prioritised in investment, design, and purchasing decisions.
2. Infrastructure and services – Improve resourcing of local infrastructure, and services to make good practice in waste minimisation convenient and easy.
3. Networking and collaboration – Enable wider collaboration with local community and business partners and with regional Territorial Authorities.
4. Education and communication - Provide waste minimisation education and communication to local community and business partners to enable best practice.
5. Advocacy, incentives, and regulation – Using a variety of means to achieve waste minimisation best practice.
6. Data - Ensuring mechanisms are in place for tracking and reporting progress and to inform decision making.

Targets

The targets for waste minimisation and reducing greenhouse gas emissions have been updated. There are two pre-existing areas of targets for waste minimisation and greenhouse gas emissions that we needed to consider for this Plan.

Te Rautaki Para, the New Zealand Waste Strategy, provides ambitious but achievable targets to achieve as a country. The DCC will align with these for Dunedin's own waste minimisation targets.

The DCC has already adopted waste diversion and emission reduction targets in the Zero Carbon Plan 2030 that set the level of ambition locally. However the three of these are already achieved or very close to being achieved. Therefore, new waste minimisation targets are being proposed in the draft WMMP 2025. The baseline year for both the Zero Carbon Plan and the WMMP targets is 2022/2023.

- **Target 1:** Waste generation: Reduce the amount of material entering the waste management system, by 10 per cent per person by 2030.

- **Target 2:** Waste disposal: Reduce the amount of material that needs final disposal, by 30 per cent per person by 2030.

- **Target 3:** Waste emissions: reduce the biogenic methane emissions from waste, by at least 30 per cent.

Actions

The targets will be achieved through the Action Plan of this WMMP. There are 37 prioritised actions and nine supplementary proposed, which are divided into separate areas for this Plan.

Each action in the Plan is set against the targets they will impact, the objectives they support, which key waste issue from the Waste Assessment 2023 that it will help address, and an indication of the level of impact the action is anticipated to have. Also included is an implementation method, Council's role, how the action will be funded, the delivery timeframe, and a reference to where the action was sourced.

The sections for the action plan include:

- Overarching actions that will affect waste minimisation and management broadly
- Construction and demolition waste
- Community-based resource recovery
- Diversion of organics from landfill
- Rural areas
- Internal DCC actions
- Supplementary actions

Waste Minimisation Grants Framework

Under the WMA, Territorial Authorities can provide grants using waste levy money, to encourage and enable waste minimisation in accordance with their WMMP. If the Territorial Authority wishes to, the WMMP must provide the framework for doing so (s43 (2d) WMA).

This next section gives a framework to outline the structure and guidelines for distributing contestable and non-contestable grants to organisations and projects. It ensures transparency, fairness, and effective allocation of grants.

These grants are to enable waste minimisation action by external organisations, in accordance with the vision, goals, objectives, actions, and guiding principles in this WMMP.

Decisions on the award of grants will be based on the following priorities:

1. Top of the waste hierarchy - enable residents or businesses to avoid waste, reuse, or repair items.
2. Waste streams - alignment with the material diversion targets in this Plan and the Zero Carbon Plan 2030.
3. Delivery - the applicant's ability to deliver their project, expand local capability, and achieve strong waste minimisation outcomes.
4. Expand opportunities for diversion – increase the variety of sustainable waste minimisation solutions available and develop new capabilities in Ōtepoti Dunedin.
5. Scale - The quantity and volume of material that will be minimised from reaching landfill by an applicant's project.

The Dunedin City Council's Grants Management Policy also applies to the management of waste minimisation grants.

Other considerations could include collaborative and joint applications (i.e., between businesses or between community organisations), whether the organisation is local, creates equity for Māori,

Pacifica, and new migrant communities, and whether the project contributes towards social, economic, environmental, and cultural outcomes.

Terms and Conditions for Kerbside Collections

Terms and conditions for using the Council's kerbside collection services are provided in Appendix 2of the draft WMMP 2025. These include:

- Complying with the correct, accepted materials for the correct bins.
- Not depositing prohibited materials in the bins
- The kerbside collections inspection programme follows three inspections, then if there is no improvement by the third one, the non-compliant bin is removed for three months. The bin can then be returned, at the owner/occupiers cost.
- Complying with maximum weights
- Timeframes for bins to be put out and taken in
- Putting the bin out facing the correct way for collection.
- Using the lid clip
- Improper use is unacceptable. If a bin is damaged by using it for anything other than the council service, then the cost of administration and delivery for a new one will be upon the owner/occupier.
- Using non-compliant containers or bags for collection can result in the suspension of service for three months.

Consultation Document - Waste Management and Minimisation Plan 2025

Introduction

Dunedin's Waste Minimisation and Management Plan (WMMP or this Plan) is under review. This Plan directs the development of a stronger, more positive, circular economy that fosters the health of the environment and our community.

This Consultation Document identifies the significant differences between the current WMMP and the new proposed draft WMMP, and lays out how you can give your feedback.

We are keen to hear your thoughts on the proposed new Plan so that we can make changes if needed, and make sure we get it right.

What is a Waste Management and Minimisation Plan?

A Waste Management and Minimisation Plan (WMMP) directs how we will manage and minimise waste over the next six years, and how we can use the waste levy funding we receive from the Ministry for the Environment. All territorial authorities are required to adopt a WMMP under the Waste Minimisation Act 2008, and review it every six years.

WMMPs must be informed by a Waste Assessment (Otago Regional Waste Assessment 2023) and have regard to Te Rautaki Para - the NZ Waste Strategy. They must also protect public health, and provide for objectives and policies for achieving waste management and minimisation, methods for implementation, facilities and activities, how it will be funded, and a framework for grants if the Territorial Authority wishes to offer them.

Why are we reviewing it?

We are required to review our WMMP every six years under Part 4 of the Waste Minimisation Act 2008 (WMA). Reviewing the WMMP also gives us the opportunity to:

- Align the Waste Management and Minimisation Plan with Te Rautaki Para - The New Zealand Waste Strategy 2023.
- Refine and update the content of the Dunedin Waste Minimisation and Management Plan 2020 to account for actions already delivered or programmed.
- Provide for regional collaborative actions, where these will achieve effective and efficient waste minimisation and management across the Otago region.
- Add focus areas to the WMMP to give more direction and concentrate on fewer areas. These focus areas are:
    - Construction and demolition waste,
    - Community-based resource recovery,
    - Expanding work on diverting organics from landfill, and
    - Taking a regional approach.
- Keep compliant with Council's obligations under the WMA as a Territorial Authority and therefore remain eligible to receive waste levy money from the Ministry for Environment.
- Continue progress towards Council's environmental goals.

What changes are we proposing?

The most significant changes being made for the new WMMP are:

- Adding focus areas: Community-led-resource recovery, Construction & Demolition, expand on diversion of organics, and regional collaboration.
- Updating the guiding principles: waste hierarchy, leadership, accessibility, working regionally and locally, diversify waste minimisation solutions, and te ao Māori (Māori worldview).
- Enhancing the alignment with the Treaty of Waitangi and te ao Māori (Māori worldview).
- Updating the vision, objectives, targets, and action plan. The proposed WMMP has three targets, six objectives, 37 prioritised actions and 9 supplementary actions. The actions are prioritised by the waste hierarchy, their impact for achieving the targets, and whether it was raised in external engagement.
- Providing a new framework for the waste minimisation grants. This new framework will build consistency and clarity in awarding grants and improve outcomes from funding.
- Changing the title of the Plan to align with wording in the WMA.

How did we create the new WMMP?

The proposed draft WMMP 2025 was informed by Te Rautaki Para - The New Zealand Waste Strategy, the Otago Regional Waste Assessment 2023, and Dunedin's Zero Carbon Plan 2030.

Furthermore, key stakeholders in waste minimisation and management were engaged via meetings, workshops, and a project steering group, to get their input on what the new WMMP should contain. Approximately 120 people attended four workshops, and 450 items of feedback were received. The feedback was collated and used to create the objectives and action plan.

We need your input to ensure our Plan represents what you want to be included!

Next Steps

- The consultation on the draft WMMP 2025 will be open for your feedback from March-April 2025.
- Hearings will be held for those who wish to speak in mid 2025.
- The feedback received through the consultation will be collated and the draft WMMP will be amended accordingly.
- The final WMMP will be presented to Council in 2025 to be adopted.

Having Your Say is Easy

We're keen to hear your view on our proposed draft Waste Management and Minimisation Plan. We'll take your feedback on board and consider it when we're finalising the plans. There are several ways you can have your say.

Online: Submit online by going to www.dunedin.govt.nz/consultation or email wmmp.submissions@dcc.govt.nz

Written Feedback: Write a letter or use the feedback form and post to: Waste Management and Minimisation Plan, Dunedin City Council, PO Box 5045, Dunedin 9054.

Talk with Staff or Councillors: Staff and Councillors will be coming to an event or public place near you for face-to-face conversations. See our website for details of where and when.

Remember! Your name and feedback needs to reach the Council by midday on **xxx.**

Public Consultation Feedback Form

Feedback is due by midday on Friday xxx 2025
Late submissions will not be accepted.
Providing your personal information is optional, however, should you provide this information please note your name and organisation may be included in papers for the public and media to see. Information you have provided will only be used for the purpose of the consultation on the Waste Management and Minimisation Plan 2025 review. The Council will collect, use, and store your information in accordance with the Privacy Policy which can be found on the Council website www.dunedin.govt.nz/privacy-policy. If you would like a copy of the personal information we hold about you, or to have the information corrected, please contact us at dcc@dcc.govt.nz or 03 477 4000.

Send to: Waste Management and Minimisation Plan 2025
Dunedin City Council
PO Box 5045
Dunedin 9054

Deliver: Waste Management and Minimisation Plan 2025
DCC Customer Services Centre
Civic Centre
50 The Octagon
Dunedin

Online: www.dunedin.govt.nz/consultation
Email: wmmp.submissions@dcc.govt.nz

First Name:		Last Name:	
Organisation (if applicable):			
Postal address:			
Postcode:			
Email Address:		Phone:	

Would you like to speak to the hearing panel in person?

*(If you **do not** tick a box, we will assume you do not wish to be heard.)*

❑ Yes ❑ No

If you wish to speak, you will be contacted with a speaking time as soon as possible after submissions close. *(Note: You may also be able to present your views by audio or audio-visual link.)*

You may answer as many or as few questions as you wish.

General support

Overall, do you agree with the proposed Waste Management and Minimisation Plan?

❑ Yes ❑ No

Why/why not? (250 words max)

Please provide your feedback on the proposed changes to address key issues in waste management and minimisation.

Objectives (Support tick box and changes suggested text box)

Overarching actions (Support tick box and changes suggested text box)

Construction and demolition actions (Support tick box and changes suggested text box)

Community based Resource Recovery actions (Support tick box and changes suggested text box)

Actions for organics (Support tick box and changes suggested text box)

Regional actions (Support tick box and changes suggested text box)

Rural actions (Support tick box and changes suggested text box)

Supplementary actions (Support tick box and changes suggested box)

Do you have any other comments to make about the proposed Waste Management and Minimisation Plan 2025? (500 words max)

_____
_____
_____
_____
_____

Remember your submission needs to reach the Council by midday on Friday xxx 2025.

Thank you for your feedback.

Method for Public Consultation - Waste Management and Minimisation Plan (WMMP) Review

Prepared: Date:	Leigh McKenzie 25 September 2024	
Reviewed: Signature: Date:	Chris Henderson	Approved: Chris Henderson
Reviewed: Signature: Date:	Scott MacLean	Approved: Scott MacLean
Status:	DRAFT	
Purpose:	To ensure affected parties and the public are informed about this project.	
Review date:	N/A	

ASSOCIATED DOCUMENTS

- Draft Waste Management and Minimisation Plan 2025
- Waste Management and Minimisation Plan 2020 (current Plan under review)
- Statement of Proposal
- Summary of Information
- Summary of Engagement
- Otago Regional Waste Assessment 2023 (Waste Assessment 2023)
- Submission feedback form for public consultation

KEY STAFF ROLES

- Group Manager Waste and Environmental Solutions
- Waste Minimisation Supervisor
- Waste Minimisation Strategy Officer

PROJECT DOCUMENT APPROVALS

- General Manager Climate and City Growth
- Group Manager Waste and Environmental Solutions
- Waste Minimisation Supervisor
- Waste Minimisation Strategy Officer

BACKGROUND

- The Waste Minimisation and Management Plan 2020 is under review, as per *Part 4 - Responsibilities of Territorial Authorities in relation to waste management and minimisation* of the *Waste Minimisation Act 2008* (WMA).
- The review has been informed by Te Rautaki Para – the New Zealand Waste Strategy, the Otago Regional Waste Assessment 2023, stakeholder engagement, and the Zero Carbon Plan 2030.

PROJECT GOAL/EXPECTED OUTCOME

- To align the Waste Management and Minimisation Plan with Te Rautaki Para - The New Zealand Waste Strategy 2023.
- To refine and update the content of the Dunedin Waste Minimisation and Management Plan 2020 to account for actions already delivered or programmed.
- To provide for regional collaborative actions, where these will achieve effective and efficient waste minimisation and management across the Otago region.
- Add focus areas to the WMMP to give more direction and concentrate on fewer areas. These focus areas are construction and demolition waste, community-based resource recovery, expanding work on diverting organics from landfill, and taking a regional approach.
- To keep compliant with Council's obligations under the WMA as a Territorial Authority and therefore remain eligible to receive waste levy money from the Ministry for Environment.
- Continues progress towards Council's environmental goals.

KEY MESSAGES

- Dunedin's Waste Minimisation and Management Plan is being reviewed.
- This is an overarching document which sets how waste will be managed and minimised in Dunedin over the next six years.
- DCC is required to have a WMMP by the WMA 2008.
- The proposed draft WMMP 2025 has several key changes:
    - A new vision
    - Key focus areas have been added – construction and demolition, community-based resource recovery, diverting organics from landfill, and taking a regional approach.
    - Updated objectives, targets, and action plan.
    - A new framework for the waste minimisation grants.
- You can give your feedback using this link: www.dunedin.govt.nz/consultation or email wmmp.submissions@dcc.govt.nz
- A Summary of proposal, including a Summary of Information is available here: www.dunedin.govt.nz/consultation
- The proposed draft WMMP 2025 is available for your feedback from March-April 2025. A hearing period will follow this where you may present your views to the DCC if you wish, including options for presenting by audio link or audiovisual link.

KEY DATES/MILESTONES

30 October 2024 - Council decision on draft WMMP 2025.

March 2025 – Public consultation goes live alongside the 9 Year Plan.

Mid 2025 - Hearings will be held within this period. Dates are to be confirmed.

August 2025 – Amended WMMP 2025 goes to Council for adoption.

FACTORS THAT MAY AFFECT PROJECT

- COVID-19 delays communication and/or implementation
- Decisions by Council and the Infrastructure and Services Committee.

STAKEHOLDERS

External Stakeholders	Method
Kāi tahu	Involvement in preparing the draft WMMP 2025 via representation on the project Steering Group.
Private waste and resource recovery services	Engagement workshop in preparation of the draft WMMP 2025, and sharing the public consultation once it is live.
Construction and demolition businesses	Engagement workshop in preparation of the draft WMMP 2025, and sharing the public consultation once it is live.
Not-for-profit organisations and social enterprises	Engagement workshop in preparation of the draft WMMP 2025, and sharing the public consultation once it is live.
Businesses	Workshop in partnership with Business South in preparation of the draft WMMP 2025. Will notify once the public consultation goes live.
Community Boards and rural	Engagement meeting in preparation of the draft WMMP 2025, and sharing the public consultation once it is live.
Tertiary	Engagement meeting in preparation of the draft WMMP 2025, and sharing the public consultation once it is live.
Health	The Medical Officer of Health was consulted in preparation of the Otago Regional Waste Assessment 2023. Will notify ahead of the public consultation going live.
General public	Consult for feedback when the consultation goes live. Online via a submission portal, or by email. Public drop in sessions, or post written feedback.
Media	Media release

COMMUNICATION CHANNELS

External

- Media
- Social media
- Website
- FYI Dunedin
- Community newsletters
- Targeted email/letters to owners
- Information leaflet
- Advertising (e.g. radio, print, digital)

Public Consultation – Communications Plan

Dates/milestone	Audience	How we'll communicate	Message	Responsibility
November-December 2024 Consultation material is prepared	General public	Preparation of communication material – media releases, social media posts, webpage, posters, leaflets.	The WMMP sets out how waste will be managed and minimised over the next six years. We would love your feedback on the draft WMMP 2025.	Web, Comms, Marketing, Design, WES.
December FYI content prepared	General public	FYI booklet	The WMMP sets out how waste will be managed and minimised over the next six years. We would love your feedback on the draft WMMP 2025.	Communications, Waste and Environmental Solutions
March 2025 Public consultation goes live alongside the 9 Year Plan	General public	Social media, media, website, community newsletters, targeted emails, leaflets, webpage, advertising (radio, print, digital). In tandem with the 9 Year Plan.	The WMMP sets out how waste will be managed and minimised over the next six years. We would love your feedback on the draft WMMP 2025.	Marketing

Key stakeholders contacted	Private waste companies, businesses, construction and demolition businesses, not-for-profits, Community Boards, Tertiary, Medical Officer of Health, Kāi Tahu.	Newsletters, targeted emails, Community Board reports.	The WMMP sets out how waste will be managed and minimised over the next six years. Thank you for your early engagement in preparation of the draft WMMP 2025. We would love your feedback on the draft WMMP 2025.	Waste and Environmental Solutions, Communications, Governance

Waste Management and Minimisation Plan 2025 – Public Consultation Feedback Form

Feedback is due by midday on Friday xxx 2025
Late submissions will not be accepted.
Providing your personal information is optional, however, should you provide this information please note your name and organisation may be included in papers for the public and media to see. Information you have provided will only be used for the purpose of the consultation on the Waste Management and Minimisation Plan 2025 review. The Council will collect, use, and store your information in accordance with the Privacy Policy which can be found on the Council website www.dunedin.govt.nz/privacy-policy. If you would like a copy of the personal information we hold about you, or to have the information corrected, please contact us at dcc@dcc.govt.nz or 03 477 4000.

Send to: Waste Management and Minimisation Plan 2025
Dunedin City Council
PO Box 5045
Dunedin 9054

Deliver: Waste Management and Minimisation Plan 2025
DCC Customer Services Centre
Civic Centre
50 The Octagon
Dunedin

Online: www.dunedin.govt.nz/consultation
Email: wmmp.submissions@dcc.govt.nz

First Name:		Last Name:	
Organisation (if applicable):			
Postal address:			
Postcode:			
Email Address:		Phone:	

Would you like to speak to the hearing panel in person?

*(If you **do not** tick a box, we will assume you do not wish to be heard.)*

❑ Yes ❑ No

If you wish to speak, you will be contacted with a speaking time as soon as possible after submissions close. *(Note: You may also be able to present your views by audio or audio-visual link.)*

You may answer as many or as few questions as you wish.

General support

Overall, do you agree with the proposed Waste Management and Minimisation Plan?

❑ Yes ❑ No

Why/why not? (250 words max)

Please provide your feedback on the proposed changes to address key issues in waste management and minimisation.

Objectives (Support tick box and changes suggested text box)

Overarching actions (Support tick box and changes suggested text box)

Construction and demolition actions (Support tick box and changes suggested text box)

Community based Resource Recovery actions (Support tick box and changes suggested text box)

Actions for organics (Support tick box and changes suggested text box)

Regional actions (Support tick box and changes suggested text box)

Rural actions (Support tick box and changes suggested text box)

Supplementary actions (Support tick box and changes suggested text box)

Do you have any other comments to make about the proposed Waste Management and Minimisation Plan 2025? (500 words max)

_____
_____
_____
_____
_____

Remember your submission needs to reach the Council by midday on Friday xxx 2025.

Thank you for your feedback.

Draft WMMP 2025

Waste Management and Minimisation Plan 2025 – Drop-in Schedule for Public Consultation

The Dunedin City Council is reviewing the Waste Management and Minimisation Plan (WMMP), as required under the Waste Minimisation Act 2008 (s50 WMA). Following the review of the WMMP, the proposed draft WMMP must be publicly consulted on using the special consultative procedure set out in s83 of the Local Government Act 2002.

The public consultation period will be held from March-April 2025. Drop-in sessions will be held during this time alongside the 9 Year Plan's consultation to provide opportunity for residents to ask questions and discuss the proposed draft WMMP. A schedule for drop in sessions will be determined in conjunction with the 9 Year Plan consultation planning. An option to attend these sessions online will also be available.

eunomia

July 2023

Approved by

Duncan Wilson

(Project Director)

Eunomia Research & Consulting Ltd
PO Box 78 313
Grey Lynn
Auckland 1245

New Zealand

Tel: +64 9 376 1909

Web: www.eunomia.co.nz

Acknowledgements

Disclaimer

Eunomia Research & Consulting has taken due care in the preparation of this report to ensure that all facts and analysis presented are as accurate as possible within the scope of the project. However, no guarantee is provided in respect of the information presented, and Eunomia Research & Consulting is not responsible for decisions or actions taken on the basis of the content of this report.

Executive Summary

This Waste Assessment (WA) has been prepared for the councils of the Otago region (Queenstown Lakes, Central Otago, Clutha and Waitaki Districts; and Dunedin City) – known here as 'the Councils' - by Eunomia Research & Consulting; in accordance with the requirements of the Waste Minimisation Act 2008 (WMA). This document provides background information and data to support the Councils' waste management and minimisation planning process.

The document is broken down into sections:

1) Introduction – the purpose and scope of the WA and the practical, legislative and strategic context
2) A description and assessment of waste infrastructure available to the region
3) A description and assessment of the waste services in the region, both council and non-council
4) Presentation and analysis of available waste data
5) Performance measurement and benchmarking
6) A review of the current Council WMMPs, as required by the WMA
7) A forecast of future demand and identification/analysis of gaps and key issues
8) Proposals to meet the gaps and address key issues, including an outline of the Circular Resource Network concept
9) Statement of Councils' intended roles
10) Appendices including the statement from the Medical Officer of Health

Introduction

This WA has been prepared in compliance with sections 50 and 51 of the WMA. It also reflects the national strategic environment, Te rautaki para | New Zealand Waste Strategy (TRP) and provides a foundation to enable the Councils to review and update/amend (as necessary) their WMMPs in an informed and effective manner; in doing so, it considers all waste in the region and not just that controlled by the Councils.

The WA touches only lightly on solid wastes that emerge from wastewater management; as this is currently subject to significant national reform.

Beyond TRP, other key strategic and legislative context includes:

- public health protection;
- the waste hierarchy;
- Emissions Reduction Plan and emissions trading scheme;
- Waste Minimisation Act (2008);
- the waste disposal levy and information reporting requirements;
- other relevant central government initiatives such as a possible container return scheme, kerbside standardisation requirements, performance reporting for

territorial authorities (TAs), priority products, product bans, the infrastructure and investment strategy and data/monitoring requirements;
- the Resource Management Act review; and
- international commitments.

The local and regional planning context is summarised in section 1.6, including TA plans, strategies, and regulation along with long term plans; and relevant regional plan provisions. Current services and regional/local characteristics are also described.

Waste Infrastructure

The section outlines the waste management and minimisation infrastructure across the Otago region, and further abroad where applicable. The facilities available in the Otago region are a combination of those owned, operated and/or managed by Councils, and those that are owned and/or operated by commercial entities or community enterprise.

Disposal Facilities

These are categorised according to the MfE regulations adopted in 2021. There are four Class 1 (municipal) landfills in the region: Green Island in Dunedin, Mt Cooee near Balclutha, Victoria Flats near Queenstown, and Palmerston landfill. Waste from the region is also disposed of at AB Lime's facility in the Southland region.

Waste is also disposed of to a range of Class 2-5 fills and on-property in rural areas. The recent extension of the landfill levy and government requirements for data reporting has anecdotally resulted in some Class 2 landfills closing.

Transfer Stations, Resource Recovery Parks, Recycling Drop-off Points

There are a number of these facilities across the region, which provide for those that can't or prefer not to take waste directly to a landfill or have materials that are able to be diverted through recycling or recovery.

Table 8 in the report lists the known facilities across the region and, where available, the materials and quantities handled.

The closed landfills in the region that the Councils have responsibility for are listed; and hazardous waste and wastewater treatment systems are described in sections 2.2 and 2.3.

Recovering and Reprocessing

There are a number of recycling, recovery or reprocessing facilities used within the region and nationally, with some materials exported for reprocessing.

The key facilities within the region include:

- Queenstown Lakes District Council's material recovery facility (MRF) at Frankton, operated by Waste Management NZ Ltd;
- OJI's MRF at Green Island, which accepts recyclables from Clutha district;
- Waitaki Resource Recovery Trust's (WRRT) MRF in Oamaru, mainly handling recyclables collected from commercial customers;
- EnviroNZ Ltd's MRF at Timaru, which processes recyclables from Dunedin;
- Dunedin City Council's composting facility at Green Island;
- AllWaste's construction and demolition recycling facility in Queenstown;
- Cargill Enterprise's e-waste dismantling and sorting site in Dunedin;
- Nash & Ross aggregate recycling in Dunedin;
- Keep It Clean rendering plans in Abbottsford and Mosgiel;
- Central Wormworx vermicomposting in Cromwell;
- Hall Bros aggregate recycling in various Dunedin locations;
- Central Otago District Council's glass crusher;
- Clutha District Council's greenwaste shredder at Mt Cooee; and
- WRRT's greenwaste shredder in Oamaru

Key facilities used outside the region are:

- Visy Glass, Auckland (most areas);
- Envirowaste's composting facility at Redruth (organic waste from Central Otago district);
- Tyrewise, Agrecovery agricultural plastics, Plasback agricultural film, Expol polystyrene, Terracycle for various materials - through national product stewardship programmes (some materials from all areas);
- OJI Fibre Solutions, Auckland (some paper and carboard from across the region);
- scrap metal yards – numerous locations;
- ITRecycla and Remarkit Solutions, Wellington and E-Cycle, Christchurch (some e-waste from most of the region);
- Comspec, Christchurch (some pre-consumer plastics from across the region);
- Flight Plastics, Wellington (PET #1 plastic from across the region);
- Astron, Auckland (some pre-consumer plastics from across the region);
- Future Post producing fence posts from specific waste plastics, Blenheim (some soft plastics and Anchor milk bottles from across the region);
- Canterbury Landscaping Supplies take plasterboard offcuts to incorporate into various product streams (small quantities from across the region); and
- 5R in Christchurch accepts window glass (small quantities from across the region).

In addition, there are a large number of charity shops, secondhand stores, and smaller scrap metal recyclers that have a role in diverting material from landfill disposal.

While most material types are transported out of the region for recycling and reprocessing, this is not an unusual situation in New Zealand and particularly in the lower South Island.

Assessment

Current landfill disposal infrastructure appears adequate for the needs of the region, for some time to come; although one of the key facilities (AB Lime) is based outside the Otago region. Two other disposal facilities, Green Island and Mt Cooee, are coming to the end of current consents; although plans are underway to extend/expand the consents for each. DCC also has consents for a new disposal facility, Smooth Hill.

Once both Smooth Hill and the extension to Mt Cooee are operating (assuming this is the outcome) there will be two Class 1 disposal facilities within around 70km of each other, which is a relatively high level of provision given the costs involved in consenting Class 1 landfills and engineering new cells.

There is very little reprocessing infrastructure of scale in the region, and what is in place is focused on bulk low value materials such as recovered aggregate. This means that most recovered materials need to be transported significant distances, as far away as Auckland, or exported. This makes the cost-benefit consideration of recycling (whether through kerbside services or collection points) some common items very marginal, which can be a challenging issue to explain to the public – some materials, such as glass, can incur significant net cost when collected and transported for reprocessing. For some materials, such as fibre (paper/cardboard), the New Zealand-based reprocessors are at capacity and prefer to purchase pre-consumer feedstock, which tends to be more consistent in material type and higher quality due to the use of single-stream material collection systems.

The recovery infrastructure, significantly the MRFs in Dunedin and Queenstown Lakes, are both dated and are currently struggling to cope from both a quantity and quality perspective; both QLDC and DCC have plans underway for new MRF infrastructure. Recyclables from Dunedin are currently sent out of the region to Timaru, with a new MRF planned to be in place locally in 2025.

There are gaps in reprocessing for organics and C&D waste, both large waste streams and making up a significant proportion of what is currently going to landfill. These material streams are dense, and it is rarely economical to transport these long distances for reprocessing. Several of these gaps are being closed; with work progressing on organics processing across the region, and most of the councils underway with plans for resource recovery centres (with a range of recovery options) at varying sizes and extent. DCC is also progressing a C&D waste facility to be part of the Green Island Resource Recovery Park, alongside a new MRF (March 2025) and green waste processing. CDC are investigating the feasibility of C&D waste diversion as part of the Mt Cooee RTS design.

Services

Council-Provided Services

A range of services are provided by councils to residents and businesses in the district.

Details on current council-provided kerbside collections in the Otago region are summarised below.

	Dunedin	Waitaki	Queenstown Lakes	Central Otago	Clutha
Glass	Fortnightly crate	No council collection	Fortnightly 140L wheeled bin	8-weekly 240L wheeled bin	No council collection
Other dry recyclables	Fortnightly 240L wheeled bin	No council collection	Fortnightly 240L wheeled bin	Fortnightly 240L wheeled bin	Fortnightly 240L wheeled bin
Residual rubbish	Weekly bag collection Nightly bag collection CBD	No council collection	Weekly 140L wheeled bin	Fortnightly 240L wheeled bin	Fortnightly 240L wheeled bin
Organics				Weekly FOGO 240L wheeled bin	

A number of the Councils are currently in the process of planning or researching potential changes to their kerbside services:

- Dunedin will be introducing a **4-bin kerbside** (plus one optional garden waste bin) collection system from 1 July 2024;
- Queenstown Lakes, Clutha, and Waitaki are all considering various options for extended or new services.

A key drive is the need to comply with government's standardised kerbside service.

The implications for each council of the kerbside standardisation requirements are summarised below.

Service Component	QLDC	CODC	DCC	WDC	CDC
Materials in kerbside recycling (excluding glass)	Need to include all #1 plastic containers	Need to include all #1 plastic containers	Will be compliant with new service	Council kerbside service required by 1 January 2027	Compliant

Service Component	QLDC	CODC	DCC	WDC	CDC
Kerbside glass recycling collections	Compliant	Compliant	Will be compliant with new service	Council kerbside glass service required by 1 January 2027	Council kerbside glass service required by 1 January 2027
Foil not included in kerbside recycling	Compliant	Compliant	Will need to remove foil from accepted items by 1 February 2024	NA	Compliant
Food scraps collections	Council collection required by 1 January 2030	Compliant	Council collection required by 1 January 2030 – will be compliant with new service	Council collection required by 1 January 2027	Council collection required by 1 January 2030

Councils also deliver a wide range of waste management and minimisation programmes.

Non-Council Services

A wide variety of non-council services are provided across the region. These are summarised in the table below.

	QLD	COD	DC	WD	CD
Commercial rubbish collection	✓	✓	✓	✓	✓
Commercial recycling collection – paper/cardboard	✓	✓	✓	✓	✓
- **Plastics**	✓	✓	✓	✓	
- **Glass bottles/jars**	✓	✓	✓	✓	

	QLD	COD	DC	WD	CD
- Tins/cans	✓	✓	✓	✓	
- Polystyrene	✓	✓	✓	✓	
- Plastic film	✓	✓		✓	
- E-waste	✓	✓	✓	✓	
Building waste	✓		✓		✓
Residential rubbish collections	✓	✓	✓	✓	✓
Rural rubbish collections	✓	✓	✓	✓	✓
Residential recycling collections				✓	
Residential greenwaste	✓		✓	✓	✓

Assessment

As would be expected in a region that includes dense cities through to isolated rural areas, there is a variety of service levels provided – this applies to both council-provided services and private sector. Both residential and commercial customers have access to a range of services, with some council collections also available to commercial customers (such as some Clutha businesses, and businesses in the Dunedin CBD).

However, there are some key areas where the disparity in services may cause issues with respect to waste management and minimisation:

1) The variety in materials collected and services provided makes it more difficult to collaborate on education about kerbside services – which is one of the drivers behind the MfE's kerbside standardisation requirements.
2) While leaving the provision of kerbside services to the private sector does provide the community with full choice over which service provider they use, and which type of service; data from elsewhere in New Zealand does suggest that this can reduce the effectiveness of waste minimisation and diversion efforts particularly where large (240L) wheeled bins are provided for rubbish collections. This can also be an issue where customers choose to use private services instead of the council collection.
3) Where private sector services have a large part of the market, it can be more difficult to plan for waste management and minimisation due to lack of data and detailed understanding of how private sector services are performing, and also to encourage the use of preferable alternatives.

Many of the issues relating to variable service provision and alignment to kerbside standardisation will soon be resolved or are being explored further – such as the new

services to be provided in Dunedin city and now provided in Central Otago district, and the intention to explore the implications of offering council-controlled kerbside services in Waitaki and Central Otago districts. However, increased capture of recyclables and food scraps across the region will only further exacerbate the current issues with poor reprocessing infrastructure provision.

Situation Review

Waste to Class 1 (Municipal) Landfills

The table below provides an estimate of the total annual tonnage of waste originating from the Otago region that is disposed of to Class 1 landfills in the region and to Class 1 landfills outside the region. For clarity, the estimate does not include waste that originates from outside the region (if any).

Overall waste to Class 1 landfills - 2020	% of total weight	Tonnes per annum
Disposal outside of Region		
General + kerbside rubbish	6.1%	8,700
Special wastes	2.9%	4,200
Subtotal	**9.0%**	**12,900**
Disposal in Region		
Kerbside rubbish	35.5%	50,946
General waste	52.7%	75,623
Special wastes	2.9%	4,095
Subtotal	**91.0%**	**130,664**
TOTAL	**100.0%**	**143,564**

An estimated 143,564 tonnes of waste from the Otago region were disposed of in 2020 to Class 1 landfills. The Class 1 landfills within the Otago region receive 90% of this waste. The other 10% is disposed of outside the region.

There is also a large, but unmeasured, quantity of waste being disposed of to Class 2-5 fills and on-property (burning or burying).

Composition

The table below shows the composition of waste to landfill for each disposal facility, compared to the regional and national average (calculated in 2020).

Material type	National average	Regional average	Green Island	Victoria Flats	Mt Cooee	Oamaru RTS
	All in percentage of total					
Paper	5.9	8.6	7.3	10.7	7.8	8.2
Plastics	8.3	10.2	9.1	10.7	12.5	13.1
Organic	14.8	29.7	31.5	25.6	30.0	36.5
Ferrous metals	2.7	3.2	3.7	2.5	3.0	3.3
Non-ferrous metals	0.8	0.6	0.6	0.7	0.7	0.6
Glass	1.8	2.9	2.8	1.6	8.3	3.5
Textiles	5.0	4.5	3.9	5.1	4.7	5.5
Sanitary paper	2.3	4.5	4.5	3.7	5.5	6.2
Rubble	20.1	7.2	3.3	13	9.7	4.4
Timber	12.6	16.1	12.8	24.3	7.5	10.7
Rubber	2.1	1.5	1.0	0.8	2.8	7.2
Potentially hazardous	23.5	10.9	19.4	1.5	7.4	0.8

This analysis shows that the proportions vary significantly across the region. The material type that varies the most is 'potentially hazardous' (largely sewage sludges and biosolids), with significant quantities of this present at Green Island and very little at the other locations. This reflects the disposal practices of the different councils; with QLDC and CODC sending this waste to AB Lime, and Clutha sending what is not suitable for disposal at Mt Cooee Landfill to Green Island landfill for disposal.

Kerbside-collected waste has also been analysed; and the composition of all kerbside rubbish collected in the Otago region is shown below.

Primary composition of kerbside rubbish - 2020	% of total	Tonnes per annum
Paper	8.6%	4,411
Plastics	9.5%	4,878
Organic	55.3%	28,243
Ferrous metals	1.9%	987

Primary composition of kerbside rubbish - 2020	% of total	Tonnes per annum
Non-ferrous metals	0.8%	427
Glass	4.6%	2,327
Textiles	3.9%	2,002
Sanitary paper	8.5%	4,339
Rubble & concrete	3.6%	1,819
Timber	1.9%	966
Rubber	0.3%	156
Potentially hazardous	1.1%	556
TOTAL	**100.0%**	**51,112**

Based on the results of the three sort-and-weigh audits, organics was the largest primary classification of kerbside rubbish, comprising 55.3% of the total weight. Kitchen waste comprised 60% of the organic material. Plastic was the second largest primary classification, comprising 9.5% by weight, and paper the third largest, at 8.6%.

Diversion Potential

The table below shows the proportion of the waste stream to landfill that could have been diverted through existing recycling collections, and straightforward composting. As above, this is split by disposal point – with CODC sending residual waste to Victoria Flats. Oamaru RTS represents the majority of waste going to Class 1 landfill (AB Lime) from the Waitaki district, although a small proportion goes to Palmerston landfill. These figures also represent the 'general' waste stream (i.e. excluding potentially hazardous).

Material type	Green Island	Victoria Flats	Oamaru RTS	Mt Cooee
	As percentages of the overall waste stream (excluding potentially hazardous)			
Paper - recyclable	5.3	5.0	5.1	3.0
Paper - cardboard	2.4	4.7	2.3	3.6
Plastic - recyclable	1.8	1.3	1.6	1.2
Ferrous metals	4.6	2.5	3.3	3.0
Non-ferrous metals	0.8	0.7	0.6	0.6

Material type	Green Island	Victoria Flats	Oamaru RTS	Mt Cooee
Glass - recyclable	2.0	0.9	2.7	7.8
Textiles - clothing	2.1	1.9	1.8	1.8
Rubble - cleanfill	1.0	1.9	0.7	4.8
Timber - reusable	3.5	2.1	0.8	0.0
Organics - food scraps	19.2	14.2	20.7	12.7
Organics - greenwaste	11.5	7.6	10.2	15.1
Rubble - new plasterboard	0.2	4.4	0.4	6.0
Timber – unpainted, untreated	3.5	3.9	3.0	1.2

These comparisons show some high consistency, but also some notable differences. These include:

- slightly lower proportion of recyclable paper going to Mt Cooee;
- more cardboard going to Victoria Flats – perhaps due to the very active retail and construction sectors;
- more glass going to Mt Cooee – reflecting the lack of recycling options;
- more rubble and other cleanfill materials going to Mt Cooee – reflecting the closure of the only nearby cleanfill facility in the district;
- slightly more reusable timber going to Green Island – probably just related to higher levels in general of construction activity;
- the proportion of food scraps and green waste are quite variable; and
- new plasterboard going to landfill at Victoria Flats and Mt Cooee – probably reflecting the active construction sector and lack of local cleanfill options respectively.

In considering the options to capture the potentially divertable material, it is important to understand how and from what source these materials are reaching landfill. While there are some variations across the region, the primary pathways are consistent:

- food scraps overwhelmingly reaches landfill through household kerbside rubbish collections;
- compostable greenwaste reaches landfill through two main pathways: household kerbside rubbish collections (particularly in urban areas where households use large wheeled bins for rubbish collections) and from general residential, C&D, and ICI waste going straight to transfer stations and landfills (note: not through landscaping);

- recyclable paper and cardboard through household kerbside rubbish collections (particularly from large wheeled bins) and then through residential and ICI to transfer stations and landfills;
- recyclable plastic and glass – through household kerbside and ICI;
- textiles – mainly household kerbside rubbish and also ICI to transfer stations and landfills; and
- new plasterboard, timber types, ferrous metals, and rubble arrive directly to transfer stations (partially) and landfill (mainly) from the C&D sector.

A similar analysis has also been carried out for kerbside waste, shown below by TA.

Diversion Potential of Kerbside Rubbish (%)	Central Otago (based on 2020 SWAP)	Clutha (2022 SWAP)	Dunedin (assumed)	Queenstown Lakes (2019 SWAP)	Waitaki (assumed)
Recyclable paper	5.8	2.9	8.4	5.9	8.9
Recyclable plastic	0.9	1.4	2.5	1.7	2.8
Steel cans	0.6	0.7	0.8	0.5	0.9
Aluminium cans	0.3	0.3	0.4	0.2	0.4
Glass bottles/jars	5.2	13.1[1]	3.5	1.9	4.5
Food scraps	23.7	21.2	35.3	33.9	35.1
Garden waste	20.3	29.9	18.7	18.2	17.0
Total	**56.9**	**69.6**	**69.6**	**62.2**	**69.7**

Approximately 18.3% of kerbside rubbish overall from the Otago region could have been readily diverted through kerbside recycling collections or at drop-off facilities. Recyclable paper was the largest single recyclable component, comprising 7.1% of the total weight of kerbside rubbish regionally.

Organic materials that could have been composted comprised between 44% and 52% of kerbside rubbish; of this kitchen waste comprised 21% to 35%of kerbside rubbish (16,987 tonnes per annum regionally), and greenwaste 17% to 30% (10,031 tonnes per annum regionally)[2]. In total across the region, 70.5% of kerbside rubbish, 36,499 tonnes per annum, could have been diverted from landfill disposal by residents.

[1] Note that there is no kerbside glass recycling collection in Clutha, although these items have still been designatd as potentially divertible

[2] Note that a small percentage of greenwaste in kerbside rubbish is not compostable

Performance Measurement

This section provides comparisons of several waste metrics between the Otago region and other territorial authorities. The data from the other districts has been taken from a variety of research projects undertaken by Waste Not and Eunomia.

Per Capita Waste to Class 1 Landfills

By combining Statistics NZ population estimates and the Class 1 landfill waste data in section 4.1.1, the per capita per annum waste to landfill in 2020 from the Otago region can be calculated as in Table 30 below. The estimate includes special wastes but excludes non-levied cleanfill materials.

Calculation of per capita waste to Class 1 landfills	
Population (2020)	236,200
Total waste to Class 1 landfill	143,564
Tonnes/capita/annum of waste to Class 1 landfills 2022	0.608

This figure varies significantly throughout New Zealand. The table below compares the 2020 figure for the Otago region with other local authorities.

Overall waste to Class 1 landfills including special wastes	Tonnes per capita per annum
Gisborne 2017	0.283
Waimakariri 2017	0.325
Ashburton 2015	0.366
Waitaki 2022	0.466
Clutha 2022	0.505
Central Otago 2021	0.527
Invercargill 2018	0.528
Bay of Plenty 2017	0.529
Palmerston North 2017	0.545
Kapiti Coast 2017	0.546
Waikato 2017	0.552
Dunedin 2018	0.554
Tauranga and WBoP 2020	0.56

Overall waste to Class 1 landfills including special wastes	Tonnes per capita per annum
Napier/Hastings 2022	0.595
Wellington 2016	0.608
Otago region	***0.608***
New Zealand 2021	0.685
Taupo 2022	0.716
Hamilton 2017	0.718
Queenstown Lakes 2020	0.833
Hutt Valley 2022	0.899
Auckland 2016	1.053

Areas with lower per capita waste generation tend to be rural areas, or urban areas with relatively low levels of manufacturing activity. The areas with the highest per capita waste generation are those with significant primary manufacturing activity, and/or with large numbers of tourists, with the latter applying to a great extent to the Queenstown Lakes district.

Per Capita Kerbside Rubbish

It is also possible to calculate the amount of rubbish collected at the kerbside. This figure is particularly influenced by the method of kerbside collections, and how easy these are to use. If a kerbside rubbish collection service is convenient to use and has capacity (such as a large container, or frequent collections) then it is more likely to be well used – of course, the converse also applies.

District/city and year of data	Kilos kerbside rubbish collected per capita per year	Commentary
Christchurch 2011	110	rates-funded fortnightly 140L wheelie bins (with weekly organic)
Gisborne 2017	122	rates-funded bags with stickers
Ashburton 2021	144	rates-funded weekly 80L wheelie bins, private wheelie bins
Whangarei 2017	153	user-pays rubbish bags and private wheelie bins
Auckland 2016	156	user-pays rubbish bags, rates-funded wheelie bins, and private wheelie bins
Waikato region 2017	156	Various
Bay of Plenty region 2020	160	user-pays rubbish bags, rates-funded wheelie bins, and private wheelie bins

District/city and year of data	Kilos kerbside rubbish collected per capita per year	Commentary
Central Otago	168	Rates-funded fortnightly 240L wheelie bins
Taupo 2022	183	user-pays rubbish bags and private wheelie bins
Dunedin 2018	187	user-pays rubbish bags and private wheelie bins
Tauranga and WBoP 2019	192	user-pays rubbish bags and private wheelie bins
Queenstown 2020	195	rates-funded weekly 140L wheelie bin
Hastings/Napier 2022	197	rates-funded 120L wheelie bins and private wheelie bins
Hamilton 2017	197	rates-funded bags (two per hh max)
Wellington region 2014/15	206	user-pays rubbish bags and private wheelie bins
Clutha 2022	209	rates-funded fortnightly 240L wheelie bins
Palmerston North 2022	215	user-pays rubbish bags and private wheelie bins
Waitaki 2022	223	private wheelie bins

Waitaki and Clutha districts have higher quantities of rubbish collected at kerbside; however, these districts also have the lowest overall quantity of waste going to landfill. This suggests that householders and businesses are more likely to use kerbside collections to dispose of rubbish rather than transporting this to a transfer station or landfill.

Review of Current Waste Management and Minimisation Plans

As required by the Act, the WA includes a review of each Council's current WMMP, found in section 6.

The overall conclusion from this review was that, while the current WMMPs varied widely in strategic direction, action plans, and targets; the very significant central government work programme over the last five years, and the recent release of TRP,

leads to the conclusion that the Otago region WMMPs should be revoked and replaced by new Plans[3].

Future Demand and Gap Analysis

There are a wide range of factors that are likely to affect future demand for waste management and minimisation. The extent to which these influence demand could vary over time and in different localities. This means that predicting future demand has inherent uncertainties. Key factors are likely to include the following:

- overall population growth;
- economic activity;
- changes in lifestyle and consumption; and
- changes in waste management approaches.

In general, the factors that have the greatest influence on potential demand for waste and resource recovery services are population and household growth, construction and demolition activity, economic growth, and changes in the collection service or recovery of materials.

A detailed analysis is provided of these factors in section 7.1. The analysis of factors driving demand for waste services in the future suggests that demand will increase over time as a result largely of population growth and economic activity. It is likely that some new waste management approaches will be introduced as a result of the central government work programme, which could create demand in specific areas. Initial indications are that, for Otago, this new demand is likely to be largely related to efforts to divert organic waste materials from landfill, including possible business food scraps diversion and recovery of construction wastes. There is also likely to be an increasing focus and demand in other waste activities and types, including:

1) Disaster waste – recent events have highlighted the need for proactive disaster waste management plans, particularly with respect to local resilience where there is reliance on waste infrastructure located elsewhere in the region, or outside the region.
2) Equity of service provision, particularly relating to the impact of user-pays rubbish collections on lower socio-economic communities, particularly considering the low benefit seen in increased waste diversion that might be assumed to result from a 'pay as you throw' approach.

[3] The only exception to this is Dunedin City Council's current WMMP, which already includes a reference to the Circular Economy and therefore is more closely aligned with the strategic direction of TRP. However, as the majority of the actions have been completed and a significant rewrite would be required, it is felt that a new Plan is still the best option.

3) Smaller but difficult waste streams such as soft plastics, packaging that isn't accepted in kerbside recycling collections, compostable packaging as replacements for what will become banned packaging items, farm wastes.
4) The impact of a possible future container return scheme.

Gap Analysis

The aim of waste planning at a territorial authority level is to achieve effective and efficient waste management and minimisation. The following high level key issues or gaps in meeting forecast demand have been identified, grouped into topic areas. These are discussed in more detail in sections 7.3 through 7.7.

Infrastructure

- The region has relatively low access to waste infrastructure, particularly material reprocessing;
- the performance of the MRFs in the region currently is an issue both in terms of material quality (Frankton and Dunedin) and capacity;
- Dunedin and Clutha's access to convenient landfill disposal in the medium- to long-term depends on consenting a new facility;
- planned landfill provision in the coastal area could be more efficient; and
- Class 2-5 landfill provision in the region is variable.

Data and monitoring

- As is found in other areas, there is a significant data gap relating to private waste collections, Class 2-5 fills, and farm waste management practices.

Services

- Council service levels in some districts are lower – particularly Waitaki and, to a lesser extent, Clutha districts;
- variability in service provision generally reduces the opportunities for collaboration (regionally or nationally) on activities such as education, awareness raising, and behaviour change;
- contamination in household kerbside recycling collections is high; and
- the market share of household kerbside services held by councils is low in some areas. This may indicate that the services being provided by the councils is not considered fit for purpose by their residents (e.g. a wheeled bin rather than a bag-based collection).

Specific materials

- A number of waste materials could be managed more in accordance with the waste hierarchy; particularly biosolids/sludges, C&D waste, non-household recyclables, agricultural wastes, glass, organic waste generally, and textiles; and

- many of the key issues described above relate to waste streams that originate in the commercial, industrial, institutional and construction sectors; which are very difficult for councils to influence alone

Leadership and Collaboration

- Relatively less resources and budget spent (by councils or other agencies) on waste prevention, reduction and reuse activities; compared to lower levels of the waste hierarchy such as recycling and reprocessing;
- contract timeframes across the region are variable, reducing the ability to collaborate and partner on procurement and service provision;
- there is no formal mechanism to jointly fund and collaborate on regional or sub-regional waste-related projects;
- the entire sector is currently struggling to recruit staff, and the operational sector is also experiencing significant delays with new vehicles and driver shortages;
- TAs will need to contribute to planning for disaster waste management; and
- there is variability in strategic direction for waste across the region, particularly in relation to the council's role in providing waste management and minimisation services.

Proposals

This section sets out the range of options available to the councils to address the key issues that have been identified in the previous section of this Waste Assessment. Options presented in this section would need to be fully researched, considered specific to each district, and the cost implications understood, before being implemented through each council's WMMP action plans and respective LTP/Annual Plan. Addressing these issues will ensure that the councils is meeting their statutory obligations and improving waste management and minimisation in the Otago region.

The proposals incorporate the concept of a Circular Resource Network, which is a concept first developed in work carried out by Eunomia for the Ministry for Environment in 2021, and is included in the recently released 'National Resource Recovery – Infrastructure and Services Stocktake and Gap Analysis'[4]. This concept is a way of implementing Circular Economy principles, which are a key part of Te rautaki para, in a practical resource recovery network infrastructure approach. The Circular Resource Network concept is summarised in section 8.1 and explained in detail in appendix A.5.0.

A range of proposals are put forward under the headings:

1) Regulation

[4] www.environment.govt.nz/assets/publications/Waste/Waste-and-resource-recovery-infrastructure-and-services-stocktake-Project-summary-report.pdf

2) Measuring/Monitoring
3) Education and Engagement
4) Collection and Services
5) Infrastructure
6) Leadership and Management

The proposals are set out in detail in sections 8.2.1 through 8.2.6; but can form an almost infinite number of combinations. High level scenarios with logical combinations of the above options are laid out in the table below. These scenarios are for illustration only and can be fine-tuned and amended for draft WMMP action plans.

Scenario Name	Regulation	Measuring & Monitoring	Education & Engagement	Collections & Services	Infrastructure	Leadership & Management
Business as Usual (compliance with regulation and kerbside standardisation)	Each council makes its own decision on whether to have a solid waste bylaw, and these are implemented independently	Current levels of measuring and monitoring are continued	Each council continues their current education and engagement programmes, with the addition of communicating service changes	WDC introduce kerbside recycling and food scraps to Oamaru only CDC introduce glass collections only to Balclutha and Milton QLDC introduce food scraps collections to required areas CODC and DCC make minor amendments to comply with kerbside standardisation	Councils work independently to develop infrastructure required to accommodate new services, and continue existing collaborative projects	Councils continue to meet as a SOWN network, and continue discussions on potential collaborative initiatives as a region Councils largely engage with central government and national bodies individually on a reactive basis
First steps towards a Circular Economy	As above	Current levels of measuring and monitoring are continued, along with increased monitoring of participation/set out rates and contamination	Each council extends current education and engagement programmes to include targeted campaigns to increase participation and reduce	Each council extends access to kerbside collections to businesses, on a user-pays basis Each council supports virtual material trading systems locally	Each council considers sources of waste materials in the area other than kerbside collections (such as organics, recyclables) when planning and developing infrastructure	Each council proactively engages with national government and bodies Councils commit to ongoing meetings as an Otago network and discussions of

Scenario Name	Regulation	Measuring & Monitoring	Education & Engagement	Collections & Services	Infrastructure	Leadership & Management
		Increased monitoring and analysis of non-household waste streams and Councils' data	contamination in kerbside services Each council engages more with other sectors e.g. C&D, health, retail, industry		The Circular Resource Network approach is incorporated where possible	collaborative opportunities
Moderate collaboration, Circular Economy	Each council makes its own decision on whether to have a solid waste bylaw, but this is based on a standard template and some common areas are implemented collaboratively (such as guidance for events waste management)	As above, with Councils collaborating on monitoring and analysis of non-=household waste streams where appropriate	Rather than individual councils engaging with other sectors, this is done at a regional level, perhaps with each TA taking responsibility for a sector Branding and content of communications materials is consistent as far as possible Education and engagement on common issues are coordinated regionally	Details of services are aligned where possible to enable collaboration Collections are provided to areas other than 'small urban', where this can be done efficiently Additional collection services are offered other than those required, e.g. garden waste collections (user pays) and kerbside refuse (Waitaki) Councils collaborate to support virtual	Councils collaborate when developing infrastructure and identify opportunities to share facilities where appropriate The Circular Resource Network approach is used as a template and infrastructure projects are proactively designed to align with this Smaller and community-led infrastructure is supported and integrated where possible	Otago Councils collaborate on national engagement, e.g. responding to submissions, engaging in technical advisory groups Otago Councils have a formal collaborative working arrangement and identify priority projects to deliver through this group

Scenario Name	Regulation	Measuring & Monitoring	Education & Engagement	Collections & Services	Infrastructure	Leadership & Management
				material trading systems		
High collaboration, Full Circular Economy	Councils agree to adopt a consistent solid waste bylaw, enabling regional implementation (such as waste operator licensing and data collection)	Councils work jointly collecting data from waste operators, and identifying issues and options from this information Councils jointly lobby for access to centrally-held data (e.g. levy and information reporting)	There is a shared regional resource that engages with these sectors, with regular proactive discussion on waste management and minimisation opportunities Councils consistently and proactively engage with target communities to minimise contamination	Household kerbside refuse collections are consistently and largely rates-funded across the region to maximise participation in council diversion services Virtual material trading systems are supported by a regional resource	A Circular Resource Network is proactively designed for the region, and any infrastructure projects are designed to fit with this Network. This extends to all levels of scale, with smaller and community-led infrastructure actively encouraged and prioritised over larger commercial infrastructure, where appropriate	The Councils share a joint resource to coordinate regional collaboration, and commit a portion of funding to deliver priority collaborative projects. The Councils engage at a national level in a collaborative way, with individual TA officers able to represent a considered regional view

The options identified and the Councils' possible role in meeting forecast demand comprise a range of proposals. The specific actions and timeframes for delivery will be identified through the development of draft Waste Management and Minimisation Plans and will be dependent on the strategic direction preferred by each TA; the extent of collaboration that is desirable and possible; and the resources available to each TA.

It is expected that the implementation of the preferred options from these proposals, as will be set out in the Councils' draft WMMPs, will meet forecast demand as well as support the Councils' goals and objectives for waste management and minimisation and support the phase 1, 2 and 3 goals of TRP. These goals and objectives will be confirmed as part of the development and adoption of the draft WMMPs.

The WA also includes a statement as to the extent to which the proposals will (i) ensure that public health is adequately protected, and (ii) promote effective and efficient waste management and minimisation.

It is considered that the proposals would adequately protect public health. This is supported by the statement received from the Medical Officer of Health following review of the draft WA.

The Waste Assessment has investigated current and future quantities of waste and diverted material and outlines the Councils' potential roles in meeting the forecast demand for services. It is considered that the process of forecasting has been robust, and that the Councils' intended role in meeting these demands is appropriate in the context of the overall statutory planning framework for the Councils. Therefore, it is considered that the proposals would promote effective and efficient waste management and minimisation.

Contents

1 Introduction

This Waste Assessment has been prepared for the councils of the Otago region (Queenstown Lakes, Central Otago, Clutha and Waitaki Districts; and Dunedin City) – known here as 'the Councils' - by Eunomia Research & Consulting in accordance with the requirements of the Waste Minimisation Act 2008 (WMA). This document provides background information and data to support the Councils' waste management and minimisation planning process.

1.1 Structure of this Document

This document is arranged into a number of sections designed to help construct a picture of waste management in the Otago region. The key sections are outlined below.

Introduction

The introduction covers a number of topics that set the scene. This includes clarifying the purpose of this Waste Assessment, its scope, the legislative context, and key documents that have informed the assessment.

Otago Region

This section presents a brief overview of key aspects of the region's geography, economy, and demographics that influence the quantities and types of waste generated and potential opportunities. It also provides an overview of regional waste facilities, and initiatives that may be of relevance to how we manage our waste.

The Districts/City

This section presents a brief overview of key aspects of each area's geography, economy, and demographics that influence the quantities and types of waste generated and potential opportunities.

Waste Infrastructure, Services, Data and Performance Measurement

These sections examine how waste is currently managed, where waste comes from, how much there is, its composition, and where it goes.

Gap Analysis and Future Demand

This section provides an analysis of what is likely to influence demand for waste and recovery services in the region and identifies key gaps in current and future service provision, and in the Councils' ability to promote effective and efficient waste management and minimisation.

Statement of Options & Councils' Proposed Role

These sections develop options available for meeting the forecast future demand and identify the Councils' proposed role in ensuring that future demand is met, and that each Council is able to meet its statutory obligations.

Statement of Proposals

The statement of proposals sets out what options are available to meet the project demand or address the key issues. The proposals will be assessed against the strategic direction for each of the Councils, and preferred options will be carried forward into the Waste Management and Minimisation Plans (WMMPs).

Appendices

The appendices include the consultation response from the Medical Officer of Health as well as additional detail on national context, legislation, and background principles.

1.2 Purpose of this Waste Assessment

This Waste Assessment is intended to provide an initial step towards the development of WMMPs by each of the Councils and sets out the information necessary to identify the key issues and options, that will then be prioritised and included in draft WMMPs.

Section 51 of the WMA outlines the requirements of a waste assessment for a territorial authority (TA), which must include:

- a description of the collection, recycling, recovery, treatment, and disposal services provided within the TA's area;
- a forecast of future demands;
- a statement of options available to meet the forecast demands with an assessment of the suitability of each option;
- a statement of the TA's intended role in meeting the forecast demands;
- a statement of the TA's proposals for meeting the forecast demands; and
- a statement about the extent to which the proposals will protect public health, and promote effective and efficient waste management and minimisation.

1.3 Legislative Context

The principal solid waste legislation in New Zealand is the Waste Minimisation Act 2008 (WMA). The stated purpose of the WMA is to:

> "encourage waste minimisation and a decrease in waste disposal in order to
>
> (a) protect the environment from harm; and
>
> (b) provide environmental, social, economic, and cultural benefits.

To further its aims, the WMA requires TAs to promote effective and efficient waste management and minimisation within their district. To achieve this, all TAs are required by the legislation to adopt a WMMP.

The WMA requires every TA to complete a formal review of its existing waste management and minimisation plan at least every six years. The review must be consistent with WMA sections 50 and 51. Section 50 of the WMA also requires all TAs to prepare a 'waste assessment' prior to reviewing its existing plan. This document has been prepared in fulfilment of that requirement.

Further detail on key waste-related legislation is contained in Appendix A.4.0.

1.4 Scope

1.4.1 General

As well as fulfilling the statutory requirements of the WMA, this Waste Assessment will build a foundation that will enable the Councils to review and update/amend (as necessary[5]) their WMMPs in an informed and effective manner. In preparing this document, reference has been made to the Ministry for the Environment's 'Waste Management and Minimisation Planning: Guidance for Territorial Authorities'[6], while noting that this guidance dates back to 2015 and has, to an extent, been superseded through practice.

A key issue for this Waste Assessment will be forming a clear picture of waste flows and management options in the region. The WMA requires that a waste assessment must contain:

"A description of the collection, recycling, recovery, treatment, and disposal services provided within the territorial authority's district (whether by the territorial authority or otherwise)".

This means that this Waste Assessment must take into consideration all waste and recycling services carried out by private waste operators as well as the Councils' own services. While the Councils have reliable data on the waste flows that they control, data on those services provided by private industry is limited. Reliable, regular data on waste flows is important if a TA chooses to include waste reduction targets in their WMMP. Without data, targets cannot be readily measured.

The New Zealand Waste Strategy 2023 also repeatedly refers to central and local councils as being the key agencies by which many goals could be achieved.

Although the WMA is currently subject to review (as discussed further below in section 1.5.3, there has not been any indication that the requirements for local waste planning will be reduced.

1.4.2 Period of Waste Assessment

The WMA requires WMMPs to be reviewed at least every six years, but it is considered prudent to take a longer-term view. The horizon for the WMMP is not fixed but is assumed to be centred on a 10-year timeframe, in line with council long term plans (LTPs). For some assets and services, it is necessary to consider a longer timeframe and this is taken into account where appropriate. Therefore, the period of the Waste

[5] Noting that, depending on the scope/scale of the amendments and reviews, the special consultation process set out in section 83 of the Local Government Act (2002)
[6] Ministry for the Environment (2015), Waste Management and Minimisation Planning: Guidance for Territorial Authorities

Assessment looks forward over at least the next ten years, and sometimes longer (in the case of infrastructure/facilities, e.g. landfill consenting).

1.4.3 Consideration of Solid, Liquid and Gaseous Wastes

The guidance provided by the Ministry for the Environment on preparing Waste Management and Minimisation Plans states that:

"Councils need to determine the scope of their WMMP in terms of which wastes and diverted materials are to be considered within the plan".

The guidance further suggests that liquid or gaseous wastes that are directly managed by a TA, or are disposed of to landfill, should be seriously considered for inclusion in a WMMP.

Other wastes that could potentially be within the scope of the WMMP include gas from landfills and the management of biosolids from wastewater treatment plant (WWTP) processes.

In line with the Councils' previous WMMPs, this Waste Assessment is focused on solid waste that is disposed of to land or diverted from land disposal, including solid waste collected and disposed of by commercial enterprise as well as waste collected by the councils.

However, given the current work on restructuring water services (including waste water), this WA and any resulting WMMPs will not include management of solid wastes resulting from these activities.

1.4.4 Public Health Issues

Protecting public health is one of the original reasons for local authority involvement in waste management. Te rautaki para, the new Waste Strategy, refers to protection of human health as one of the outcomes from successful recovery of resources (page 6).

Protection of public health is currently addressed by a number of pieces of legislation, most significantly the Health Act (1956), the Hazardous Substances and New Organisms Act (1996) and the Health and Safety at Work Act (2015). Discussion of the implications of the legislation is contained in Appendix A.4.0.

1.4.4.1 Key Waste Management Public Health Issues

Key issues that are likely to be of concern in terms of public health include the following:

- population health profile and characteristics;
- implications of pandemic management, e.g. increases in some waste materials;
- meeting the requirements of the Health Act 1956;
- management of putrescible wastes;
- management of nappy and sanitary wastes;
- potential for dog/seagull/vermin strike;
- timely collection of material;
- locations of waste activities;

- management of spillage;
- litter and illegal dumping;
- medical waste from households and healthcare operators;
- storage of wastes;
- management of biosolids/sludges from WWTP;
- management of hazardous wastes (including asbestos, e-waste, etc.);
- private on-site management of wastes (i.e. burning, burying);
- closed landfill management including air and water discharges, odours and vermin; and
- health and safety considerations relating to collection and handling.

1.4.4.2 Management of Public Health Issues

From a strategic perspective, the public health issues listed above are likely to apply to a greater or lesser extent to virtually all options under consideration. For example, illegal dumping tends to take place ubiquitously, irrespective of the waste collection and transfer station systems in place. Some systems may possibly exacerbate the problem (infrequent collection, user-charges, inconveniently located facilities etc.) but, by the same token, the issues can be reduced and managed through methods such as enforcement, education and by providing convenient facilities. It is also known that illegal dumping continues to be a problem even in areas where disposal is free of charge.

In most cases, public health issues can be addressed through setting appropriate performance standards for waste services. It is also important to ensure performance is monitored and reported on and that there are appropriate structures within the contracts for addressing public health issues that arise. There is now increased emphasis on workplace health and safety under the Health and Safety at Work Act 2015. This legislation can impact on the choice of collection methodologies and working practices and the design of waste facilities, for example.

In addition, public health impacts will be able to be managed through consideration of potential effects of planning decisions, especially vulnerable groups such as Māori and lower socioeconomic communities. That is, potential issues will be identified prior to implementation so they can be mitigated for.

1.5 Strategic Context

1.5.1 New Zealand Waste Strategy

The 2023 New Zealand Waste Strategy is the first time New Zealand's national strategic direction for waste has been reviewed since 2002, and unsurprisingly takes quite a different approach to the previous Strategy.

The vision of the 2023 New Zealand Waste Strategy, Te rautaki para, is:

> *"By 2050, Aotearoa New Zealand is a low-emissions, low-waste society, built upon a circular economy.*

We cherish our inseparable connection with the natural environment and look after the planet's finite resources with care and responsibility"

This vision is supported by six guiding principles:

1) Take responsibility for how we make, use, manage and dispose of things
2) Apply the waste hierarchy preferences to how we manage materials
3) Protect and regenerate the natural environment and its systems
4) Deliver equitable and inclusive outcomes
5) Ensure our systems for using, managing and disposing of materials are financially sustainable
6) Think across systems, places and generations

A revised waste hierarchy is set out (shown below), intended to illustrate which options are the best, and which are least favoured. While many versions of the waste hierarchy exist, the one in the strategy is intended to be simple and easy to understand.

Figure 1: Revised Waste Hierarchy

Source: Te rautaki para | Waste Strategy (page 14), Ministry for the Environment 2023

The strategy has three phases:

1) Embedding circular thinking into systems (by 2030)
2) Expanding to make circular normal (to 2040)
3) Helping others do the same (by 2050)

Each of the three phases has associated goals, some of which are particularly relevant to the Waste Assessment and WMMP process; others more relevant to central government, the wider public, the community/private sector, or other local government roles such as contaminated land management.

The key role for local government is described in the Strategy as:

- getting involved in implementing the strategy and the process of developing the action and investment plan – using the strategy as a starting point for WMMPs;
- looking for opportunities to work with other councils, particularly on facilities and services that support a 'national circular resource management network';
- supporting local community groups and non-governmental organisations with waste reduction initiatives;
- incorporating national behaviour change programmes in local activity;
- ensuring planning and consenting processes consider the need for waste management infrastructure and services; and
- planning and resourcing contaminated land management including vulnerable landfills

The Strategy has three targets to be achieved by 2030:

1) Reduce waste generation by 10% per person
2) Reduce waste disposal by 30% per person
3) Reduce biogenic methane emissions from waste by at least 30%

However, at this point no baseline has been set.

Further detail on the implications of the Waste Strategy are set out in Appendix A.4.1.

Section 44 of the WMA requires councils to have regard to the NZWS when preparing their WMMP.

For the purpose of this Waste Assessment, we have given regard to the NZWS and the current WMMPs of the Otago councils; the options presented in section 8 are aligned with the guiding principles of Te rautaki para and would fulfil the key roles described for councils in this strategy.

These sections are discussed in more detail in Appendix A.4.0.

1.5.2 Emissions Reduction Plan

The Climate Change Commission (CCC) was established to provide impartial expert evidence to government to support initiatives that would reduce greenhouse gas emissions and address climate change mitigation and adaptation, contributing towards the goals set out in the Climate Change Response Act 2002. The CCC reviewed the waste sector as part of its work during 2020 and 2021 and has provided its final advice to government with respect to this sector, amongst others, in the Emissions Reduction Plan (May 2022)[7].

The advice of the CCC is that unless waste management practices and policy settings in New Zealand change significantly, we will not meet the targets set in the 2002 Act – *"current policies will not deliver the emissions reductions we must achieve."*

[7] https://environment.govt.nz/assets/publications/Aotearoa-New-Zealands-first-emissions-reduction-plan.pdf

Comprehensive action is required to reduce waste overall, divert waste from landfill disposal, and improve/extend landfill gas capture systems.

The main source of biogenic methane emissions from the waste sector is the anaerobic decomposition of organic wastes in landfill (94% in 2019).

The key actions for the waste sector are:

- enable households and businesses to reduce organic waste (reduction of food scraps at home and in businesses, and participation in improved kerbside collections);
- divert more organic waste from landfill (improve household kerbside collections of food and garden waste, invest in processing and recovery infrastructure for organics, require organic waste to be separated);
- reduce and divert construction and demolition waste (minimisation, sorting and processing infrastructure, separation of material);
- bans or limits for organic waste to landfill – potentially by 2030;
- increase gas capture from Class 1 landfills (regulations requiring gas capture, investigate additional gas capture); and
- improve waste data including a national operator licensing scheme (which will improve information on greenhouse gas emissions).

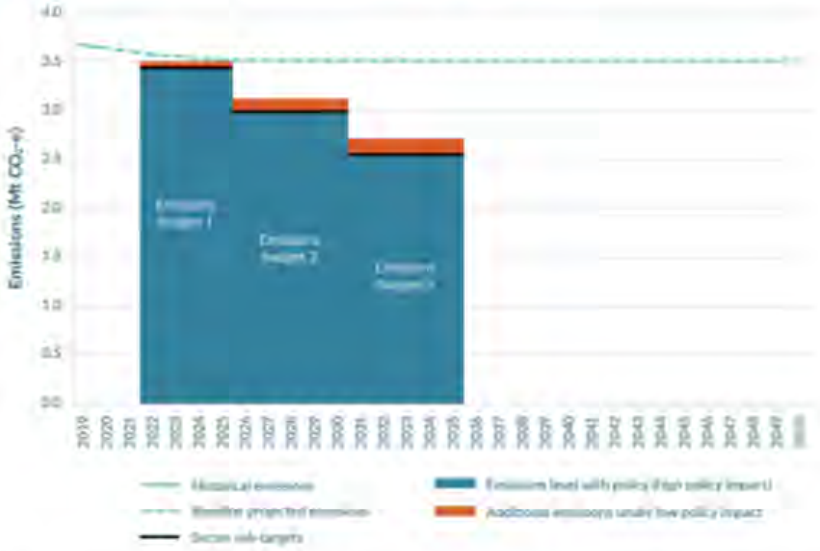
The Plan includes a 'waste pathway to 2035' which is highly consistent with the New Zealand Waste Strategy. Key actions over the next ten years include:

- 2023: organic waste prevention programmes and increased investment in resource recovery;
- 2024: new waste legislation, national waste reporting, wider coverage of kerbside organics collections, more organics recovery/processing;
- 2025: new regulations to drive emissions reduction, national waste licensing, all Class 1 landfills capturing gas;
- To 2030: possibly organic waste landfill limits or bans; and
- To 2035: target of 40% reduction in biogenic methane (from 2017 levels).

New Zealand has a long-term target of net zero greenhouse gases by 2050, and a specific target for biogenic methane of 24 – 47% reduction by 2050 under the Climate Change Response Act (2002 Act).

It is worth noting that even with all of the actions proposed this would still fall short of achieving the first sub-target for the waste sector (2022 – 2025) but will come very close to the target in the period 2026 – 2035, as shown in the chart below:

Figure 2: Total projected methane emissions from waste showing the impact of proposed combined waste policy options



Source: Ministry for the Environment. 2022. *Te hau mārohi ki anamata | Towards a productive, sustainable, and inclusive economy*. Wellington: Ministry for the Environment. This assumes 40% of food waste diverted to composting and 60% to anaerobic digestion and 100% of green waste to composting.

1.5.3 Waste Minimisation Act 2008

As signalled during consultation for and in the recently released Te rautaki para/New Zealand Waste Strategy, MfE is also currently working on a review of the WMA to improve or amend provisions and consider new provisions. The provisions for use of landfill levy funds and the administrative and decision-making processes around this use will also be reviewed and improved. This review will also consider whether, and how, the Litter Act (1979) could be reviewed to better integrate with and support the WMA.

The WMA has been amended by the 2021 waste disposal levy regulations[8], which set out the progressive increase and expansion of the landfill levy starting 1 July 2021; and supplemented by regulations banning specific items, including microbeads[9] (2017),

[8] https://www.legislation.govt.nz/regulation/public/2021/0068/latest/LMS474556.html#LMS474591
[9] https://www.legislation.govt.nz/regulation/public/2017/0291/latest/DLM7490715.html?search=ts_act%40bill%40regulation%40deemedreg_microbeads_resel_25_a&p=1

plastic shopping bags[10] (2018), and numerous tranches of plastics packaging during 2022 and 2023, as described in section 1.5.6.5.

Currently, the WMA provides for half of the revenue from the waste levy to be distributed to TAs. These funds are provided pro rata, based on population, and must be spent on waste minimisation and in accordance with each TA's WMMP. MfE have recently signalled that they intend to make specific provision for auditing and enforcement of correct service provision to be funded by waste levy funds.

The waste disposal levy is outlined further in the following subsection.

1.5.4 Waste Disposal Levy and Information Reporting

In April 2021 the government introduced regulation to expand the scope of the levy from Class 1 landfills to also include classes 2-4,[11] and to require operators of industrial monofills, Class 5 fills and refuse transfer stations (RTS) to report data on the quantity of waste received. Section 2.1 defines the different types and classes of fills.

The table below shows the timetable and rates for the new levy regime:

Table 1: Levy Rates by Disposal Facility Type and Year (per Tonne)

DISPOSAL FACILITY CLASS	1-Jul-21	1-Jul-22	1-Jul-23	1-Jul-24
Municipal landfill (class 1)	$20	$30	$50	$60
Construction and demolition fill (class 2)		$20	$20	$30
Managed fill (class 3)			$10	$10
Controlled fill (class 4)			$10	$10

https://www.mfe.govt.nz/waste/waste-and-government

As the landfill levy is expanded and raised, there will be an impact on the quantity of material going to the different destinations; however, the extent to which this occurs, and for which materials, depends on a number of other factors. The potential impacts are explored further in appendix A.4.0.

The requirement for all fills and RTS to at least report data on the quantity of waste received will provide much greater understanding of the role that all types of facilities play in waste management.

Anecdotally, there is evidence that some facilities in the Otago region are choosing to close rather than comply with the requirements to register and pay the levy and/or

[10] https://www.legislation.govt.nz/regulation/public/2018/0270/6.0/whole.html
[11] https://www.legislation.govt.nz/regulation/public/2021/0069/latest/whole.html

report waste quantities. This is known to have occurred in the Queenstown Lakes district, and in Clutha district.

1.5.5 Emissions Trading Scheme (ETS)

Since 2013, Class 1 landfill owners have been required by the Climate Change (Emissions Trading) Amendment Act 2008 to surrender emission units to cover methane emissions. If any solid waste incineration plants are constructed (without energy recovery), this act would also require emission units to be surrendered to cover greenhouse gas emissions from the incineration of household wastes.

The number of emission units that needs to be surrendered is based on a calculation of how much methane is generated from a tonne of waste. As a starting point, landfills use a default emissions factor for waste (DEF). This is the methane assumed to be generated by each tonne of waste and is currently set at 0.91 tonnes of CO_2-e (CO2 equivalent) per tonne of waste.

However, landfill operators can reduce their liabilities under the ETS through use of a unique emissions factor (UEF). The UEF is a calculation of actual methane released by the specific landfill. This can be done by either capturing the methane that is generated or showing (based on the type of waste going into the landfill) that the landfill generates a different amount of methane to the default.

1.5.5.1 Carbon Price

The other component of the calculation of a landfill's liability under the ETS is the price of carbon. New Zealand units (NZU)[12] currently change hands for between $70 and $85, with prices at $77.50 at the time of writing[13].

The cost of NZUs has been increasing steadily for the last couple of years, due largely to changes made to the types of offsets that are eligible under the ETS. Class 2-5 landfills and closed landfills (along with certain other excluded landfills) are not currently covered by the ETS.

The implications of the ETS and carbon prices are explored further in appendix A.4.8.

1.5.6 Other Relevant Initiatives

1.5.6.1 Container Return Scheme

Container return schemes (CRS) place a deposit on all containers when sold. This deposit can then be redeemed by consumers when they return the containers. These schemes are in wide use worldwide including Australia and are designed to promote higher rates of recovery of containers and reduce littering by providing an incentive to consumers.

---

[12] NZUs are carbon credits that are officially accepted to offset liabilities under the NZETS
[13] Accessed from https://www.carbonnews.co.nz/tag.asp?tag=Carbon+prices

In 2019, a WMF-funded project led by Auckland Council and Marlborough District Council embarked on the research and design of a potential container return scheme for New Zealand. The outcomes from this project were reported to MfE, who have analysed the information and produced advice for ministers.

MfE consulted on a detailed implementation proposal for a container return scheme in New Zealand. This was included in the 'Transforming Recycling' consultation document.

The consultation document proposed a deposit of 20c per container for a wide range of beverage containers, excluding 'fresh milk' (the logic being that this product is rarely consumed outside the home). Depending on the details of the eventual CRS, and the extent to which containers may be captured in the scheme, two key effects on household kerbside recycling collections are likely:

- the quantity of containers collected in a kerbside collection would reduce; and
- the value of containers that are part of the CRS, but are still collected in a kerbside collection, will likely result in income for the 'owner' of the items. Usually, the owner is either the Council and/or its contractor.

Possible implications for Councils include the potential to reduce the frequency of recycling collections due to lower volumes of material, and an increased focus on how income from collected recyclables is shared between council and contractor (assuming that the CRS deposit can be claimed on kerbside-collected material).

In early 2023, government announced that the CRS development would be put on hold. This position has since been softened to a 'delay' but it remains unclear when, or how, a CRS would be introduced for New Zealand.

1.5.6.2 Kerbside Standardisation

In 2019, WasteMINZ was commissioned by MfE to complete a national review of kerbside collections and make recommendations as to how to achieve consistency across the country. The report was completed in 2020[14], and MfE then considered implementing the three main recommendations:

1. A standard set of items accepted in kerbside recycling collections
2. Glass collected separately to other material streams
3. A weekly kerbside food scraps collection service for households.

MfE consulted on a detailed implementation proposal for kerbside standardisation in New Zealand. This was included in the 'Transforming Recycling' consultation document[15].

[14] https://www.wasteminz.org.nz/wp-content/uploads/2020/08/Final-1.0-Standardising-Kerbside-Collections-in-Aotearoa.pdf
[15] https://environment.govt.nz/assets/publications/Transforming-recycling-consultation-document.pdf

The proposals included, alongside the points above from the original review, options to achieve the diversion of food scraps from businesses. The three possible options set out in the consultation document are:

- phasing in source-separation of food scraps only from businesses that produce or sell food;
- phasing in source-separation of food scraps from all businesses; or
- prohibiting the disposal of food scraps to landfill entirely (which would also preclude disposal of food scraps from household sources).

In March 2023, MfE announced its decisions regarding kerbside standardisation alongside the release of Te rautaki para /New Zealand Waste Strategy. The key aspects are:

- standardising materials in existing council kerbside recycling collections by 1 February 2024 to: glass bottles and jars, paper and cardboard (including pizza boxes), plastic bottles and containers grades #1, #2, and #5, and aluminium/steel tins and cans[16];
- requiring council kerbside recycling to be provided to households in urban areas (defined as those with more than 1000 people[17]) by 1 January 2027; and
- Council food scraps collections to be provided to households in urban areas (defined as above) by 1 January 2030, or by 1 January 2027 if a nearby processing option is available[18].

MfE advise it will also be working on business food scrap diversion by 2030.

Kerbside standardisation excludes tetrapak and other gabletop/liquid paperboard containers, foil, aerosols, soft plastics, polystyrene, and plastic bottles and containers other than those mentioned above. Councils will have the discretion to choose whether or not to include compostable bin liners in organics collections, and can also choose whether to collect glass separately or comingled with other materials.

Councils for which the earlier food scraps collection deadline (2027) applies includes Waitaki District. Clutha District is one of the three councils that have until 1 January 2027 to add a household kerbside glass recycling collection.

Kerbside standardisation will only apply to council-provided services (either in-house or via a contractor) for now, with the hope that the private and community sector will choose to align their kerbside services with these requirements. However, MfE have

---

[16] The information sheet "Improving household recycling and food scraps collections' clarifies that the three councils nationwide that do not currently collect glass at the kerbside will have until 1 January 2027 to start this service

[17] As defined by StatsNZ as 'small urban areas', and shown on the StatsNZ Arc GIS system based on 2022 data.

[18] Defined as within 150km of a 'main centre'.

indicated that they intend to provide for kerbside standardisation to be regulated more widely through the new version of the WMA.

The kerbside standardisation changes also include performance standards for household waste kerbside diversion, and reporting requirements for private waste companies.

The performance standards relate to kerbside recycling and food waste, and set an increasing proportion of kerbside waste diverted from landfill:

- 30% by July 2026
- 40% by July 2028
- 50% by July 2030

Councils that do not comply with the requirements to collect a standard set of kerbside recycling materials, and/or meet the minimum diversion requirements, can have all or part of their waste levy allocation withheld. Once withheld, this is not available at a later date (i.e. even if the council becomes compliant shortly after the due date, the levy funds will not then be released).

Councils that do not comply with the requirement to provide a kerbside recycling and food scraps collection service to householders in applicable urban areas will not, at this point, have waste levy funds withheld; however, it is likely that there will be regulatory requirements introduced for these aspects at a later date, and it would be very difficult for a council to achieve the minimum diversion requirements without having these services in place.

The performance requirements will be enacted by a gazette notice under the WMA, and the two household kerbside collection provisions will be enacted by a regulation issued by the Governor-General.

MfE have also clarified that 'provision' of services will require a TA to provide these either through in-house services or a contract. While it is technically possible for the Minister to allow exceptions for all four requirements, it has been made clear that this will be very rare and the onus will be on the TA to present the case for exceptions to be made.

1.5.6.3 TA Performance Reporting

In addition to the proposals for a container return scheme and the standardisation of kerbside recycling, the MfE's consultation also covered a number of related issues.

One of these was the requirement for TAs to report to MfE on a number of performance standards/targets; including a minimum 50% diversion standard for dry recyclables and food scraps in kerbside collections. This was supported by a 70% high performance 'stretch target' which would be non-enforceable, but was intended to further encourage and motivate TAs[19].

[19] Proposal 4, page 87 – 'A minimum performance standard' and 'A high-performance target' sections

The proposal was that the minimum standard would need to be achieved by 2030, to align with timeframes proposed in the draft New Zealand Waste Strategy and the ERP.

Some TA performance targets have now been confirmed in the outcomes from the kerbside standardisation, as discussed in the section above. It may be that additional performance targets will follow over time.

1.5.6.4 Priority Products

The WMA enables a product to be named as a 'priority product'. Once a product has been named such, an extended producer responsibility approach must be taken and a regulated product stewardship scheme development.

The first six priority products were named under the WMA in 2020 (shown below) and subsequently single-use packaging has been added. The first seven priority products named are:

1. Plastic packaging
2. Tyres
3. Electrical and electronic products (e-waste including large batteries)
4. Agrichemicals and their containers
5. Refrigerants
6. Farm plastics
7. Single-use plastic packaging

MfE has taken a 'co-design' approach, which involves industry developing and operating product stewardship schemes with central government oversight. Progress on the schemes, and parties involved, are summarised below.

Table 2: Product Stewardship Programmes

Priority product	Progress made	Lead agency/ies
Tyres	Consultation on proposed regulations late 2021 Scheme accredited October 2020 Regulation in effect from late 2023	Tyrewise
Large batteries	Consultation on proposed regulations late 2021 Accreditation expected late 2023 Regulation in effect from 2024	Battery Industry Group
Refrigerants (and other synthetic greenhouse gases)	Consultation on regulations in late 2022 Scheme accreditation mid 2023 Regulation in effect from 2024	Synthetic Refrigerant Stewardship group

Priority product	Progress made	Lead agency/ies
Farm plastics, agrichemicals and containers (farm waste)	Consultation on regulations planned late 2023	The Agrecovery Foundation
Electrical and electronic products (e-waste)	Scheme design in 2023 Consultation on regulations in 2024	TechCollect
Plastic packaging	Co-design underway	Packaging Forum and Food & Grocery Council

1.5.6.5 Product Bans

In April 2022, MfE announced that regulations had been passed to enable the implementation of the first tranche of bans for problematic plastic items. These regulations include:

- plastic cotton buds;
- plastic drink stirrers;
- oxo- and photo-degradable plastic products;
- certain PVC food trays and containers (pre-formed and rigid);
- polystyrene takeaway packaging; and
- expanded polystyrene food and beverage packaging.

The bans will take effect from 1 October 2022, and MfE is releasing further information such as scope and guidance on alternatives as required

Two more 'tranches' of bans are planned. From 1 July 2023 the following will be banned:

- plastic produce bags;
- plastic tableware;
- plastic straws; and
- non-compostable plastic produce labels.

From mid-2025, all other PVC and polystyrene food and beverage packaging will also be banned.

1.5.6.6 Infrastructure Investment Strategy

With the increased and expanded landfill levy comes an increased pool of funds that can be invested in waste management and minimisation initiatives.

MfE is developing a proactive strategic investment plan for waste infrastructure, supported by a detailed stocktake of current infrastructure and prioritisation of possible

new infrastructure. The goal of this work is to give a national view of the waste investment New Zealand needs over the next 15 years. The outcomes will be incorporated in to the action and investment plan that will supplement Te rautaki para, and will be released in the first half of 2024.

In April 2023, MfE released a summary report of the infrastructure assessment carried out by Eunomia in 2021[20].

1.5.6.7 Data and Monitoring

As described in section 1.5.4, MfE has developed protocols to collect data from the additional facilities that will now be paying the landfill levy, and has adopted regulations that enable the collection of some data from Class 5 fills and transfer stations[21], and has introduced an approach for performance reporting by TAs alongside Te rautaki para. These protocols will be included in the revised National Waste Data Framework, which will be completed in mid-2023.

MfE has also indicated that it is likely the new Waste Minimisation Act will also include requirements for waste operators to be licensed by a central agency, and to report data on the quantities of waste handled; and that requirements for construction site waste management plans (SWMP) will be included in a revision of the Building Act. It is not clear what the timeframes or specific requirements will be; however, it does seem clear that building consents will not be contingent on a compliant SWMP being submitted.

1.5.7 Resource Management Act Review

Government has resolved to replace the Resource Management Act (RMA) with two new Acts; the Spatial Planning Act, and the Natural and Built Environment Act. These are currently making their way through Parliament as Bills.

The increased abilities and requirements for spatial planning will have a positive impact on waste management; in particular infrastructure, as demand and supply of waste infrastructure will be an essential consideration under a spatial planning approach.

However, there is no specific reference to waste in the Bills, and so the extent to which waste planning will be undertaken successfully for the Otago region (by the applicable Regional Planning Committee) will depend on local implementation of the provisions.

The Bills both propose a more significant role for iwi in regional-scale planning, which could result in an approach that is more aligned with te ao Māori principles and a circular economy approach to waste management and minimisation.

---

[20] Eunomia (2023) "Waste and Resource Recovery Infrastructure and Services Stocktake Summary Report", available at www.mfe.govt.nz
[21] https://www.legislation.govt.nz/regulation/public/2021/0069/latest/whole.html

1.5.8 International Commitments

New Zealand is party to the following key international agreements:

1) Montreal Protocol – to protect the ozone layer by phasing out the production of numerous substances
2) Basel Convention – to reduce the movement of hazardous wastes between nations
3) Stockholm Convention – to eliminate or restrict the production and use of persistent organic pollutants
4) Waigani Convention – bans export of hazardous or radioactive waste to Pacific Islands Forum countries

These agreements are explained in more detail in appendix A.4.0.

1.6 Local and Regional Planning Context

This Waste Assessment and the resulting WMMPs will have been prepared within a local and regional planning context whereby the actions and objectives identified in the Waste Assessment and WMMPs reflect, intersect with, and are expressed through other planning documents. Key planning documents and waste-related goals and objectives are noted in this section.

1.6.1 Local Strategic Context

Each of the five councils has a long term plan (LTP) adopted in 2021 and a current WMMP. Some also have other strategies or plans that should be considered, particularly those relating to climate. The local strategic context for each council is summarised below.

1.6.1.1 Queenstown Lakes

QLDC last reviewed its WMMP (the Plan) and associated Waste Assessment in 2018.

While the QLDC WMMP doesn't strictly include a list of 'key issues', the Plan highlighted that large quantities of organic, glass, and construction and demolition (C&D) wastes were going to landfill.

QLDC used a 'programme business case' approach to identify the preferred approach for the six-year term of the Plan. From the seven programmes outlined, ranging from do minimum (programme 1) to aspirational (programme 7), programme 6 was chosen which had a focus on glass and organics. This decision meant that any significant action on C&D waste would largely be deferred for the course of the 2018 Plan.

The planned programme of work was forecast to achieve a 19% decrease in waste to landfill during the term of the WMMP.

Since the adoption of the WMMP, two additional key issues have arisen:

1) The Whakatipu materials recovery facility (MRF) is beyond its anticipated functional life and following the Covid-19 lockdowns of 2020-21 has struggled

with both processing capacity and staff retention; as a result it is struggling to cope with the volume of incoming recyclables from the QLDC area. Until 2022, CODC also relied on the Whakatipu MRF for processing of recyclables, and frequently had to stockpile recyclables or transport them to Southland Disability Enterprises (SDE) for processing. CODC is no longer dependent on the Whakatipu MRF but would consider use of a future facility if available.

2) The inland sub-region (Queenstown/Central Otago) lacks a full facility resource recovery park with large capacity. Wānaka benefits from the present of Wānaka Wastebusters, a social enterprise operating on Council land, but this operation does not have the space or resources to serve the wider sub-region, and is roughly one hour from Queenstown and 45 minutes from Cromwell.

QLDC is in the process of identifying a potential new site that could accommodate a new MRF and full resource recovery park.

The QLDC 2021 long term plan (LTP) confirms funding for two key work areas:

1) Funding to research and trial methods to divert organic waste from landfills, with a reference to possible MfE diversion targets (although no capital funding for implementing solutions has been allocated);
2) Funding for the proposed new Whakatipu MRF/transfer station to form the beginning of a more extensive resource recovery centre and allow the current MRF in Frankton to be decommissioned.

Infrastructure projects are influenced by the QLDC 30 year infrastructure strategy, and are required to align with the strategic outcomes from this strategy:

1) All people can live healthy lives (services protect people from harm, create opportunities for increased activity, recreation and social connection)
2) The economy is stable and our people prosper (respond to service demand providing quality and affordability, sustain affordability, sustain annual market spend and build diversity and capability in business)
3) Communities are resilient to sudden natural events (ensure continuity of service, optimise recovery of services)
4) The natural environment's mauri is respected and protected (prevent contaminants from entering natural environment, reduce impact on global emissions and resource extraction, support environmental regeneration)

Paraphrased from the Queenstown Lakes District Council 30-year Infrastructure Management Strategy[22]

QLDC has a Climate and Biodiversity Plan 2022-25 (CBP) adopted in 2022. There are six outcomes identified in the CBP to reach the goals including reduction of greenhouse gas emissions by 44% by 2030 and net-zero greenhouse gas emissions by 2050. The CBP addresses the challenge of minimising waste, diverting organic waste out of landfill and managing a transition to a circular economy. The CBP states that QLDC's main areas of

[22] https://www.qldc.govt.nz/media/40mhqoxm/iams-28jun18-adopted2.pdf

focus are to reduce reliance on the landfill and divert waste that releases emissions, such as food waste, which can be composted.

The CBP includes the following waste relevant outcomes:

Outcome 1 - Leadership

We enable and accelerate community behaviour change

We are committed to zero waste

Action: Divert organic material from landfill.

Outcome 4 - Our communities are low-emission and resilient

We grow a resilient and low carbon local food system

Action: Support composting, gardening skills, food growing hubs and the development of community composting.

Outcome 5 - Low-emission businesses thrive

We support businesses to transition to a low emission future

Action: Amplify and support programmes to assist businesses to be energy efficient, reduce greenhouse gas emissions, waste, and water use.

1.6.1.2 Central Otago

Central Otago District Council's WMMP, and supporting Waste Assessment, were adopted in 2018 and 2017 respectively.

Key issues identified in the WMMP include:

- an increasing percentage of kerbside refuse going to landfill;
- capacity of kerbside collection containers and frequency of service;
- fees and charges for waste services;
- needs of urban vs rural householders;
- biosolids management;
- hazardous waste disposal;
- large quantities of construction and demolition waste going to landfill; and
- public place waste management.

The issues relating to kerbside containers and servicing frequencies have partially been resolved following changes made to council's services. These changes have also slightly decreased the percentage of kerbside refuse going to landfill, although not significantly.

While biosolids management is identified as a key issue, management of organic waste overall was not, and this has since been noted as an area needing addressing.

Central Otago had been sending mixed recyclables collected at the kerbside to QLDC's Whakatipu MRF in Frankton. As mentioned above, this facility is beyond its anticipated functional life and is struggling with capacity and staff retention. The limited capacity has meant that recyclables have had to be stockpiled in Central Otago, and other

facilities used as needed. Since October 2022, all mixed recyclables from Central Otago have successfully been processed at the Redruth MRF in Timaru.

CODC has experienced ongoing difficulties in recycling bottle glass collected at kerbside as they are unable to meet the logistics operator 5R's contamination requirements. It has concluded that the best option is to crush the glass and send it for different end uses (such as roading and footpath base course) and has purchased a crusher to enable this to occur.

Other waste management issues in the Central Otago district that are not directly highlighted in the Council's WMMP include:

- management of agricultural, viticultural and horticultural organic wastes: the majority of these currently appear to be managed on-property. A small amount of fruit processing waste reaches the vermicomposting facility in Cromwell; however, this is only a very small proportion of the expected overall volume. Local waste operators report that they do service these properties but only to move the wastes from one part of the site to another. While no water quality issues have been identified in the sub-region (in comparison to Marlborough, where viticulture waste was causing significant and noticeable issues with water quality), this is a potentially large waste stream and management of this could be better understood;
- organic waste management generally, with kerbside audits showing around 24% is food scraps and 20% greenwaste; and
- better management of rural waste generally.

The CODC 2021 LTP indicates that council would work on a plan for green waste for implementation through the 2024 LTP, with a possible district-wide green waste collection and processing system. No significant changes were made with respect to waste management and minimisation planning, with the focus for the next three years on reviewing existing waste services and re-tendering contracts for these; alongside investigation of improvements to the Cromwell transfer station and green waste processing.

As part of this service review and procurement process, CODC carried out a community consultation exercise in 2021 and reflected these outcomes in new services to be introduced from 1 July 2023. The new services will involve four collections streams – a weekly collection of food scraps and garden waste (known as FOGO, food and garden organics) from a 240L wheeled bin, a fortnightly collection of comingled recycling (from a 240L wheeled bin) and residual rubbish (from a 140L wheeled bin) and a four-weekly collection of glass from a 240L wheeled bin.

While CODC doesn't have a specific climate strategy or plan, it does have a Sustainability Strategy adopted in 2019. This strategy mentions various undesirable activities, including 'waste or biomass burning' (due to air quality impacts). Waste-related actions include:

- waste audit for council facilities;

- aligning community education provision with waste management and minimisation plan objectives;
- measuring progress using waste per capita to landfill; and
- reporting through a six-monthly review with the Waste and Property Committee.

1.6.1.3 Clutha District Council

Clutha DC's current WMMP was adopted in 2018. Key action areas from this Plan include:

- evaluating options for beneficial use of glass;
- investigating and evaluating benefits of landfill gas capture/flaring at Mt Cooee; and
- Investigating and evaluating the best way to reduce organic waste to landfill.

The management of biosolids was not identified or considered as part of this work, however castings from Council's treatment plants and sludge has been sent to Mt Cooee on a number of occasions.

Clutha District Council owns and operates Mt Cooee, a small, unlined landfill at Balclutha. Mt Cooee is 78km from Dunedin, 142km from Alexandra and 126km from the main centre of Southland, Invercargill. The resource consent for this expires in October 2023 (although, as noted below, an extension is being sought).

All kerbside recyclables from the Clutha district are transported to OJI's MRF in Dunedin, which does not accept glass. Glass can be taken to Mt Cooee, where it is used in landfill engineering.

As part of the 2018 WMMP Council considered the following options but chose not to implement:

- a kerbside organics collection and subsequent composting;
- the extension of kerbside collection services, particularly recycling, to suburban and some rural areas; and
- kerbside collection of glass for recycling.

However, under the recently announced kerbside standardisation requirements, household kerbside glass recycling and food scraps collections must be provided to the communities of Balclutha and Milton, by 1 January 2027 and 1 January 2030 respectively. CDC has noted this as an issue that needs addressing.

The demand for access to recycling in Clydevale resulted in a trial extension of the kerbside collection service to this area. The continuation of service to Clydevale and possible extension to other areas will also now be considered as part of CDC's 2024 LTP

While C&D waste is highlighted as a key source of landfill waste, the 2021 LTP provides no budget to directly address this issue. Waste composition audits have shown that there is a significant amount of C&D waste, including cleanfill, coming into Mt Cooee. CDC intends to look into options for reprocessing or separate disposal of these wastes.

CDC's contract for solid waste services is due to end in October 2023. The decision was recently made to extend the current contract for a period of at least 3 years due to the uncertainty around legislation changes and the landfill consent process.

One of the priority renewals projects in CDC's 2021 LTP was the intention to secure a long-term consent extension for Mt Cooee landfill to 2053, rather than a short-term extension to 2028 or sending waste to a landfill outside the district; alongside the development of a resource recovery park on the site. A key goal was to increase diversion from landfill beyond the current 9%, and a longer-term management option would also involve the introduction of liners for new landfill cells which will enable better management of landfill gases.

As Council's preferred option, it is now working on two key infrastructure projects to achieve this:

1. The application for a new resource consent of a new lined landfill cell at Mt Cooee with a life expectancy of 35 years 3; and
2. the development of a waste transfer station and resource recovery park at the Mt Cooee site, to be co-located with the landfill.

CDC are also aware that DCC are currently developing a new landfill site and that this could potentially be an alternative disposal avenue for Clutha District's waste if the consent application is unsuccessful. CDC also has a standing agreement with the AB Lime landfill that could be considered.

CDC are planning a review of its Solid Waste Bylaw (2019), Wheelie Bin Policy, Activity Management Plan and the operation of CDC's transfer stations in addition to a likely WMMP review. These will be completed as part of the 2024 LTP. In 2020, Clutha DC commissioned a report on the impacts and implications of climate change for the Clutha District. This report is focused on the outcomes of climate change, rather than mitigation or adaptation.

1.6.1.4 Dunedin

Key local drivers in relation to waste for Dunedin include the following:

- a number of strategic initiatives that are intended to guide action in the waste sector. These include:
  - The Waste Management and Minimisation Plan (2020)[23] which embodies a zero waste and circular economy approach;
  - The Waste Futures project which is an overarching programme of work for waste services and infrastructure taking a whole of systems approach and based on a Better Business Case methodology; and
  - the adoption of a target of net zero carbon emissions from waste by 2030;

[23] https://www.dunedin.govt.nz/__data/assets/pdf_file/0020/342902/WMMP-Waste-Minimisation-and-Management-Plan-Updated-May-2021-WEB.pdf

- Green Island Landfill consent expires in 2023, although DCC is now seeking an extension of this resource consent to 2028 or 2029;
- as part of the 'Waste Futures' project, DCC has confirmed the need to develop a new landfill to replace Green Island. A resource consent has been granted for the development and operation of a new landfill at Smooth Hill; however, development of the new landfill is expected to take until at least 2027. While Smooth Hill is under development, DCC intend to continue to use Green Island for waste disposal; and
- Dunedin is the largest population centre in the region and can achieve sufficient economies of scale for most types of facility on its own.

During consultation on its 2021 LTP, DCC sought the community's views specifically on options for kerbside collections. The two proposed options were:

1) Four bins for glass, other recyclables, food scraps and residual waste (plus an optional green waste bin) for $270 - $310 per year; or
2) Three bins – excluding the food scraps collection - costing $260 - $300 per year.

Following consultation, DCC confirmed the preferred option is option 1, and aims to implement this from mid-2024 as part of the wider Waste Futures project (which has a total budget of $29M). In addition to a food scraps collection option, residents will also have the ability to choose a 140L wheeled bin which can be used for food scraps and garden waste.

1.6.1.5 Waitaki

Waitaki's WMMP and supporting Waste Assessment were adopted in 2018 and 2017 respectively.

Key issues identified in the Waste Assessment were:

1) WDC resource recovery parks (transfer stations) – Omarama, Otematata, Kurow and Hampden;
2) green waste management at resource recovery parks (transfer stations) – Omarama, Otematata, Kurow and Hampden;
3) Palmerston Landfill and Hampden closed landfill;
4) waste minimisation education and initiatives;
5) support to Waitaki Resource Recovery Trust;
6) support to community providers;
7) rural recycling drop-off centres and street-side recycling;
8) collaboration with community providers, private enterprise and other local authorities;
9) waste Minimisation Levy funding expenditure;
10) kerbside collection services; and
11) the Solid Waste Bylaw

Key local drivers in relation to waste for Waitaki include the following:

- waste is almost entirely controlled by the private sector. WDC provides no kerbside collections or recycling services and does not own a transfer station in Oamaru (the largest centre). It owns four rural recovery parks (transfer stations) located at Otematata, Omarama, Kurow and Hampden, and a landfill in Palmerston which is presently just used by the local community (it accepts 250 tonnes per annum), and recycling drop-off facilities in Papakaio, Enfield and Herbert;
- in 2017 WDC signed a memorandum of understanding (MOU) with Waste Management (WAM) and the Waitaki Resource Recovery Trust (WRRT) to facilitate the ongoing provision of waste and recycling services to the community. Under the agreement WAM will provide a transfer station for the public and the WRRT will receive all recycling. The MOU states that the parties will endeavour to ensure that all waste they control is processed through the WAM RTS and the recycling through the WRRT resource recovery facility. It puts certain obligations on the parties to provide fair access, including operating hours, and provide waste diversion options. It also provides for the provision of data and reporting;
- WDC financially supports the WRRT to deliver waste minimisation outcomes;
- there is no local processing infrastructure, no organic waste facility, no large-scale MRF (there is a small manual sorting line operated by WRRT), no C&D sorting and recovery. It would be good to understand the potential in these areas; and
- rural waste receives little attention, and there is no information on what actually happens with it.

The LTP addresses the Palmerston landfill, and outlines plans to make best use of the remaining life and closure. A landfill remediation project to rehabilitate Hampden closed landfill, along with two fly-tipping sites, to Palmerston Landfill before it's closure, and develop a closure plan commenced in 2022.

The LTP also proposes that Council work more closely with the Waitaki Resource Recovery Trust and other providers on education and waste minimisation, and review the 2010 solid waste bylaw. A full-time Waste Minimisation Officer has recently been employed.

1.6.2 Solid Waste Bylaws

Two of the five TAs in the Otago region have current solid waste bylaws (Clutha and Central Otago districts, 2019 and 2021 respectively). Key issues covered in these bylaws include provisions relating to waste management and disposal methods, responsibilities, specific waste materials, and penalties/charges; with CODC also covering off multi-unit development (MUD) and event waste management.

These bylaws do not provide for waste operator licensing. This is a key aspect as, like many other regions, much of the waste in the Otago region is managed by the private sector. Being able to access data relating to the quantities, types, and management pathway of these wastes is crucial in being able to complete a detailed waste assessment and develop a comprehensive WMMP.

1.6.3 Otago Regional Council

The Otago Regional Council has a statutory duty to adopt a plan to manage and mitigate the environmental impacts on air, land, and water. In the Otago region, this is currently directed by three separate plans; although Council is currently working on development of a new Land and Water Plan.

There is also a regional 'waste plan', Waste for Otago (1997). This is optional under the Resource Management Act, and ORC chose to prepare one to "provide an integrated approach to waste issues together with the aim of reducing the adverse effects associate with Otago's waste stream" and to address the identification of waste as a regionally significant issue under the Regional Policy Statement. In 2020/21, the ORC undertook a review of the Waste Plan as part of the development of its new Land and Water Plan. Several key issues were identified during this review.

The regional council now intends to rescind the Regional Plan: Waste for Otago 1997 and include environmental regulation of waste activities in the new Land and Water Regional Plan.

It is not yet clear what the implications will be for waste management and minimisation.

1.7 Our Region

This section presents a brief overview of key aspects of the regional and local geography, economy, and demographics. These key aspects influence the quantities and types of waste generated and potential opportunities for the Councils to manage and minimise these wastes in an effective and efficient manner.

This is New Zealand's geographically second largest region, made up of five local authorities. It covers an area of approximately 32,000 km^2, of which approximately 68% is used for farming activities.

As of 2020, the population of Otago is estimated at 245,300. There are fourteen urban areas in the region with the largest, Dunedin, housing 43.3% of the region's population. The second largest urban area is Queenstown with 6.5% of Otago's overall population, and which is significantly impacted by one of New Zealand's highest tourism rates.

The Otago region has a mean per-capita GDP of $56,667, compared to a national average of $58,778[24]. The main primary industries include construction, forestry, fishing, mining, manufacturing, and agriculture. The services sector's main contributors to the economy are rental and property-related services, tourism, education and training, healthcare, and social assistance.

The climate of Otago is diverse. Annual precipitation in Otago decreases with increasing distance from the western ranges and the east coast. Dry spells of more than two weeks occur in Central Otago, but less so elsewhere. Temperatures are, on average, lower than

[24] StatsNZ data, accessed September 2021 at www.stats.govt.nz

over the rest of the country with frosts and snowfalls occurring relatively frequently each year. However, daily maximum temperatures in summer can exceed 30°C, especially about inland areas of Otago. On average, coastal Otago receives less sunshine than many other parts of New Zealand.

The region is home to three Ngāi Tahu Rūnanga (tribal councils), all with coastal marae at Ōtākou, Moeraki and Karitane. The coastal councils liaise with iwi through Aukaha, while part of the Queenstown Lakes and Central Otago district areas fall into the rohe of Te Ao Marama (Te Ao Marama Inc, or TAMI) and so liaise with both Aukaha and TAMI.

Further detail for each district or city is provided below.

1.7.1 Central Otago

Central Otago has a population of 23,900 and the three major towns (Cromwell, Alexandra, and Clyde) house more than half of the district's population. This district covers 9,968 km^2 and is the driest region of New Zealand, receiving less than 400 mm of rainfall annually.

The largest employers in the Central Otago district are wine growers, and the largest number of businesses are non-residential property operators. Other large employers are house construction, apple and pear growing, and education and healthcare services. Within the Otago region, Central Otago has about average population growth and GDP per capita, but is below average household income for the region.

1.7.2 Clutha

Clutha has a population of 18,300 and the major towns include Balclutha and Milton. This district covers 6,363 km^2 and is also known as South Otago. The Clutha River (Mata-Au) is the second largest river New Zealand and originates in the Southern Alps. The Clutha district has the third largest roading network in the country, providing for the significant travelling distances between small towns.

The largest employer in the Clutha district is the primary education sector, and the largest number of businesses are beef cattle farming. Other large employers are road freight transport, aged care services and logging. Within the Otago region, Clutha district has about average population growth and GDP per capita, but is below average household income for the region.

1.7.3 Dunedin

Dunedin is a coastal city with the most densely populated area in Otago, with a total of 134,100 residents. The city covers 328,626 km^2 and is home to a port, hospital, sports stadium, and university.

The largest employers in Dunedin are in the health care and social assistance sectors, and the largest number of businesses are landscape, construction, and accommodation and food services. Other large employers are house construction, apple and pear growing, and education and healthcare services. Within the Otago region, Dunedin has lower than average population, GDP growth and household income.

1.7.4 Queenstown Lakes

Queenstown Lakes district has 49,500 residents and is considered to be a high growth district within New Zealand. The district covers 8,719 km^2. The district includes multiple distinct urban areas including Wānaka, Albert Town, Lake Hawea, Frankton, Lower Shotover/Lake Hayes, Jacks Point/Hanleys Farm, Arthurs Point and Arrowtown. The rural townships include Makarora, Luggate, Gibbston, Glenorchy, Kingston, Cardrona and Hawea Flat. The wider region is sometimes referred to as the Southern Lakes.

The largest employers in Queenstown Lakes district are in the food and labour supply, and accommodation services; the largest number of businesses are engineering design and consulting services. Within the Otago region, Queenstown has above average population, GDP growth, household income, and visitor numbers. Peak day population (including residents and visitors) can reach nearly 100,000.

1.7.5 Waitaki

The Waitaki district has 23,500 residents and covers 7,148 km^2. Oamaru is the district administrative centre. Waitaki district is split between the Canterbury and Otago region, with most of its population (90.1%) living in the Otago region.

The largest employers in Waitaki district are in health care/social assistance and accommodation; and food services, particularly meat processing. The largest number of businesses are in beef and sheep-beef cattle farming. Within the Otago region, Waitaki has a lower-than-average population density, and average GDP growth and household income.

The following table summarises the demographics of each district/city along with key information on waste services and infrastructure.

Table 3: Summary of District/City Context

District	Population, Economy	Key Services	Recovery Infrastructure	Disposal Infrastructure
Queenstown Lakes	49,500 Food, labour, accommodation, engineering, consulting, tourism Above average population growth, GDP, household income, visitor numbers	Council kerbside recycling – glass (fortnightly 140L wheeled bin), mixed recycling (fortnightly 240L wheeled bin) Council kerbside rubbish (weekly 140L wheeled bin) Numerous community- and council-operated green waste drop-off points	MRF – beyond expected lifespan Reuse/recovery centre in Wānaka (community enterprise) RTS – Frankton and Wānaka small scale C&D recovery (private company), Queenstown	Privately-owned and operated Victoria Flats landfill (under BOOT contract with QLDC) Small quantities to AB Lime
Central Otago	23,900 Viticulture, orchards, construction Average population growth, GDP Below average household income	Council kerbside recycling – glass (8-weekly wheeled bin), mixed recycling (fortnightly wheeled bin) Council kerbside rubbish Numerous rural drop-off points	Sends kerbside recycling to Redruth MRF in Timaru Rural drop-off point recycling processed by Alexandra Wastebusters until 30 June 2023, then EnviroNZ Glass crusher RTS in Roxburgh, Ranfurly, Cromwell, Alexandra Central Wormworx vermicomposting – Cromwell	Sends residual waste to Victoria Flats landfill Small quantities to AB Lime

District	Population, Economy	Key Services	Recovery Infrastructure	Disposal Infrastructure
Clutha	18,300 Education, beef farming, transport, forestry Average population growth, GDP Below average household income	Council kerbside recycling – mixed recycling (no glass, fortnightly 240L wheeled bin) Council kerbside rubbish (fortnightly 240L wheeled bin) Eight drop-off points	Green waste shredding at Mt Cooee landfill site Resource Recovery Park (RRP) at Mt Cooee landfill site for scrap metal, batteries, waste oil & paint, LPG cylinders Recyclables sent to Green Island MRF	Council-owned Mt Cooee Landfill (consent expires 2023 but extension underway application for new consent for 35 years also underway)
Dunedin	134,100 Health, construction, accommodation, education, orchards Below average population growth, GDP, household income	Council kerbside recycling – glass (fortnightly crate), mixed recycling (fortnightly wheeled bin) Introducing a food scraps collection and optional green waste from mid 2024 Council inner-city cardboard collection for businesses, inner-city recycling hubs Numerous drop-off centres	Council RTS and green waste composting – Green Island EnviroNZ MRF - Timaru Waste Management RTS – Wickliffe Street Burnside Green Waste Hall Bros C&D aggregate processing	Council-owned Green Island landfill (consent expires 2023 but extension underway) Nash & Ross (Class 2) landfill accepting construction and demolition waste (C&D waste), contaminated soils, cleanfill, etc – no household waste, green waste, hazardous waste.
Waitaki	23,500 Health, beef/sheep farming, food services Below average population growth Average GDP, household income	No Council kerbside services Various private providers Waitaki Resource Recovery Trust collects and sorts recyclables Recycling/reuse centre – Palmerston Numerous drop-off centres	Waste Management RTS – Oamaru Waitaki Resource Recovery Trust Resource Recovery Centre	Council-owned landfill at Palmerston (used for local waste only) Waste from Oamaru RTS is sent to AB Lime

2 Waste Infrastructure

This section outlines existing waste management and minimisation infrastructure across the Otago region, and further abroad where applicable. The facilities available in the Otago region are a combination of those owned, operated and/or managed by Councils, and those that are owned and/or operated by commercial entities or community enterprise.

This inventory is not to be considered exhaustive, particularly with respect to the commercial waste industry as these services are subject to change. It is also recognised that there are many small private operators (including scrap metal yards) and second-hand goods dealers that are not specifically listed. However, the data is considered accurate enough for the purposes of determining future strategy and to meet the requirements of the WMA.

2.1 Disposal Facilities

In 2021, MfE adopted regulations to extend the landfill levy and apply information requirements to facilities that were not already subject to the levy and reporting requirements. These regulations also established legal definitions for disposal facilities and other fills. Previously, disposal facilities had been categorised according to the 2016 Waste Management Institute of New Zealand (WasteMINZ) Technical Guidelines for Disposal to Land.[25] As there are differences, albeit slight, between the two; the legal definitions take precedence[26]. This is explored in more detail in appendix A.3.0.

The definitions of the six classes of facilities in the regulations are summarised below.

Class 1 - Municipal Disposal Facility

Accept any of the following:

- household waste;
- waste from commercial or industrial sources;
- waste from institutional sources;
- green waste; and
- waste that is not accepted at Class 2-5 disposal facilities.

Class 2 – Construction and Demolition Disposal Facility

Accepts waste from construction and demolition activities. Does not accept Class 1 waste.

Classes 3 and 4 – Managed or Controlled Fill Disposal Facility

Accepts any of the following:

- inert waste material from construction and demolition activities; and

[25] www.wasteminz.org.nz/pubs/technical-guidelines-for-disposal-to-land-april-2016/
[26] Two regulations: "Waste Minimisation (Calculation and Payment of Waste Disposal Levy) Amendment Regulations 2021" and "Waste Minimisation (Information Requirements) Regulations 2021" both found at www.legislation.govt.nz

- inert waste material from earthworks or site remediation

Does not accept Class 2 waste.

Class 5 – Cleanfill

Accepts only virgin excavated natural material (such as clay, soil, or rock) for disposal – but is not a 'disposal facility'.

Industrial Monofill

A facility that accepts disposal waste that:

- discharges or could discharge contaminants or emissions; or
- is generated from a single industrial process (e.g. steel or aluminium making, or pulp and paper making) carried out in one or more locations.

The actual wording used in the regulations and examples of types of waste accepted at each facility is provided in appendix A.3.0.

The regulations also define a transfer station as a facility that receives waste and where waste is then transferred to a final disposal site or for further processing. Significantly, if a site does not accept waste that is then transferred to a final disposal site (i.e. residual waste), it is not a transfer station (but is instead a recycling drop-off site or similar) and isn't required to report data.

2.1.1 Class 1 Disposal Facilities

There are four Class 1 disposal facilities within the region.

Residual waste from Dunedin city is disposed of at Green Island landfill, which is owned by Dunedin City Council and operated on their behalf by Waste Management NZ Ltd (WMNZL). This facility accepts around 85,000 tonnes per annum. DCC has applied for a consent extension while it finalises plans for a new Class 1 landfill to the south of the city.

Residual waste from Clutha district is disposed of at Mt Cooee landfill, which is owned and operated by CDC. This landfill only accepts waste from within the Clutha district; just under 10,000 tonnes per annum. The consent for this facility expires in 2023. CDC is currently seeking an extension of this consent until 2028 and new consent for a Class 1 disposal facility. Waste generated in the Clutha District that does not meet disposal conditions at Mt Cooee landfill is taken to Burnside or Green Island Landfills in Dunedin or AB Lime's landfill in Winton.

Queenstown Lakes and Central Otago districts dispose of residual waste (nearly 55,000 tonnes per annum) at Scope Resources Class 1 landfill, Victoria Flats, at Gibbston. This is operated by Scope Resources under a build, own, operate, transfer (BOOT) contract with QLDC, with ownership transferring to QLDC on 30 June 2034. Scope Resources recently invested significantly in gas capture infrastructure and is recovering the cost through operating fees.

WDC own a consented landfill near Palmerston, although the facility only accepts a small amount of waste from local sources. Waste from the district that is collected at the RTS is also disposed of to AB Lime's landfill in Southland. WasteCo collect some waste at their private transfer station in Oamaru and this goes to Kate Valley in Canterbury.

Residual waste from Waitaki district, along with some waste such as screenings and/or biosolids from Queenstown Lakes and Central Otago and commercial waste from Dunedin, is disposed of at AB Lime landfill with a total of around 23,000 tonnes per annum. AB Lime recently received a resource consent to accept unlimited tonnage into its facility (although the facility footprint won't change).

2.1.2 Emissions from Waste to Class 1 Landfills

When waste is landfilled, it breaks down in the anaerobic (lacking oxygen) environment of the landfill and instead of producing carbon dioxide or CO2, as would be the case in an oxygenated environment), produces methane or CH4. Methane is a far more potent greenhouse gas than carbon dioxide, with an immediate (less than 20 years) global warming impact 80 times higher.

The New Zealand ETS requires Class 1 landfill operators to surrender carbon credits, based on the amount of greenhouse gases released. This in turn is calculated using the quantity of waste received by the landfill, and the composition of that waste – as different material types contain differing levels of carbon, and break down at different rates (for example food scraps breaks down very quickly, while timber breaks down extremely slowly).

Large Class 1 landfills (over 1 million tonnes total capacity) are required to operate landfill gas capture systems, where the methane is captured before escaping to the atmosphere and can be burned to create energy or to convert to the less harmful CO2. However, landfill gas capture and recovery systems do not capture all the methane gas that is produced, and so a proportion still escapes to the atmosphere. The Emission Reduction Plan highlights increased gas capture at Class 1 landfills as a key action for the waste sector.

2.1.3 Class 2-5 Landfills

Research estimates that waste disposed of to land other than in Class 1 landfills accounts for approximately 70% of all waste disposed of[27]. Other disposal sites include Class 2-5 fills and farm dumps.

Class 2-5 fills can be an issue for effective and efficient waste management as, for some materials, these disposal sites are competing directly with other options such as composting sites and Class 1 landfills; while Class 2-5 landfills are much less costly than Class 1 landfills to establish and require much lower levels of engineering investment to prevent discharges into the environment. Class 2-5 landfills also have much lower compliance costs than Class 1 landfills and have not previously been required to pay the waste levy. Because of these differing cost structures, Class 2 landfills generally charge markedly less for disposal than Class 1 landfills.

Following the recent expansion of the landfill levy, and information reporting requirements, MfE will now hold data on the quantities of waste disposed of at these sites and are in the process of developing a database of Class 2-5 facilities around the country. Because of the

[27] Ministry for the Environment (2014) Review of the Effectiveness of the Waste Disposal Levy. The report estimates 56% of material disposed to land goes to non-levied facilities, 15% to farm dumps and 29% to levied facilities.

varying dates that the requirements become effective, the data currently available from MfE only includes Class 2-4 landfills; it may also not reflect closures since mid-2022.

The table below shows the number of known Class 2-4 landfills in each district or city. Further detail on each site is provided in section 4.1.2.

Table 4: Class 2-4 Landfills

Site Type	Queenstown Lakes	Central Otago	Clutha	Dunedin	Waitaki	TOTAL
Industrial monofil	1	1	0	0	1	**3**
Class 2 C&D landfill	0	0	0	2	0	**2**
Class 3/4 managed or controlled landfill	15	2	2	17	2	**38**
Unknown[28]	1	0	0	3	0	**4**
TOTAL	**17**	**3**	**2**	**22**	**3**	**47**

2.1.4 Transfer Stations, Resource Recovery Parks, and Recycling Drop-off Points

Refuse transfer stations (RTS) or resource recovery parks (RRPs) and recycling drop-off points (RDOPs) provide for those that can't or choose not to make the journey to a disposal facility. Waste can be dropped off at these sites by the public and commercial collectors after paying a gate fee, and, in most cases, the waste is compacted before transport to a Class 1 disposal facility.

The terms 'RTS' and 'RRP' are frequently used interchangeably; however, RTS were traditionally, and primarily, established as a point to dispose of residual waste and where this waste could be bulked and prepared for transport to a disposal site. 'RRPs' are usually expected to have a focus on waste diversion, and include a wide variety of waste diversion opportunities – such as green waste, scrap metal, cleanfill, hazardous wastes, recyclables, batteries, etc. The most well developed RRPs would include additional aspects such as a reuse store and/or an education facility, support product stewardship schemes, and divert more difficult material streams. Appendix A.5.2.3 discusses the various forms that an RRP

[28] Classification not known at April 2022

(or RRC, resource recovery centre) can take and how they can significantly contribute to a circular economy.

RDOPs can be defined by size and location; in that the sites are usually intended primarily as a site for recyclables, with perhaps a few other materials; but very seldom providing for the disposal of residual waste. Some RDOPs are technically considered RTS under the MfE regulation if residual waste is accepted, although this isn't the primary role of the site and they tend to be smaller and with less (or no) staffing and charging systems in place.

The table below shows these facilities located in the region.

Table 5: Transfer Stations & Resource Recovery Centres, RDOPs

Facility	Detail	Annual Tonnage
Green Island RTS, Dunedin	Owned by DCC, disposes of waste from Dunedin. Operated by WAM The RTS separates out material on the current Green Island Landfill site. Site is due for redevelopment into an RRP over the next couple of years, with resource consent application to be lodged July 2023, with separate consent for organic waste processing.	Recycling: 1260 t Greenwaste: 500 t Batteries: 3.66t Gas Bottles: 7.81 Clothing: 25.32 Oil: 1.66 Special / Hazardous: 3
Inner-city cardboard collection, Dunedin	Cardboard from businesses. Provided by DCC	169
Inner city recycling hubs, Dunedin	Comingled recycling including cardboard. Provided by DCC.	Glass: 123 Comingled: 60
Rural resource recovery (inc Green Island, Pop ups & BP stations)	Provide rural drop off sites: Waikouaiti and Middlemarch Transfer Stations. Rural recycling Hoopers inlet, Lee Stream. Rural skip days 3x year in Sawyers Bay, Warrington, Long Beach, Aramoana, Outram, Allanton, Portobello, and Henley/Berwick	113
RTS, Wickliffe St Dunedin	Owned and operated by Waste Management Ltd.	Not available

Facility	Detail	Annual Tonnage
Rural Recycling and RTS, Dunedin	Provide rural drop off sites Waikouaiti and Middlemarch Transfer Stations. Rural recycling Hoopers inlet, Lee Stream. Rural skip days 3x year in Sawyers Bay, Warrington, Long Beach, Aramoana, Outram, Allanton, Portobello, and Henley/Berwick	
RTS, Oamaru	Owned and operated by Waste Management Ltd.	10,000 (estimate)
RTS, Oamaru	Owned and operated by WasteCo and only used for its waste	2,400 (some C&D waste is further sorted in Dunedin)
WRRP, Waitaki	Waitaki Resource Recovery Park, owned by Waitaki Resource Recovery Trust and supported by Waitaki DC.	2,500 tonnes (2,000 tonnes recyclables, 500 tonnes reuse)
Waihemo Wastebusters, Waitaki	Collect recycling and reuse from Palmerston. operated by Waihemo Wastebusters. It is open for 9 hours a week and has a re-use shop. Recovered materials are transported to the Waitaki RRP	Total tonnage: 95 81.5 recycling 13 reuse store 0.5 other reuse
Rural recycling centres, Waitaki	Waitaki District Council owns 4 rural transfer stations located at Hampden, Omarama, Kurow & Otematata. These sites are managed under contract. There are 3 unstaffed recycling drop off centres in Enfield, Papakaio and Herbert.	400 tonnes (to WRRT's WRRP)
Mt Cooee landfill, Clutha	The transfer station at the landfill also accepts cleanfill, other recyclables, greenwaste, scrap metal, ewaste	
Rural RTS, Clutha	Eight rural drop-off/transfer stations operated under contract to WasteCo; Clinton, Lawrence, Maclennan, Milton, Owaka, and Tapanui accept waste and recycling and are open at least weekly. unstaffed recycling drop-off at Taieri Mouth Key operated waste drop-off at Beaumont	>50 tonnes residual <50 tonnes recycling

Facility	Detail	Annual Tonnage
Roxburgh, Ranfurly, Cromwell, Alexandra RTS	Provided by CODC under contract to EnviroNZ Ltd (from 1 July 2023, previously AllWaste	
Recycling drop-off centres (Central Otago)	Alexandra, Cromwell, Omakau, Oturehau, Patearoa, Poolburn, Ranfurly, Roxburgh, and Tarras (Patearoa and Tarras also have provision for drop-off of rubbish in pre-pay bags. Provided by CODC under contract to EnviroNZ Ltd (from 1 July 2023, previously AllWaste and Wānaka Wastebusters)	
Central Otago Wastebusters, Alexandra	Operated by Wānaka Wastebusters until 1 July 2023 – then closed	
Frankton RTS, Queenstown	Acceptance of general waste, green waste, used tyres, domestic quantities of hazardous wastes, whiteware and scrap metal, e-waste, clean fill, child restraints, gas bottles	
Wānaka Wastebusters, Wānaka	Sited on Council land, but operated as an independent community enterprise by Wānaka Wastebusters. Wastebusters' core services include business and events recycling, drop-off recycling, reuse shop, education for sustainability, advocacy and support of waste minimisation in the community and in wider NZ	
RTS, Wānaka	QLDC site, accepts of general waste, green waste, used tyres, domestic quantities of hazardous wastes, whiteware and scrap metal, e- waste, child restraints, gas bottles	
Rural greenwaste drop off points, Queenstown Lakes	Glenorchy, Kingston, Luggate, Hawea and Makarora managed by a mix of QLDC and community associations involvement and situated on a variety of QLDC, Department of Conservation (DoC) and Land Information New Zealand (LINZ) land.)	

Otago Region Waste Assessment

Facility	Detail	Annual Tonnage
Whakatipu Recycling Centre	QLDC site, accepts domestic recycling, batteries, used engine oil, light bulbs	

2.1.5 Closed Landfills

There are a number of closed landfills that councils have responsibility for through the region, shown below.

Table 6: Closed Landfills Managed by Councils

District/City	Number of closed landfills	Location
QLDC	11	Consented: Tucker Beach, Wānaka, Glenorchy, Hawea, Makarora, Luggate Unconsented: Kingston, Albert Town, Warren Park, Fernhill, Arrowtown
CODC	15	Alexandra, Cromwell, Tarras, Roxburgh (2), Ettrick, Millers Flat, Ranfurly, Ophir, Lauder, Becks, Oturehua, Naseby, St Bathans, Patearoa.
DCC	5	Forrester Park, Middlemarch landfill, North Taieri landfill, Sawyers Bay landfill, Waikouaiti landfill
CDC	19	Beaumont, Clinton, Clydevale, Edievale, Heriot, Kaitangata, Kaka Point, Lawrence, Maclennan, Milton, Owaka, Tahakopa, Taieri Mouth, Tapanui, Tuapeka, Waihola, Waipahi, Waitahuna, Waiwera South
WDC	14	

2.2 Hazardous Waste Facilities and Services

The hazardous waste market comprises both liquid and solid wastes that, in general, require further treatment before conventional disposal methods can be used. The most common types of hazardous waste include:

- organic liquids, such as those removed from septic tanks and industrial cesspits;
- solvents and oils, particularly those containing volatile organic compounds;
- hydrocarbon-containing wastes, such as inks, glues and greases;
- contaminated soils (lightly contaminated soils may not require treatment prior to landfill disposal);
- chemical wastes, such as pesticides and agricultural chemicals;
- medical and quarantine wastes;

- wastes containing heavy metals, such as timber preservatives; and
- contaminated packaging associated with these wastes.

A range of treatment processes are used before hazardous wastes can be safely disposed.

Most disposal is either to Class 1 landfills or through the trade waste system. Some of these treatments result in trans-media effects, with liquid wastes being disposed of as solids after treatment. A very small proportion of hazardous wastes are 'intractable', and require exporting for treatment.

These include polychlorinated biphenyls, pesticides, and persistent organic pollutants.

There are four participants in the local hazardous waste market; EnviroNZ Technical Services, Waste Management Technical Services, Wastech Services, and Waste Away South. Agrecovery provides hazardous waste management services for agricultural chemicals.

Household hazardous waste can be taken to many of the RTSs in the region.

2.3 Wastewater Treatment

As outlined earlier in this report, wastewater treatment is considered where it results in waste being managed through solid waste systems.

The five councils of the Otago region take varying approaches to wastewater management; but all management practices result in solid residual (sludges or biosolids) that are then disposed of to landfill, along with screenings from wastewater systems.

From QLDC and CODC, this material goes to AB Lime (rather than to Victoria Flats). DCC and CDC dispose of this waste at Green Island landfill (as shown in later sections, this results in Green Island accepting a disproportionate quantity of waste categorised as 'potentially hazardous').

The future of wastewater management in the district, as across New Zealand, is currently somewhat uncertain depending on the implementation of the national three waters management proposals.

2.4 Recycling and Reprocessing Facilities

There are a number of processing/reprocessing facilities. These are shown in the table below.

Table 7: Processing/Reprocessing within the Region

Facility	Detail	Annual Tonnage
Processing		
Frankton MRF	Owned by QLDC and operated under contract with Waste Management NZ Ltd on a site owned by QLDC. Acceptance, sorting and storage of recyclable materials for commercial resale. Consolidation of separated recyclables and transport to processing facilities within NZ and overseas. Operation of drop off point for domestic recyclables and items like batteries, lightbulbs and used engine oil.	7,000
Green Island MRF	Owned/operated by OJI, handles kerbside-collected material from Clutha.	6,500
Waitaki MRF	Operated by WRRT, handles recyclables from council sites in Waitaki district and material delivered to site by customers	2,000
Green Island RTS/composting	Windrow composting of greenwaste dropped off at Green Island.	500
AllWaste C&D sorting facility, Queenstown	AllWaste are doing a small amount of C&D sorting They send scrap metal to Otago metals in Cromwell, gib board to Christchurch, light plastics to Future Post in Blenheim, polystyrene to Expol, pallets to Christchurch, window glass to 5R solutions.	Not available
Cargill Enterprises	Accept e-waste, dismantled and/or sent elsewhere for recycling	Not available
Reprocessing		
Nash & Ross	Recover 10,000 tonnes of aggregate and about 500 tonnes of steel.	10,500
Keep it Clean	Rendering plants in Abbottsford and Mosgiel.	Not available

Facility	Detail	Annual Tonnage
Central Wormworx, Cromwell	Takes range of putrescible materials, e.g. fruit waste, dairy shed waste, pelts, biosolids.	1,500
Hall Bros, Dunedin	Has a number of sites, mostly with mobile equipment. Grinds asphalt (6,000t), concrete (30,000t), some wood, pulls out metal, recovers bark from port. Uses materials back in own construction operations.	37,000
CODC Glass crusher	Owned by CODC. Currently being commissioned.	Up to 10,000 tonnes capacity
Mt Cooee greenwaste shredding CDC	Shredding of greenwaste dropped at Mt Cooee – given away to public	600
WRRT greenwaste shredding, Oamaru	Shredding of greenwaste at WRRT site in Oamaru – available to public	Not available
Future Post	Blenheim facility which receives waste plastic and recycles it into fence post products	unknown
E-Cycle	Christchurch facility receives e-waste and batteries via national sites	unknown
Canterbury Landscaping Supplies	Canterbury facility receives GIB board offcuts for grinding and re-screening and addition to fertilizer	unknown
5R	Window glass is received and goes off-shore	unknown

In addition, there are a number of key processing facilities that are located out of the Otago region, but accept material from the region. These are shown below in Table 8.

Table 8: Processing/Reprocessing Infrastructure Outside the Region

Facility	Detail	Annual Tonnage
Visy Glass	Beneficiation and reprocessing, Onehunga, Auckland. Receives glass from much of the region via 5R.	9,849 (to beneficiation site)

Facility	Detail	Annual Tonnage
Redruth Composting Facility Envirowaste	Green waste and food scraps composting facility, Timaru	CODC material from 1 July 2023
EnviroNZ MRF	Located at Redruth, Timaru	DCC material from 1 July 2023 to (approximately) March 2025
Tyres	Multiple sites, via the Tyrewise product stewardship programme.	3,988
OJI Fibre Solutions	Fibre reprocessing, Penrose, Auckland	3,000
Scrap metal yards	Numerous sites, industry estimate	28,530
ItRecycla, Remarkit Solutions	e-waste reprocessing, Wellington	53
Plasback	Nationwide product stewardship scheme for a variety of agricultural plastics	470
Agrecovery	Nationwide product stewardship scheme for unwanted agrichemicals, and the recycling or recovery of empty containers, drums and IBCs	25
Comspec	Pre-consumer plastic reprocessed to manufacturing feedstock (flake, pellet), Christchurch	375
Flight Plastics	PET reprocessing, Wellington	195
Astron	Plastics reprocessing, Auckland (two sites)	425
Expol	Numerous sites, product stewardship programme for rigid, extruded polystyrene foam	21
Terracycle	Numerous sites, product stewardship programme for recycling solutions for typically hard-to-recycle waste streams	1

In addition, there are a large number of charity shops, secondhand stores, and smaller scrap metal recyclers that have a role in diverting material from landfill disposal.

While most material types are transported out of the region for recycling and reprocessing, this is not an unusual situation in New Zealand and particularly in the lower South Island.

2.5 Summary and Assessment

Current landfill disposal infrastructure appears adequate for the needs of the region, for some time to come; although one of the key facilities (AB Lime) is based outside the Otago region. Two other disposal facilities, Green Island and Mt Cooee, are coming to the end of current consents; although plans are underway to extend/expand the consents for each. DCC also has consents for a new disposal facility, Smooth Hill.

Once both Smooth Hill and the extension to Mt Cooee are operating (assuming this is the outcome) there will be two Class 1 disposal facilities within around 70km of each other, which is a relatively high level of provision given the costs involved in consenting Class 1 landfills and engineering new cells.

There is very little reprocessing infrastructure of scale in the region, and what is in place is focused on bulk low value materials such as recovered aggregate. This means that most recovered materials need to be transported significant distances, as far away as Auckland, or exported. This makes the cost-benefit consideration of recycling (whether through kerbside services or collection points) some common items very marginal, which can be a challenging issue to explain to the public – some materials, such as glass, can incur significant net cost when collected and transported for reprocessing. For some materials, such as fibre (paper/cardboard), the New Zealand-based reprocessors are at capacity and prefer to purchase pre-consumer feedstock, which tends to be more consistent in material type and higher quality due to the use of single-stream material collection systems.

The recovery infrastructure, significantly the MRFs in Dunedin and Queenstown Lakes, are both dated and are currently struggling to cope from both a quantity and quality perspective (which has further impacts on the ability of operators to recruit staff in an already challenging market). Both QLDC and DCC has plans underway for new MRF infrastructure. For an interim period, DCC will be sending kerbside-collected recyclables out of the region for processing while its contractor develops a replacement facility (intended completion March 2025).

There are gaps in reprocessing for organics and C&D waste, both large waste streams and making up a significant proportion of what is currently going to landfill. These material streams are dense, and it is rarely economical to transport these long distances for reprocessing. Several of these gaps are being closed; with work progressing on organics processing across the region, and most of the councils underway with plans for resource recovery centres (with a range of recovery options) at varying sizes and extent. DCC is also progressing a C&D waste facility to be part of the Green Island Resource Recovery Park, alongside a new MRF (March 2025) and green waste processing. CDC are investigating the feasibility of C&D waste diversion as part of the Mt Cooee RTS design.

3 Waste Services

3.1 Council-provided Waste Services

A range of services are provided by councils to residents and businesses in the district.

3.1.1 Current Collection Services

Apart from WDC, all councils provide fortnightly kerbside collection services for recycling in 240L wheeled bins, albeit all through different service providers. Where glass is collected, it is collected separately from other recycling in either crates or wheelie bins.

Since 1 July 2023 CODC has been offering a kerbside FOGO (food scraps and garden waste) collection; but this is the only current kerbside food scraps or garden waste collection offered by councils in the Otago region.

Details on current council-provided kerbside collections in the Otago region are summarised in Table 9.

Table 9: Council-Provided Kerbside Collections Per TA

	Dunedin	Waitaki	Queenstown Lakes	Central Otago	Clutha
Glass	Fortnightly crate	No council collection	Fortnightly 140L wheeled bin	8-weekly 240L wheeled bin	No council collection
Other dry recyclables	Fortnightly 240L wheeled bin	No council collection	Fortnightly 240L wheeled bin	Fortnightly 240L wheeled bin	Fortnightly 240L wheeled bin
Plastics Accepted	#1, #2, #5	No council collection	#1 (clear only), #2, #5	#1 (clear only), #2, #5	#1, #2, #5
Foil, aerosols	Both	No council collection	Not accepted	Not accepted	Not accepted
Residual rubbish	Weekly bag collection Nightly bag collection CBD	No council collection	Weekly 140L wheeled bin	Fortnightly 240L wheeled bin	Fortnightly 240L wheeled bin
Organics				Weekly FOGO 240L wheeled bin	

As mentioned earlier in section 1.5.6.2, MfE has recently released the details of a standardised kerbside service.

The implications for each council of the kerbside standardisation requirements are summarised below.

Table 10: Kerbside Standardisation Implications

Service Component	QLDC	CODC	DCC	WDC	CDC
Materials in kerbside recycling (excluding glass)	Need to include all #1 plastic containers and pizza boxese	Need to include all #1 plastic containers	Will be compliant with new service	Council kerbside service required by 1 January 2027	Compliant
Kerbside glass recycling collections	Compliant	Compliant	Will be compliant with new service	Council kerbside glass service required by 1 January 2027	Council kerbside glass service required by 1 January 2027
Foil not included in kerbside recycling	Compliant	Compliant	Will need to remove foil from accepted items by 1 February 2024	NA	Compliant
Food scraps collections	Council collection required by 1 January 2030	Compliant	Council collection required by 1 January 2030 – will be compliant with new service	Council collection required by 1 January 2027	Council collection required by 1 January 2030

3.1.2 Planned Collection Service Changes

Dunedin is in the process of making significant changes to its kerbside services, with the implementation of a **4-bin kerbside** (plus one optional garden waste bin) collection system with the goal of increasing the amounts of recyclable materials collected, including glass. These new services will be available from 1 July 2024.

Central Otago, at this stage, has indicated that collection of green waste is a higher priority and is introducing a FOGO (food and greenwaste) kerbside collection from 1 July 2023. At the same time, changes will be made to other collection services – with rubbish being

collected fortnightly from a smaller 140L bin, and the glass bin collection frequency increasing to once every four weeks, with mixed recycling collected every two weeks. It is also in the process of developing a supporting green waste and food scraps processing site within the district, that could accommodate up to 16,000 tonnes per annum.

Queenstown Lakes is also considering kerbside organics collections.

These additional services will require necessary investment in collection and processing infrastructure - which could potentially be supported by other TAs across the region; Clutha has indicated previously that a kerbside organics collection may be considered if efficiencies could be achieved by working alongside other councils. Clutha and Waitaki are also exploring the options available to align with the requirements of kerbside standardisation, with the aim of identifying the most appropriate option/s for their districts. Although kerbside standardisation only requires services to be provided to Oamaru (Waitaki district) and Balcultha and Milton (Clutha district), these councils will investigate options to extend services beyond these urban areas.

Once all the new confirmed collection arrangements are in place, collections in the region could look like the following:

Table 11: Future Council-Provided Kerbside Collections Per TA

	Dunedin	Waitaki	Queenstown Lakes	Central Otago	Clutha
Glass	Fortnightly crate	Not yet determined	Fortnightly 140L wheeled bin	4-weekly 240L wheeled bin	Not determined yet
Other dry recyclables	Fortnightly 80L/240L wheeled bin	Not yet determined	Fortnightly 240L wheeled bin	Fortnightly 240L wheeled bin	Fortnightly 240L wheeled bin
Residual rubbish	Fortnightly 80L/140L wheeled bin	Not yet determined	Weekly 140L wheeled bin	Fortnightly 140L wheeled bin	Fortnightly 240L wheeled bin
Organics	Weekly 23L food scraps bin OR Weekly 140L FOGO bin	Not yet determined	Undecided	Weekly FOGO 240L wheeled bin	Not determined yet
Additional services	Fortnightly 240L green waste bin, additional charge	Not yet determined			

3.1.3 Council Contracts

The table below summarises the contracts held by each council for kerbside services.

Table 12: Council-Provided Service Contracts

	Dunedin	Waitaki	Queenstown Lakes	Central Otago	Clutha
Kerbside recycling	Envirowaste to 30 June 2023, then new contract starts 1 July 2023 with extended service starting 1 July 2024 Twice-weekly cardboard collection CBD	No council collection	Waste Management, till 30 June 2034	All Waste till 30 June 2023, Envirowaste 1 July 2023 onwards	WasteCo, till October 2023 – Looking to extend to 2028 in alignment with landfill consent extension
Kerbside rubbish	Envirowaste to 30 June 2023, then new contract starts 1 July 2023 with extended service starting 1 July 2024		Waste Management, till 30 June 2034	All Waste till 30 June 2023, Envirowaste 1 July 2023 onwards	
Recycling drop-off points	Envirowaste		Waste Management, till 30 June 2034	Wastebusters till 30 June 2023, Envirowaste 1 July 2023 onwards	

	Dunedin	Waitaki	Queenstown Lakes	Central Otago	Clutha
Transfer Stations	Rural Transfer Stations – Envirowaste. Green Island Transfer Station - Waste Management until approx. 2025		s Waste Management, till 30 June 2034, Wānaka and Whakatipu	All Waste till 1 July 2023, Envirowaste 1 July 2023 onwards	
Landfill	Waste Management to October 2025		Scope Resources, till 30 June 2034	NA	

3.1.4 Other Council Services

3.1.5 Waste Education and Minimisation Programmes

There are a wide range of education and waste minimisation programmes or initiatives funded or delivered across the region. These are summarised in the table below.

Table 13: Council Funded or Provided Waste Education and Minimisation Programmes

	QLDC	CODC	DCC	WDC	CDC
General service promotion	✓	✓	✓	✓	✓
Organics reprocessing – home composting, bokashi, mulching and community provision	✓	✓	✓	✓	✓
Para Kore/Te Ao Maori-based			✓		
Food rescue	✓		✓		
Enviroschools	✓	✓	✓	✓	✓
Paper 4 Trees	✓				
Zero waste schools education	✓				✓
Contestable community funding	✓		✓	✓	

	QLDC	CODC	DCC	WDC	CDC
Events waste reduction (regulation and/or guidelines)	✓		✓	✓	✓
Business waste reduction	✓		✓	✓	
Bulky waste reuse collections	✓				
C&D waste reduction	✓		✓		
Support wider campaigns – Love food hate waste, plastic-free July, single-use cup-free, green drinks, RefillNZ, Keep NZ Beautiful	✓	✓	✓	✓	✓
Community waste reduction campaigns	✓				
Waste-free parenting	✓	✓		✓	✓
Zero Waste workshops (e.g. Mainstream Green, Kate Meads, etc)	✓	✓	✓		✓
Product stewardship – Seatsmart, Agrecovery, polystyrene etc	✓	✓	✓	✓	✓

3.2 Non-Council Services

A wide variety of non-council services are provided across the region. These are summarised in the table below.

Table 14: Non-Council Waste Services

	QLD	COD	DC	WD	CD
Commercial rubbish collection	✓	✓	✓	✓	✓
Commercial recycling collection – paper/cardboard	✓	✓	✓	✓	✓
- Plastics	✓	✓	✓	✓	
- Glass bottles/jars	✓	✓	✓	✓	
- Tins/cans	✓	✓	✓	✓	
- Polystyrene	✓	✓	✓	✓	
- Plastic film	✓	✓		✓	

	QLD	COD	DC	WD	CD
- E-waste	✓	✓	✓	✓	
Building waste	✓		✓		✓
Residential rubbish collections	✓	✓	✓	✓	✓
Rural rubbish collections	✓	✓	✓	✓	✓
Residential recycling collections	✓			✓	
Residential greenwaste	✓		✓	✓	✓

3.3 Summary and Assessment

As would be expected in a region that includes dense cities through to isolated rural areas, there is a variety of service levels provided – this applies to both council-provided services and private sector. Both residential and commercial customers have access to a range of services, with some council collections also available to commercial customers (such as some CDC businesses, and businesses in the Dunedin CBD).

However, there are some key areas where the disparity in services may cause issues with respect to waste management and minimisation:

1) The variety in materials collected and services provided makes it more difficult to collaborate on education about kerbside services – which is one of the drivers behind the MfE's kerbside standardisation requirements.
2) While leaving the provision of kerbside services to the private sector does provide the community with full choice over which service provider they use, and which type of service; data from elsewhere in New Zealand does suggest that this can reduce the effectiveness of waste minimisation and diversion efforts particularly where large (240L) wheeled bins are provided for rubbish collections. This can also be an issue where customers choose to use private services instead of the council collection.
3) Where private sector services have a large part of the market, it can be more difficult to plan for waste management and minimisation due to lack of data and detailed understanding of how private sector services are performing, and also to encourage the use of preferable alternatives.

Many of the issues relating to variable service provision and alignment to kerbside standardisation will soon be resolved, or are being explored further – such as the new services to be provided in Dunedin city and Central Otago district, and the intention to explore the implications of offering council-controlled kerbside services in Waitaki and Central Otago districts. However, increased capture of recyclables and food scraps across the region will only further exacerbate the current issues with poor reprocessing infrastructure provision.

4 Situation Review

4.1 Waste to Class 1-5 Disposal

The terminology that is used in this section to distinguish sites where waste is disposed of to land are taken from the relevant MfE regulations, as discussed earlier in section 2.1.

4.1.1 Waste to Class 1 Disposal

Table 15 provides an estimate of the total annual tonnage of waste originating from the Otago region that is disposed of to Class 1 landfills in the region and to Class 1 landfills outside the region. For clarity, the estimate does not include waste that originates from outside the region (if any).

Disposal in the region includes Green Island landfill, in Dunedin, Mt Cooee landfill in Balclutha, Victoria Flats landfill, in Gibbston, and Palmerston landfill.

Disposal outside of the region occurs at AB Lime landfill, near Winton, Southland, and Redruth landfill, in Timaru.

The data used to calculate the estimate has primarily been drawn from surveys undertaken by Waste Not Consulting at transfer stations and Class 1 landfills in the region and data provided by councils.

As the data used for the analysis relates to different years, the tonnages are not representative of a specific year. For simplicity's sake, throughout this section the data is identified as being '2020'. In those instances where tonnage data has not been located or is considered unreliable, surrogate data based on other sources has been substituted.

It is noted that not all waste streams have been included in this total as no accurate tonnage data has been located or made available. For instance, contaminated soil from Central Otago District is reportedly being disposed of at AB Lime, but no tonnage data is available.[29]

Table 15: Waste to Class 1 Landfills from Otago Region - 2020

Overall waste to Class 1 landfills - 2020	% of total weight	Tonnes per annum
Disposal outside of Region		
General + kerbside rubbish	6.1%	8,700
Special wastes	2.9%	4,200
Subtotal	**9.0%**	**12,900**
Disposal in Region		
Kerbside rubbish	35.5%	50,946

[29] https://www.odt.co.nz/regions/southland/hearing-begins-bid-remove-landfill-cap

Overall waste to Class 1 landfills - 2020	% of total weight	Tonnes per annum
General waste	52.7%	75,623
Special wastes	2.9%	4,095
Subtotal	**91.0%**	**130,664**
TOTAL	**100.0%**	**143,564**

An estimated 143,564 tonnes of waste from the Otago region were disposed of in 2020 to Class 1 landfills. The Class 1 landfills within the Otago region receive 90% of this waste. The other 10% is disposed of outside the region.

Most of the waste disposed of outside the Otago region was from Waitaki District, with the remainder being biosolids from Queenstown Lakes and screenings from Central Otago. There is also anecdotal evidence that construction and demolition waste, and some contaminated soils, move from Clutha district to AB Lime. Biosolids are classified as special wastes.

4.1.2 Waste to Class 2-5 Disposal

There are several industrial monofills and Class 2 landfills, and many Class 3/4 landfills, in the region; as set out in section 2.1.2. There are also several (although of unknown number) Class 5 facilities although many of them don't accept waste from others – e.g. multiple Fulton Hogan sites that are predominantly used to dispose of cleanfill from earthworks and roading projects.

As discussed earlier in this report, at present there is very little information available regarding most cleanfilled waste, both composition and quantities; although data on quantities will be provided by these facilities to MfE from the beginning of this year.

A 2011 MfE report on non-levied disposal facilities stated:[30]

> *No information about cleanfill quantities was compiled for this report because the few sites with available data are unlikely to be indicative of what is happening around the country.*

Several other studies have attempted to quantify the disposal of waste to Class 2-5 landfills, often on a per capita basis, with widely-varying results. In practical terms, the lack of precise data about disposal of waste to Class 2-5 fills makes it impossible to reliably monitor any changes over time in the disposal of major waste streams, such as construction and demolition waste.

[30] Ministry for the Environment (2011) *Consented Non-levied Cleanfills and Landfills in New Zealand: Project Report*. Wellington: Ministry for the Environment

4.2 Composition of Waste

As a region, the availability of data relating to waste is variable, depending on the extent to which councils have access to the waste stream and therefore have been able to include in solid waste analysis protocol (SWAP) audits.

The following recent SWAP data is available for the region:

1) Dunedin: kerbside audit 2018, Green Island Landfill audit 2022
2) Waitaki: Oamaru refuse transfer station 2022
3) Clutha: Mt Cooee and kerbside audits 2022
4) Central Otago: kerbside audit 2018
5) Queenstown: solid waste audit 2020, and kerbside audit 2019

All audits were carried out by Waste Not Consulting Ltd and the reports from these audits have been referred to for the data in this section. Given the varying availability of data, not all of the sections below cover off every council area.

4.2.1 Composition to Class 1 Disposal

The table below shows the composition of waste to landfill for each disposal facility, compared to the regional and national average (calculated in 2020).

Table 16: Composition of Waste to Class Landfills

Material type	National average	Regional average	Green Island	Victoria Flats	Mt Cooee	Oamaru RTS
	All in percentage of total					
Paper	5.9	8.6	7.3	10.7	7.8	8.2
Plastics	8.3	10.2	9.1	10.7	12.5	13.1
Organic	14.8	29.7	31.5	25.6	30.0	36.5
Ferrous metals	2.7	3.2	3.7	2.5	3.0	3.3
Non-ferrous metals	0.8	0.6	0.6	0.7	0.7	0.6
Glass	1.8	2.9	2.8	1.6	8.3	3.5
Textiles	5.0	4.5	3.9	5.1	4.7	5.5
Sanitary paper	2.3	4.5	4.5	3.7	5.5	6.2
Rubble	20.1	7.2	3.3	13	9.7	4.4
Timber	12.6	16.1	12.8	24.3	7.5	10.7
Rubber	2.1	1.5	1.0	0.8	2.8	7.2
Potentially hazardous	23.5	10.9	19.4	1.5	7.4	0.8

This analysis shows that the proportions vary significantly across the region. The material type that varies the most is 'potentially hazardous' (largely sewage sludges and biosolids), with significant quantities of this present at Green Island and very little at the other locations. This reflects the disposal practices of the different councils; with QLDC and CODC sending this waste to AB Lime, and Clutha sending what is not suitable for disposal at Mt Cooee Landfill to Green Island landfill for disposal.

This means that when it comes to calculating the 'potentially divertible' portion of this waste stream, it is very difficult to make comparisons due to the highly variable 'potentially hazardous' stream. For subsequent calculations relating to diversion potential and benchmarking, this material has been excluded.

General waste can be broken down into four the activity sources - C&D waste, industrial/commercial/institutional waste, residential waste (which excludes kerbside rubbish), and landscaping waste. In Table 17, the primary composition of each of the four activity sources is shown.

Table 17: Primary compositions of Waste - By Activity Source - 2020

Primary compositions of waste to Class 1 landfills - - 2020	Construction & demolition	Industrial/ commercial/ institutional	Landscaping	Residential
Paper	2.6%	18.2%	0.3%	8.4%
Plastics	2.6%	24.6%	0.7%	7.7%
Organic	1.0%	15.0%	80.2%	12.4%
Ferrous metals	2.2%	2.9%	0.0%	11.2%
Non-ferrous metals	0.1%	0.6%	0.0%	0.8%
Glass	0.4%	2.5%	0.0%	2.1%
Textiles	2.3%	7.8%	0.2%	17.0%
Sanitary paper	0.0%	4.3%	0.0%	0.7%
Rubble & concrete	35.4%	6.0%	17.3%	2.9%
Timber	51.7%	14.5%	1.3%	35.7%
Rubber	1.0%	2.1%	0.0%	0.6%
Potentially hazardous	0.7%	1.6%	0.0%	0.4%
TOTAL	**100.0%**	**100.0%**	**100.0%**	**100.0%**

The majority of construction and demolition waste was timber (51.7%) and rubble (35.4%). Industrial/commercial/institutional waste was more heterogeneous, with plastics comprising the largest proportion (24.6%) and paper comprising 18.2% of the total weight. Landscaping waste was 80.2% organics, primarily greenwaste.

Residential waste often includes waste from several activities, including landscaping and construction. The largest component of residential waste was timber, comprising 35.7% of the total, which included both furniture and wood from construction and demolition. Textiles was the second largest component, comprising 17.0% of the total weight. Carpet, soft furnishings, and clothing were the major components of textile waste.

4.3 Diversion Potential

4.3.1 Waste to Class 1 Landfill

The table below shows the proportion of the waste stream to landfill that could have been diverted through existing recycling collections, and straightforward composting. As above, this is split by disposal point – with CODC sending residual waste to Victoria Flats. Oamaru RTS represents the majority of waste going to Class 1 landfill (AB Lime) from the Waitaki district; although a small proportion goes to Palmerston landfill. These figures also represent the 'general' waste stream (i.e. excluding potentially hazardous).

Table 18: Diversion Potential in Landfill Waste

Material type	Green Island	Victoria Flats	Oamaru RTS	Mt Cooee
	As percentages of the overall waste stream (excluding potentially hazardous)			
Paper - recyclable	5.3	5.0	5.1	3.0
Paper - cardboard	2.4	4.7	2.3	3.6
Plastic - recyclable	1.8	1.3	1.6	1.2
Ferrous metals	4.6	2.5	3.3	3.0
Non-ferrous metals	0.8	0.7	0.6	0.6
Glass - recyclable	2.0	0.9	2.7	7.8
Textiles - clothing	2.1	1.9	1.8	1.8
Rubble - cleanfill	1.0	1.9	0.7	4.8
Timber - reusable	3.5	2.1	0.8	0.0
Organics - food scraps	19.2	14.2	20.7	12.7
Organics - greenwaste	11.5	7.6	10.2	15.1
Rubble - new plasterboard	0.2	4.4	0.4	6.0
Timber – unpainted, untreated	3.5	3.9	3.0	1.2

These comparisons show some high consistency, but also some notable differences. These include:

- slightly lower proportion of recyclable paper going to Mt Cooee;
- more cardboard going to Victoria Flats – perhaps due to the very active retail and construction sectors;
- more glass going to Mt Cooee – reflecting the lack of recycling options;
- more rubble and other cleanfill materials going to Mt Cooee – reflecting the closure of the only nearby cleanfill facility in the district;
- slightly more reusable timber going to Green Island – probably just related to higher levels in general of construction activity;
- the proportion of food scraps and green waste are quite variable; and
- new plasterboard going to landfill at Victoria Flats and Mt Cooee – probably reflecting the active construction sector and lack of local cleanfill options respectively.

In considering the options to capture the potentially divertable material, it is important to understand how and from what source these materials are reaching landfill. While there are some variations across the region, the primary pathways are consistent:

- food scraps overwhelmingly reach landfill through household kerbside rubbish collections;
- compostable greenwaste reaches landfill through two main pathways: household kerbside rubbish collections (particularly in urban areas where households use large wheeled bins for rubbish collections) and from general residential, C&D, and ICI waste going straight to transfer stations and landfills (note: not through landscaping);
- recyclable paper and cardboard through household kerbside rubbish collections (particularly from large wheeled bins) and then through residential and ICI to transfer stations and landfills;
- recyclable plastic and glass – through household kerbside and ICI;
- textiles – mainly household kerbside rubbish and also ICI to transfer stations and landfills; and
- new plasterboard, timber types, ferrous metals, and rubble arrive directly to transfer stations (partially) and landfill (mainly) from the C&D sector.

4.3.2 Kerbside-Collected Rubbish

Since 2017, sort-and-weigh audits of kerbside rubbish have been undertaken by Waste Not Consulting for QLDC, CODC and CDC. Kerbside rubbish disposed of by these three territorial authorities represents 43% of all kerbside rubbish from the region. Based on these audits, the primary composition of all kerbside rubbish collected in the Otago region is presented in Table 19.

Table 19: Composition of Kerbside Rubbish Otago Region - 2020

Primary composition of kerbside rubbish - 2020	% of total	Tonnes per annum
Paper	8.6%	4,411
Plastics	9.5%	4,878
Organic	55.3%	28,243

Primary composition of kerbside rubbish - 2020	% of total	Tonnes per annum
Ferrous metals	1.9%	987
Non-ferrous metals	0.8%	427
Glass	4.6%	2,327
Textiles	3.9%	2,002
Sanitary paper	8.5%	4,339
Rubble & concrete	3.6%	1,819
Timber	1.9%	966
Rubber	0.3%	156
Potentially hazardous	1.1%	556
TOTAL	**100.0%**	**51,112**

Based on the results of the three sort-and-weigh audits, organics was the largest primary classification of kerbside rubbish, comprising 55.3% of the total weight. Kitchen waste comprised 60% of the organic material. Plastic was the second largest primary classification, comprising 9.5% by weight, and paper the third largest, at 8.6%.

4.3.2.1 Diversion Potential of Kerbside Rubbish

In the sort-and-weigh audits used to calculate the composition of kerbside rubbish, secondary categories were used to differentiate between recoverable and non-recoverable materials (e.g. recyclable paper vs. non-recyclable paper). In this context, 'recoverable' is taken to mean materials which can be readily diverted by residents, through kerbside recycling and organic collections, drop-off facilities, or through home-composting.

Using the results of the three SWAP audits of kerbside rubbish conducted in the Otago region since 2017, and assumed compositions for Dunedin and Waitaki, the diversion potential of kerbside rubbish has been calculated to be as shown in Table 20 (for the region) and Table 21 (for individual TAs).

Table 20: Diversion Potential of Kerbside Rubbish - 2020

Diversion potential of kerbside rubbish – 2022	% of total (%)	Tonnes per annum
RECYCLABLE MATERIALS		
Paper recyclable	7.1	3,699
Plastic - #1-7 containers	2.1	1,068
Steel cans	0.7	370
Other ferrous	1.2	630
Aluminium cans	0.3	164

Diversion potential of kerbside rubbish – 2022	% of total (%)	Tonnes per annum
Other non-ferrous	0.5	269
Glass bottles & jars	4.0	2,071
Clothing/textiles	2.3	1,190
Subtotal	**18.3**	**9,481**
COMPOSTABLE		
Food scraps	32.8	16,987
Garden waste	19.4	10,031
Subtotal	**52.2**	**27,018**
TOTAL DIVERTABLE	**70.5**	**36,499**
Non-divertable	**29.5**	**15,254**
TOTAL KERBSIDE RUBBISH	**100.0%**	**51,753**

Approximately 18.3% of kerbside rubbish from the Otago region could have been readily diverted through kerbside recycling collections or at drop-off facilities. Recyclable paper was the largest single recyclable component, comprising 7.1% of the total weight of kerbside rubbish.

Organic materials that could have been composted comprised 52.2% of kerbside rubbish; of this kitchen waste comprised 32.9% of kerbside rubbish (16,987 tonnes per annum), and greenwaste 19.4% (10,031 tonnes per annum). (It is noted that a small percentage of greenwaste in kerbside rubbish is not compostable.) In total, 70.5% of kerbside rubbish, 36,499 tonnes per annum, could have been diverted from landfill disposal by residents.

Table 21: Diversion Potential of Kerbside Rubbish – by TA (based on data 2019 – 2022)

Diversion Potential of Kerbside Rubbish (%)	Central Otago (based on 2020 SWAP)	Clutha (2022 SWAP)	Dunedin (assumed)	Queenstown Lakes (2019 SWAP)	Waitaki (assumed)
Recyclable paper	5.8	2.9	8.4	5.9	8.9
Recyclable plastic	0.9	1.4	2.5	1.7	2.8
Steel cans	0.6	0.7	0.8	0.5	0.9
Aluminium cans	0.3	0.3	0.4	0.2	0.4

Diversion Potential of Kerbside Rubbish (%)	Central Otago (based on 2020 SWAP)	Clutha (2022 SWAP)	Dunedin (assumed)	Queenstown Lakes (2019 SWAP)	Waitaki (assumed)
Glass bottles/jars	5.2	13.1[31]	3.5	1.9	4.5
Food scraps	23.7	21.2	35.3	33.9	35.1
Garden waste	20.3	29.9	18.7	18.2	17.0
Total	**56.9**	**69.6**	**69.6**	**62.2**	**69.7**

4.4 Other Waste Disposed of to Land

4.4.1 Farm Waste

In 2013, a study of farm waste management practices in Canterbury region provided data that enables estimates to be made of the quantity of non-natural wastes disposed of on rural properties.[32]

The Canterbury study found that 92% of farms use one of the 'three B' methods of waste management – bury, burn, or bulk storage on property. The Canterbury study calculated average annual tonnages of waste for four different types of farm. As farm waste from a specific type of farm is likely to be similar throughout the country, the data is considered to be suitable for application to other regions, by applying the waste data per farm to the number of farms of each type in a region. Data on numbers of farm types in each region in 2020 is available from Stats NZ.

Based on the data contained in the 2013 Canterbury study, an estimate of the quantity of waste disposed of in Otago Region is presented in Table 22. The categories are those presented in the study. 'Non-natural rural waste' includes materials such as scrap metal, treated timber, fence posts, plastic wraps and ties, crop netting, glass, batteries, and construction and demolition wastes. 'Organic waste' is not well-defined in the study and is only reported in the study as including 'crop residues'.

Table 22: Estimate of On-Farm Disposal of Waste - Reported Classifications

Farm wastes in Otago Region - 2020 Tonnes/year	Dairy	Livestock	Grape growers	Other arable	TOTAL
Number of farms	**612**	**252**	**36**	**2,391**	**3,291**
Non-natural waste	3,435	2,063	182	7,993	13,673

[31] Note that there is no kerbside glass recycling collection in Clutha, although these items have still been designatd as potentially divertible
[32] GHD (2013), *Non-natural rural wastes - Site survey data analysis*, Environment Canterbury Report No.R13/52

Farm wastes in Otago Region - 2020 Tonnes/year	Dairy	Livestock	Grape growers	Other arable	TOTAL
Domestic waste	338	19	0	2,410	2,767
Animal carcasses	5,416	4,895	0	3,269	13,580
Organic waste	6,510	28	331	1,587	8,456
TOTAL	**15,698**	**7,005**	**513**	**15,260**	**38,476**
Average per farm	**25.7**	**27.8**	**14.3**	**6.4**	**11.7**

The 3,291 farms in the Otago region[33] are estimated to dispose, on-farm, of an average 11.7 tonnes of waste per farm per annum. In total, 38,476 tonnes of waste per annum are estimated to be disposed of in this manner across the region.

Using the raw data from the 2013 Canterbury study, the composition of farm waste in Otago Region in 2020, expressed in the standard SWAP classifications, has been calculated as shown in Table 23.

Table 23: Estimate of On-Farm Disposal of Waste - SWAP Classifications

Farm wastes in Otago Region - 2020	% of total weight	Tonnes per year
Paper	0.5%	210
Plastics	8.0%	3,096
Food and other putrescibles	*27.7%*	*10,658*
Garden and other carbon sources	*48.0%*	*18,488*
Putrescibles - subtotal	**75.8%**	**29,146**
Ferrous metals	2.4%	916
Non-ferrous metals	0.0%	4
Glass	1.9%	733
Textiles	0.1%	23
Nappies and sanitary	0.1%	42
Rubble	0.2%	71
Timber	10.5%	4,032
Rubber	0.0%	4
Potentially hazardous	0.5%	198
TOTAL	**100.0%**	**38,476**

[33] Stats NZ business demography for ANZSIC06 for 2020

Putrescible materials, which includes 'organic' waste and animal carcasses as per the 2013 Canterbury study, tree trimmings, wood chip animal bedding, and food waste in domestic rubbish, was the largest classification of farm waste, comprising 75.8% of the total weight. Timber was the second largest classification, comprising 10.5%. The timber classification incudes both treated and untreated processed timber.

4.4.2 Waste to Class 2-5 Fills

Section 2.1 describes the different types of facilities, as regulated by MfE.

As part of the process of extending the levy, MfE is currently identifying and cataloguing all landfills and cleanfills in New Zealand. While there are numerous Class 2-5 fills in the Otago region, the precise number has yet to be determined by MfE.

For this project, an Official Information Act request was made to MfE for the available information on Class 2-5 fills in the Otago region.

The Class 2-5 landfill sites identified by MfE in the Otago region are listed in Table 24. The table includes the address of each site as well as the materials that are accepted, based on either the resource consents for the site or on information gathered for this project.

Table 24: Class 2-5 Landfills in Otago Region

Territorial authority	Address	Accepted materials
Central Otago	Parkburn Quarry Site beside Lake Dunstan, near Cromwell	Cleanfill, up to 5% vegetation
Clutha	Kai Point Coal Mine, Kaitangata	Boiler ash, mine overburden
Dunedin	712 Kaikorai Valley Road, Dunedin	C&D waste, contaminated soil, other non-putrescible waste
Dunedin	13 Matanaka Drive, Waikouaiti	Eggshells, boiler ash
Dunedin	20 McLeods Rd, Dunedin	Greenwaste
Queenstown Lakes	Shotover Delta Rd, Queenstown	Cleanfill
Waitaki	Works Rd, Pukeuri	Cleanfill, boiler ash
Waitaki	Awamoa Road and Beach Road, Oamaru	Offal
Waitaki	McEneany and Steward Roads, Pukeuri	Soil, cleanfill

While most of the Class 2-4 sites, which includes C&D landfills and industrial disposal sites, are likely to have been identified by MfE through their resource consents; there may be Class 5 cleanfill sites that have not. Operation of a cleanfill site or greenwaste disposal site is a permitted activity under Otago Regional Council so often remains undocumented.

While the landfill sites identified by MfE include cleanfill sites in proximity to three of the major towns, there are also likely to be a number of unofficial cleanfill operations on farmland and in other isolated locations that serve the other towns.

Few Class 2-5 fills record the quantity of material they receive. Based on the information provided by MfE, only three of the resource consents for the sites listed in Table 24 include conditions limiting the amount of material that can be accepted each year.

A small number of the sites have provided MfE and/or the project team with information on the quantity of material accepted. On the basis of this information, it is estimated that approximately 100-200,000 tonnes of material are disposed of annually in Class 2-5 fill sites in the Otago region. A very high proportion of this material is inert, excavated soils and other natural materials. This figure does not include the overburden from Kai Point coal mine.

4.5 Diverted Materials

The data in Table 25, which was provided by diverted material reprocessors, only represents material from the Otago region that is managed within New Zealand and excludes exported material. This presents a particular gap for some diverted materials, such as plastic and fibre.

Table 25: Diverted Materials Reported by Reprocessors 2020

Reprocessed material	TOTAL (material in tonnes per annum)
Glass	
Bottles/jars	9,849
Organics	
Putrescibles (wet organics)	1,260
Greenwaste, wood waste, manure	2,520
Tyres	3,988
Fibre (paper, card)	
Mixed paper	450
Old corrugated cardboard	3,000
Construction & Demolition	
Aggregate	46,000
C&D	1,300

Reprocessed material	TOTAL (material in tonnes per annum)
Scrap metal	10,000
Electrical and Electronic	133
Farm Plastics	470
Plastics (various grades)	642
TOTAL	**79,612**

The above table shows that an estimated 80,000 tonnes of material is recovered and processed from the Otago region annually within New Zealand, with over half of this accounted for by aggregates. An additional, unknown, quantity of material is exported for reprocessing.

Table 26: Waste to Disposal and Recovery (Excluding Exported Material)

Destination	Tonnage	Percent
Tonnes to Class 1 landfills	143,564	35%
Tonnes to Class 2-5 (est)	150,000	36%
Tonnes to rural disposal	38,476	9%
Recovery (excl. rural recovery)	79,612	19%
TOTAL	**411,652**	**100%**

The above data suggests that Otago recovers approximately 20% of the waste material generated with approximately equal quantities of material going to Class 1 and Class 2-5 disposal; not accounting for exported recovered materials.

5 Performance Measurement

5.1 Current Performance Measurement

This section provides comparisons of several waste metrics between the Otago region and other territorial authorities. The data from the other districts has been taken from a variety of research projects undertaken by Waste Not and Eunomia.

5.1.1 Per Capita Waste to Class 1 Landfills

The total quantity of waste disposed of at Class 1 landfills in a given area is related to a number of factors, including:

- the size and levels of affluence of the population;
- the extent and nature of waste collection and disposal activities and services;
- the extent and nature of resource recovery activities and services;
- the level and types of economic activity;
- the relationship between the costs of landfill disposal and the value of recovered materials;
- the availability and cost of disposal alternatives, such as Class 2-5 landfills/fills; and
- seasonal fluctuations in population (including tourism).

By combining Statistics NZ population estimates and the Class 1 landfill waste data in section 4.1.1, the per capita per annum waste to landfill in 2020 from the Otago region can be calculated as in Table 27 below. The estimate includes special wastes but excludes non-levied cleanfill materials.

Table 27: Waste Disposal per Capita

Calculation of per capita waste to Class 1 landfills	
Population (2020)	236,200
Total waste to Class 1 landfill	143,564
Tonnes/capita/annum of waste to Class 1 landfills 2022	0.608

This figure varies significantly throughout New Zealand. The table below compares the 2020 figure for the Otago region with other local authorities.

Table 28: Comparative Per Capita Disposal Rates

Overall waste to Class 1 landfills including special wastes	Tonnes per capita per annum
Gisborne 2017	0.283
Waimakariri 2017	0.325

Overall waste to Class 1 landfills including special wastes	Tonnes per capita per annum
Ashburton 2015	0.366
Waitaki 2022	0.466
Clutha 2022	0.505
Central Otago 2021	0.527
Invercargill 2018	0.528
Bay of Plenty 2017	0.529
Palmerston North 2017	0.545
Kapiti Coast 2017	0.546
Waikato 2017	0.552
Dunedin 2018	0.554
Tauranga and WBoP 2020	0.56
Napier/Hastings 2022	0.595
Wellington 2016	0.608
Otago region	***0.608***
New Zealand 2021	0.685
Taupo 2022	0.716
Hamilton 2017	0.718
Queenstown Lakes 2020	0.833
Hutt Valley 2022	0.899
Auckland 2016	1.053

Areas with lower per capita waste generation tend to be rural areas, or urban areas with relatively low levels of manufacturing activity. The areas with the highest per capita waste generation are those with significant primary manufacturing activity, and/or with large numbers of tourists, with the latter applying to a great extent to the Queenstown Lakes district.

5.1.2 Per Capita Kerbside Rubbish

It is also possible to calculate the amount of rubbish collected at the kerbside. This figure is particularly influenced by the method of kerbside collections, and how easy these are to use. If a kerbside rubbish collection service is convenient to use and has capacity (such as a large container, or frequent collections) then it is more likely to be well used – of course, the converse also applies.

Table 29: Kerbside-Collected Rubbish per capita

District/city and year of data	Kilos kerbside rubbish collected per capita per year	Commentary
Christchurch 2011	110	rates-funded fortnightly 140L wheelie bins (with weekly organic)
Gisborne 2017	122	rates-funded bags with stickers
Ashburton 2021	144	rates-funded weekly 80L wheelie bins, private wheelie bins
Whangarei 2017	153	user-pays rubbish bags and private wheelie bins
Auckland 2016	156	user-pays rubbish bags, rates-funded wheelie bins, and private wheelie bins
Waikato region 2017	156	Various
Bay of Plenty region 2020	160	user-pays rubbish bags, rates-funded wheelie bins, and private wheelie bins
Central Otago	168	Rates-funded fortnightly 240L wheelie bins
Taupo 2022	183	user-pays rubbish bags and private wheelie bins
Dunedin 2018	187	user-pays rubbish bags and private wheelie bins
Tauranga and WBoP 2019	192	user-pays rubbish bags and private wheelie bins
Queenstown 2020	195	rates-funded weekly 140L wheelie bin
Hastings/Napier 2022	197	rates-funded 120L wheelie bins and private wheelie bins
Hamilton 2017	197	rates-funded bags (two per hh max)
Wellington region 2014/15	206	user-pays rubbish bags and private wheelie bins
Clutha 2022	209	rates-funded fortnightly 240L wheelie bins
Palmerston North 2022	215	user-pays rubbish bags and private wheelie bins
Waitaki 2022	223	private wheelie bins

5.1.3 Summary

Waitaki and Clutha districts have higher quantities of rubbish collected at kerbside; however, these districts also have the lowest overall quantity of waste going to landfill. This suggests that householders and businesses are more likely to use kerbside collections to dispose of rubbish rather than transporting this to a transfer station or landfill.

6 Review of Waste Management and Minimisation Plans

As part of this Waste Assessment, a review has been carried out of all current WMMPs.

This has included a review of the vision, any supporting goals and objectives, targets, and action plans. The timeframes by which each WMMP needs to be reviewed (and when this Waste Assessment needs to be adopted) are:

Table 30: Review Dates for WMMPs

Council	Last Waste Assessment adopted	WMMP Review required by
QLDC	June 2018	June 2024
CODC	June 2018	June 2024
DCC	November 2018	November 2024
WDC	December 2017	December 2023
CDC	2017	June 2024

The table below summarises the visions, supporting goals/objectives, and targets of the five current WMMPs.

The action plans have also been reviewed and the Dunedin review is included at Appendix 7.

Table 31: Summary of Strategic Direction and Targets

	QLDC	CODC	DCC	WDC	CDC
Vision	(moving/working) Towards zero waste and a sustainable district	(moving/working) Towards zero waste and a sustainable Central Otago	that Dunedin "is actively committed to zero waste, inclusive of a circular economy, to enhance the health of our environment and people by 2040"	people in Waitaki choose to minimise and divert their waste to the greatest extent possible"	a district where the amount of waste created is minimised and the waste we do create is managed in a way which reduces harm and maximises benefits, which reflects Councils aspirational goal of zero waste
Goals (and supporting objectives)	G1 Improving the efficiency of resource use O1 Provide opportunities to minimise waste through reduction, reuse, recycling and recovery (in priority order) O2: Educate and support generators (residents, visitors, and businesses) with options and responsibilities	G1 Improving the efficiency of resource use O1 Provide opportunities to minimise waste through reduction, reuse, recycling and recovery (in priority order) O2: Educative producers and consumers about options and responsibilities	G1: Advocate, educate and enable waste minimisation, recycling and resource recovery O1: advocate for a holistic approach to waste minimisation and management which embraces the principles of kaitiakitaka (including the ethics of stewardship) and ki uta, ki tai. O2: Promote circular economies to maximise the use of products and resources. O3: Promote the stewardship of resources and the diversion of waste from landfill (reduce,	G1: To keep Waitaki people safe and healthy, and minimise waste O1: Ensuring appropriate and accessible waste management and minimisation services, facilities and education programmes are provided O2. Maintaining a user-pays approach to waste so that the majority of costs lie with the waste generator, and so that households and businesses can reduce their costs through increasing their waste minimisation and diversion O3. Considering the long-term costs and benefits	This vision was supported by two objectives, which are the same as the New Zealand Waste Strategy: 1. To reduce the harmful effects to the environment and public health from the generation and disposal of waste, and 2. To increase economic benefit by encouraging efficient resource use.

	QLDC	CODC	DCC	WDC	CDC
			reuse, repurpose) to protect the natural environment for future generations	(including social, cultural, economic and environmental) in all decision-making related to waste management and minimisation O4. Monitoring waste management and minimisation outcomes within the district and taking action where appropriate to meet our goals	
	G2: Reducing the harmful effects of waste O3: Avoid or mitigate any adverse effects on public health or the environment O4: Provide effective and efficient waste minimisation and management services supported by the right funding mechanisms	G2: Reducing the harmful effects of waste O3: Avoid or mitigate any adverse effects on public health or the environment O4: Provide cost-effective and safe waste services O5: Engage with the community on Council's progress	G2: Encourage social enterprise and commercial development O4: Build on initiatives to support circular economies O5: Reduce reliance on external markets for recyclable material O6: Facilitate regional and national market development	G2: To protect Waitaki's environment from harm O5. Managing incidents of littering and illegal dumping through education, monitoring and enforcement O6. Meeting health and environmental legislative requirements and consent conditions	
			G3: Collect information to enable informed decision-making	G3: To keep rates affordable O7. Maintaining or increasing levels of waste minimisation and diversion through ensuring	

Otago Region Waste Assessment

	QLDC	CODC	DCC	WDC	CDC
			O7: Support and promote the National Waste Data Framework	households and businesses have access to effective information, services and facilities O8. Leaving provision of waste services to the private market, wherever practicable	
			G4: Minimise the harmful effects of waste O8: Protect both public health and the environment from the adverse effects of waste through regulation and upholding best practice standards	G4: To enable households and businesses to manage their waste costs O9: Collaborating with community providers, private businesses and other local authorities in order to ensure services, facilities and programmes are provided in the most cost-effective ways	
			G5: Provide infrastructure to meet goals and objectives		
Targets	Total waste to landfill (tonnes per year) Total waste diverted (tonnes per year) –	Total quantity of waste to landfill – incremental year on year reduction from 9,700 tonnes per year (not including biosolids)	Reduce municipal solid waste generation per capita by at least 15% by 2030 compared to 2015. Reduce the amount of municipal solid waste		Tonnes of residual waste collected via Council's kerbside collection service per year

	QLDC	CODC	DCC	WDC	CDC
	Consent compliance (%) Customer satisfaction (%) –	Total amount recycled – incremental year on year increase in tonnes per year from 2,000 tonnes per year Percentage of residents that are satisfied with the execution of the waste management and minimisation services – improve customer satisfaction with Council waste management and minimisation services to 90% (as measured by the annual residents' opinion survey)	disposed to landfill and incineration by at least 50% by 2030 compared to 2015. Increase the diversion rate away from landfill and incineration to at least 70% by 2030		Number of customers using transfer stations Average per customer kg bin weight of residual waste collected Tonnes of recyclables collected via kerbside collection service per year Number of annual contamination strikes Number of customers using recycling drop off facilities annually Tonnes of waste disposed of at Mt Cooee landfill per year Number of customers using Mt Cooee Number of students receiving waste minimisation education

Otago Region Waste Assessment

	QLDC	CODC	DCC	WDC	CDC
					Number of electronic interactions per month with waste minimisation information provided by council Free Event recycling bin utilisation Attendance at Waste Minimisation events Compliance with resource consents for closed landfills
Key issues	The programmes of work considered were: 1. Status quo 2. Do minimum: provide minimum level of service to minimum legal requirements 3. More influencing: continue with current refuse and recycling collections and waste facilities	• Increasing percentage of kerbside refuse is being disposed of to landfill • Capacity of wheelie bins and frequency of kerbside collection services • Fees and charges for waste services • Meeting differing needs	The WMMP does include a summary of proposals described for a variety of services or facilities, including: • Kerbside collection services – noting demand to introduce an organic waste collection service • Landfill facilities – with ongoing demand for a facility that	1. Cost recovery at Council resource recovery parks (transfer stations) and Palmerston Landfill 2. Green waste management at RRPs and Palmerston Landfill 3. Planning for the future of Palmerston Landfill & Hampden landfills 4. Developing targeted waste	

	QLDC	CODC	DCC	WDC	CDC
	but increase education and regulation 4. More services: Provide more waste minimisation services and facilities and retain current education and engagement 5. Full council service: More waste minimisation services, facilities, education and regulation, with council providing full service supported by education and regulation 6. Focus on organics and glass: Provide more waste minimisation services and facilities that target organics	of rural and urban households and businesses • Biosolids disposal • Hazardous waste disposal • Construction and demolition waste going to landfill • Public place waste management	accepts municipal solid waste • Transfer station facilities – possible need for additional transfer stations to meet demand • Resource Recovery Centre – possible need to extend/additional RRCs to meet demand	minimisation/illegal dumping education 5. Ongoing support to the Waitaki Resource Recovery Trust 6. Ongoing support to community providers 7. Maximising rural township and urban recycling bins 8. Collaborating with other providers and local authorities 9. Maximising expenditure of Waste Minimisation Levy funding 10. Reviewing use of kerbside collection services 11. Reviewing and updating the Solid Waste Bylaw	

Otago Region Waste Assessment

	QLDC	CODC	DCC	WDC	CDC
	and glass; and retain current education and regulation 7. Focus on C&D and glass: Provide more waste minimisation services and facilities that target C&D and glass; and retain current education and regulation				

6.1 Recommendation to Retain or Review WMMPs

With the recent release of Te rautaki para (the New Zealand Waste Strategy) and decisions relating to kerbside standardisation, along with the implications of other less significant central government work programmes, it is recommended that all councils of the Otago region revise their current WMMPs and consult with their communities on new proposed Plans.

7 Future Demand and Gap Analysis

7.1 Future Demand

There are a wide range of factors that are likely to affect future demand for waste management and minimisation. The extent to which these influence demand could vary over time and in different localities. This means that predicting future demand has inherent uncertainties. Key factors are likely to include the following:

- overall population growth;
- economic activity;
- changes in lifestyle and consumption; and
- changes in waste management approaches

In general, the factors that have the greatest influence on potential demand for waste and resource recovery services are population and household growth, construction and demolition activity, economic growth, and changes in the collection service or recovery of materials.

7.1.1 Resident Population

Population projections are shown in the following table:

Table 32: Resident Population Projections to 2048

Projection	2023	2028	2033	2038	2043	2048	Change 2023 – 2048: number	Change 2023 – 2048: average annual percent
Region	257,400	272,700	287,300	300,900	313,800	325,800	53,100	0.7%
QLDC[34]	51,800	57,700	63,400	68,900	74,200	79,400	21,700	1.5%
CODC	25,400	27,700	29,900	31,900	33,900	35,800	8,100	1.2%
CDC	18,950	19,650	20,300	20,900	21,400	21,700	2,050	0.4%
DCC	138,800	144,200	149,400	154,100	158,400	162,200	18,000	0.5%
WDC	24,400	25,500	26,400	27,300	28,100	28,900	3,400	0.5%

Resident population growth through to 2048 is expected to be primarily around the central plateau, with Queenstown Lakes and Central Otago districts both experiencing strong ongoing growth. Population around the coastal areas (Waitaki and Clutha districts, and

[34]

Dunedin city) is expected to increase in the short term, but then stabilise during the period 2028 – 2048.

The demographics of the region are expected to change as the impacts of an ageing population and the impacts of immigration are felt. With the elderly more likely to live alone, and the region's trend towards smaller households, the average household size is likely to reduce. This may be balanced to an extent by increasing medical waste associated with aged care.

7.1.2 Economic Activity

The Otago region has contributed around 4 to 4.3% of the national GDP over the last ten years. The economy relies heavily on two key sectors – primary production and associated manufacturing industries, and tourism. In the years to 2020, tourism growth contributed greatly to this, particularly through Queenstown airport to surrounding areas. The impact of COVID-19 pandemic management had a significant impact on this over the 2021 and 2022 years, with numbers now starting to pick up again in 2023.

The region has the 'Otago Regional Economic Development Framework', known as the ORED, which was developed collaboratively through an advisory group and completed in 2019[35].

The table below shows historical GDP for the Otago region.

Table 33: Historical Otago Region GDP

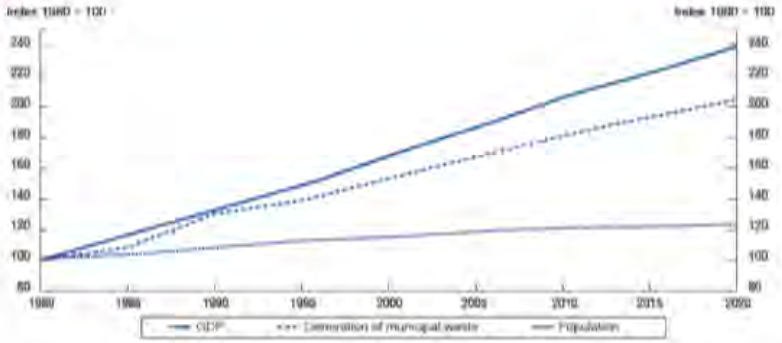
Year	2014	2//015	2016	2017	2018	2019	2020	2021	2022
GDP ($M)	10,015	10,243	10,944	11,835	12,802	13,566	14,298	13,922	15,336

GDP and waste production has been shown to have a strong relationship.

For reference, Figure 3 below shows the growth in municipal waste in the OECD plotted against GDP and population.

[35] https://www.qldc.govt.nz/media/oqxbrkp5/3b-final-ored-framework-30-july-2019-c.pdf

Figure 3: Municipal Waste Generation, GDP and Population in OECD 1980 - 2020



Source: OECD 2001

Research from the UK[36] and USA[37] suggests that underlying the longer-term pattern of household waste growth is an increase in the quantity of materials consumed by the average household and that this in turn is driven by rising levels of household expenditure.

The relationship between population, GDP, and waste seems intuitively sound, as an increased number of people will generate increased quantities of waste and greater economic activity is linked to the production and consumption of goods which, in turn, generates waste.

Total GDP is also a useful measure as it takes account of the effects of population growth as well as changes in economic activity. The chart suggests that municipal solid waste growth tracks above population growth but below GDP. The exact relationship between GDP, population, and waste growth will vary according to local economic, demographic, and social factors.

Figure 4 below shows the annual tonnes sent to Class 1 landfill disposal, against the annual GDP of New Zealand (in billions of US$). This relationship is not a complete picture, as Class 1 landfills tonnes are a subset of all waste disposed of in New Zealand, and this further does not represent waste produced, but only waste disposed of to Class 1 landfills. This data also can only be shown from 2010, as this was the first time that waste to Class 1 landfill disposal was measured accurately.

---

[36] Eunomia (2007), *Household Waste Prevention Policy Side Research Programme*, Final Report for Defra, London, England

[37] EPA, 1999. National Source Reduction Characterisation Report For Municipal Solid Waste in the United States

Figure 4: Waste to Class 1 Disposal and GDP (2010 - 2021)

As the Otago region's population is anticipated to experience steady growth, alongside economic growth, it is likely that the region will experience an approximately similar increase in waste generated assuming no change to waste behaviour or resource recovery rates.

7.1.3 Changes in Lifestyle and Consumption

Consumption habits affect the waste and recyclables generation rates. For example, there has been a national trend related to the decline in newsprint. In New Zealand, the production of newsprint has been in decline since 2005, when it hit a peak of 377,000 tonnes, falling to 276,000 tonnes in 2011.[38] Anecdotally, this has been accompanied by an increase in the use of printed direct mail ('junk mail') both in real terms and proportionally. This presents challenges for fibre recycling as this is a less desirable recycling commodity.

The ongoing growth in electronic devices will ensure that e-waste continues to be a growing waste stream, with (for example) data showing that households now tend to access the internet through multiple devices within the home and out, rather than a single home computer[39].

[38] http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=10833117
[39] Data from www.stats.govt.nz 'Household Use of Information and Communication Technology' accessed September 2018

7.1.4 Changes in Waste Management Approaches

There are a range of drivers that mean methods and priorities for waste management are likely to continue to evolve, with an increasing emphasis on diversion of waste from landfill and recovery of material value. These drivers include:

- Te rautaki para / New Zealand Waste Strategy – with a strong focus on reducing emissions and waste, to achieve a more circular economy;
- New Zealand's first Emissions Reduction Plan with a number of actions for the waste sector including reducing the amount of organic going to landfill, including C&D, and a potential ban or limits on organic waste to landfill; along with improving waste data and landfill gas capture;
- infrastructure investment - an increased landfill levy and other funding sources will drive increased investment in waste infrastructure. MfE are currently working a long-term strategic waste infrastructure investment plan;
- increased cost of landfill - landfill costs have risen in the past due to higher environmental standards under the RMA, introduction of the Waste Disposal Levy (currently $30 per tonne for Class 1 disposal facilities) and the New Zealand Emissions Trading Scheme. The current price for carbon credits, and the ongoing increases in the landfill levy, will make disposal prices a more significant consideration in waste management practices;
- kerbside standardisation now requires that a standard list of materials is collected in kerbside recycling (including glass) and that kerbside food scraps collections are introduced, with associated performance standards for TAs based on kerbside diversion; this will increase existing community demand for kerbside services where they don't already exist;
- waste industry capabilities - as the nature of the waste sector continues to evolve, the waste industry is changing to reflect a greater emphasis on recovery and is developing models and ways of working that will help enable effective waste minimisation in cost-effective ways. COVID-19 pandemic management presents ongoing challenges in resourcing, both staff and vehicles;
- local policy drivers, including actions and targets in the WMMP, bylaws, and licensing; and
- recycling and recovered materials markets - recovery of materials from the waste stream for recycling and reuse is heavily dependent on the recovered materials having an economic value. This particularly holds true for recovery of materials by the private sector. Markets for recycled commodities are influenced by prevailing economic conditions, by commodity prices for the equivalent virgin materials, and by market controls in key destinations such as China. The risk is linked to the wider global economy through international markets, and the impact of the China National Sword policies has demonstrated this.

7.1.5 Summary of Demand Factors

The analysis of factors driving demand for waste services in the future suggests that demand will increase over time as a result largely of population growth and economic activity. It is likely that some new waste management approaches will be introduced as a result of the central government work programme, which could create demand in specific areas. Initial indications are that, for Otago, this new demand is likely to be largely related to efforts to

divert organic waste materials from landfill, including possible business food scraps diversion and recovery of construction wastes. There is also likely to be an increasing focus and demand in other waste activities and types, including:

- disaster waste – recent events have highlighted the need for proactive disaster waste management plans, particularly with respect to local resilience where there is reliance on waste infrastructure located elsewhere in the region, or outside the region;
- equity of service provision, particularly relating to the impact of user-pays rubbish collections on lower socio-economic communities, particularly considering the low benefit seen in increased waste diversion that might be assumed to result from a 'pay as you throw' approach;
- smaller but difficult waste streams such as soft plastics, packaging that isn't accepted in kerbside recycling collections, compostable packaging as replacements for what will become banned packaging items, farm wastes; and
- the impact of a possible future container return scheme.

7.2 Future Demand – Gap Analysis

The aim of waste planning at a territorial authority level is to achieve effective and efficient waste management and minimisation. The following high level key issues or gaps in meeting forecast demand have been identified, grouped into topic areas. These are discussed in more detail in the following sections.

Infrastructure

- The region has relatively low access to waste infrastructure, particularly material reprocessing;
- the performance of the MRFs in the region currently is an issue both in terms of material quality (Frankton and Dunedin) and capacity;
- Dunedin and Clutha's access to convenient landfill disposal in the medium- to long-term depends on consenting a new facility;
- planned landfill provision in the coastal area could be more efficient; and
- Class 2-5 landfill provision in the region is variable

Data and monitoring

- As is found in other areas, there is a significant data gap relating to private waste collections, Class 2-5 fills, and farm waste management practices.

Services

- Council service levels in some districts are lower – particularly Waitaki and, to a lesser extent, Clutha districts;
- variability in service provision generally reduces the opportunities for collaboration (regionally or nationally) on activities such as education, awareness raising, and behaviour change;
- contamination in household kerbside recycling collections is high; and
- the market share of household kerbside services held by councils is low in some areas. This may indicate that the services being provided by the councils is not

considered fit for purpose by their residents (e.g. a wheeled bin rather than a bag-based collection).

Specific materials

- A number of waste materials could be managed more in accordance with the waste hierarchy; particularly biosolids/sludges, C&D waste, non-household recyclables, agricultural wastes, glass, organic waste generally, and textiles; and
- many of the key issues described above relate to waste streams that originate in the commercial, industrial, institutional and construction sectors; which are very difficult for councils to influence alone

Leadership and Collaboration

- Relatively less resources and budget spent (by councils or other agencies) on waste prevention, reduction and reuse activities; compared to lower levels of the waste hierarchy such as recycling and reprocessing;
- contract timeframes across the region are variable, reducing the ability to collaborate and partner on procurement and service provision;
- there is no formal mechanism to jointly fund and collaborate on regional or sub-regional waste-related projects;
- the entire sector is currently struggling to recruit staff, and the operational sector is also experiencing significant delays with new vehicles and driver shortages;
- councils will need to contribute to planning for disaster waste management; and
- there is variability in strategic direction for waste across the region, particularly in relation to the council's role in providing waste management and minimisation services.

7.3 Infrastructure

7.3.1 Reprocessing Infrastructure

Several previous sections have highlighted the sheer distance from the Otago region to several key domestic reprocessing facilities; for example, fibre, glass, and soft plastics reprocessing options are almost completely located in Auckland. Other key reprocessing facilities are located in other parts of the North Island, such as PET and PP recycling in Wellington and the Hawkes Bay. While these materials are often transported a long distance for reprocessing, the Otago region is one of the furthest from these facilities (along with Westland and Southland).

The cost of transport, and the scale of reprocessing capacity domestically, also make it necessary to export some materials for reprocessing.

There is almost a complete lack of reprocessing facilities for organic waste and C&D waste – these are waste streams that do not lend themselves to being transported long distances.

The nearest shredders for metal recovery, and the only ones located in the South Island, are in Christchurch (although there is a logistics hub in Dunedin associated with one of those shredders).

If infrastructure can be located in the Otago region, there is potential for other regions that suffer from the same geographical issues as the Otago councils to become customers.

Future Post, for example, is very keen to establish other processing sites, in particular in the lower South Island (although they are also currently looking at a Christchurch location). The large viticulture and horticulture industry in central Otago could make this a very attractive proposition for them and contribute to the sustainability goals of the industries involved.

Distance to reprocessing could make reusables schemes more feasible, as the cost of reusable systems in comparison to reprocessing is often stated as a key barrier. Active viticulture and brewing industries (in central Otago and Dunedin respectively) may be interested in the benefits of a refillable approach for local customers.

7.3.2 Recovery Infrastructure

Recycling processing infrastructure in Otago is currently problematic with the two main MRFs in the region (Frankton and Dunedin) overdue for replacement, while the MRF at WRRT in Oamaru is designed to handle only small quantities of material at a time (as most recyclables are hand sorted at site by customers).

There may be potential to explore consistent provision of MRF infrastructure across the region (although this would have to be in the context of existing contract arrangements). This could take the form of a single provider, or greater alignment in terms of standards, material acceptance, access, and markets. DCC is already planning an upgraded MRF for Dunedin at Green Island, to form part of the planned Green Island RRP; and QLDC is considering options for an upgrade of the Frankton MRF. If the WRRT site in Oamaru is ever required to handle large quantities of unsorted recyclables onsite, the MRF system will need significant upgrading.

7.3.3 Landfills

The landfill market is an important aspect of the picture. AB Lime recently received consent for receiving unlimited tonnage into its facility (although the facility footprint won't change); DCC is proceeding with plans to develop a landfill at Smooth Hill as a replacement for the Green Island landfill and also extending the consent for Green Island; CDC has applied to extend the current consent through to 2028 and is pursuing a 35 year resource consent for a new landfill at Mt Cooee; WDC is looking at options for Palmerston landfill, with a potential view to utilising more of the airspace at the facility before the consents expire. In addition, private operators are likely to consider options for disposal and send tonnages where it is going to be most cost effective. With the increase in the waste disposal levy and the increasing cost of carbon emissions through the ETS this is likely to change the current dynamic of which waste is sent to where for disposal.

7.3.4 Resource Recovery Parks

Most of the TAs of the Otago region expressed an intent to develop some form of resource recovery park. QLDC is in the process of identifying a site that could potentially accommodate a full resource recovery park, transfer station and new MRF. Dunedin is looking to expand the operations at Green Island to become a resource recovery park, including construction and demolition waste sorting; CDC are looking to develop a RRP on its Mt Cooee Landfill site; and WDC has noted the lack of local C&D sorting, composting and high-volume MRF infrastructure (although there is a RRP in place collecting a very wide range of materials - over 40). There is an opportunity to coordinate and align RRP service provision to develop a high level of consistent service.

Done well, developing a coordinated network of regional resource recovery parks has the potential to catalyse a range of resource recovery activity. It can enable a range of product stewardship schemes to function effectively and efficiently, ensure consistency of service provision and messaging, which will help increase engagement and recovery rates, and potentially lower costs for recovery of a wider range of materials. It may also be possible to access central government funding to assist in the development of facilities.

The principles of a 'network' are discussed in detail in appendix A.5.0.

7.3.5 Sub-Regional Areas

The region can be split into two parts – a coastal zone consisting of Waitaki, Dunedin and Clutha, and an inland zone with Central Otago and Queenstown Lakes. The synergies that exist are mainly within these zones. QLDC, CODC and CDC also have more natural transport connections with Southland than with Dunedin/Waitaki. The potential for collaboration with Southland region should be taken into account.

In terms of processing infrastructure for a range of materials, there is potential to scale solutions for sub-regional approaches, while also if possible, seeking alignment in terms of standards, material acceptance, access, and markets.

7.4 Data and Monitoring

As with much of the country, there is a lack of data relating particularly to private sector operations, Class 2-5 landfills, and rural waste management in the Otago region. While two of the five councils have a solid waste bylaw in place, there is no provision for waste operator licensing and data collection.

7.5 Services

Council kerbside service levels vary – with WDC not providing any council kerbside services, and CDC not collecting glass. While this doesn't necessarily result in lower performance in waste diversion as other avenues are used (such as the WRRT in Oamaru) it means these councils are not currently aligned with the requirements for kerbside standardisation. Only CODC is compliant with the forthcoming requirements for food scraps collections, although Dunedin has new services planned and the other three councils are exploring options.

Variability in service provision, with different containers, materials, and frequencies, makes collaboration on regionally consistent education and engagement campaigns on (for example) kerbside recycling contamination and organics diversion more difficult.

Market share held by councils in some areas is very low, or zero. This may indicate that the services provided by councils are not considered fit for purpose by their residents (e.g. a preference for a wheeled bin to a bag-based collection), and they instead choose to use a private sector collection service. This can pose a significant barrier to encouraging more desirable behaviour, as the private collections may not include a recycling service and the use of large (240L) wheeled bins reduces the household's diversion of recyclables and garden waste from landfill.

7.6 Specific Materials

7.6.1 Organics

Organic waste was the predominant waste stream to emerge from the analysis to date in terms of both current tonnage to disposal, and in terms of a focus for action. Kerbside food scraps is the largest single source of organic waste to landfill and has been targeted for action by Dunedin, Central Otago, and Queenstown Lakes councils. Organic waste from commercial and industrial sources was found to be relatively well managed in comparison, within the limited opportunities available, but there are some exceptions such as animal skins and ash.

There are a number of companies investigating the potential to establish operations in (or servicing) the region, and it may be possible to leverage these opportunities to achieve outcomes that align with the needs of the councils of the Otago region and beyond.

7.6.2 Construction and Demolition Waste

C&D waste is particularly an issue in Queenstown Lakes, Central Otago and Dunedin, and an increasing issue for Clutha district. While some recovery is occurring, the majority of C&D waste appears to be sent to some form of landfill disposal. There are likely to be opportunities to divert significant quantities of material.

Dunedin is planning to take measures to develop C&D waste sorting and diversion, and CDC is investigating the feasibility for C&D waste diversion as part of the Mt Cooee RTS design (to then feed into another facility for further processing/reprocessing). However, there are no significant planned activities in Queenstown Lakes and Central Otago. There may be opportunities to develop a consistent approach to C&D sorting and diversion in the region. While sub-regional facilities may be most sensible there is potential to align standards, material acceptance, access, and markets. It may also be possible to access central government funding to assist in the development of facilities.

7.6.3 Rural Waste

Nationally, rural wastes are estimated to account for up to 12% of waste disposed of.[40] There is very little information available regarding rural wastes and, unsurprisingly, little specific action targeting rural waste in current WMMPs. Rural waste is highlighted as it is an area that has not to date received the attention it most likely needs. Rural wastes are most commonly managed on-farm with material stockpiled, burned, and/or buried. There are very few controls over waste disposal on farm sites, and much of the material which is currently managed casually could be recycled or recovered, or properly disposed of. TA waste officers have highlighted to the regional council that management of waste 'on-farm' should be a key issue to consider and address through the development of the new Land and Water Plan.

---

[40]Ministry for the Environment. 2019. *Reducing waste: a more effective landfill levy – consultation document*. Wellington: Ministry for the Environment.

Further to this, the information from the Ernst & Young[41] study on regional carbon emissions suggests that rural wastes may be a substantial source of emissions from the waste sector (although Eunomia advises this requires further investigation and that the emissions are much lower than suggested).

The key issue is that current management methods are essentially no-cost and relatively convenient for farmers, as little or no sorting is required. Services that collect non-natural materials for recovery or proper disposal are likely to be costly due to the distances involved and remoteness from processing and consolidation points and require farmers to sort different materials into a number of different containers for collection.

Current product stewardship programmes such as Agrecovery and Plasback apply charges to farmers that participate in the schemes.

There have been a number of trials of farm waste collection services nationally, and limited collection services occur in some areas (including Clutha and Queenstown Lakes district). In addition, there are steps being taken to develop regulated product stewardship schemes for farm plastics and agricultural chemicals and their containers, which will provide a more comprehensive approach with (potentially) no direct charges to the end-user at end of life. There is an opportunity to leverage these initiatives to support on-farm collection services for non-natural rural wastes that offers a high-quality collection service at below cost.

7.6.4 Textiles

Textiles are a material stream that has historically had a very low profile nationally. The recent focus on carbon reduction through waste management has increased this profile as textiles can contribute significantly to carbon impact assessments. Various national programmes exist to divert specific textile types (such as socks and cotton clothing) but these are capturing very small quantities and are unlikely to have the ability to cope with large quantities.

7.7 Leadership and Collaboration

Previous regional projects have highlighted the lack of structures and arrangements to progress collaboration projects. Several barriers are in place that make this difficult to improve, such as variable contract arrangements, expiry dates, and strategic approaches to waste.

As is commonly found nationally, collaborative actions tend to focus on the lower levels of the waste hierarchy, particularly recycling and reprocessing. The impact of (and therefore funding for) actions higher up the hierarchy such as prevention, reduction, and reuse initiatives is harder to define and measure/monitor.

Disaster waste is increasingly becoming an issue, as climate change drives more extreme weather events such as flooding and slips, along with other natural disasters (such as earthquakes). A regional approach to this might strengthen a response to events that are likely to have regional scale impact.

---

[41] https://www.orc.govt.nz/media/10129/otago-region-ghg-profile-report_v4.pdf

The waste sector is experiencing a range of resourcing issues for staff, affecting both TAs and the private/community waste sectors. TAs can support sector groups such as WasteMINZ and the Zero Waste Network in addressing barriers to new recruits joining the waste sector, and in making submissions to (in particular) vocational training organisations.

8 Statement of Options and Proposals

This section sets out the range of options available to the councils to address the key issues that have been identified in the previous section of this Waste Assessment. Options presented in this section would need to be fully researched, considered specific to each district, and the cost implications understood, before being implemented through each council's WMMP action plans and respective LTP/Annual Plan. Addressing these issues will ensure that the councils is meeting their statutory obligations and improving waste management and minimisation in the Otago region.

8.1 Circular Resource Networks

A core principle incorporated in the options table following is that of the 'circular resource network'. This is a concept first developed in work carried out by Eunomia for the Ministry for Environment in 2021 and is included in the recently released 'National Resource Recovery – Infrastructure and Services Stocktake and Gap Analysis' referenced previously.

This concept is a way of implementing Circular Economy principles, which are a key part of Te rautaki para, in a practical resource recovery network infrastructure approach.

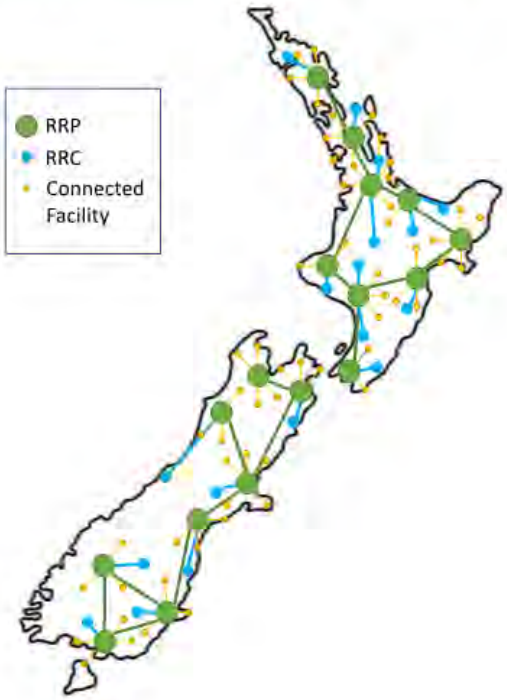
While the Circular Resource Network concept is explained in detail in appendix A.5.0, the key components of the system are explained here. Figure 13 below shows a high-level visual representation of a national resource recovery network.

The large green dots represent regional RR Parks that consolidate and process material at a regional level. Depending on the material stream, materials could also be transported between the regional hubs (for example glass being consolidated in Christchurch for shipping to Auckland for manufacture). Regional hubs could also specialise in processing certain materials and swap materials accordingly.

The mid-sized blue dots represent local RR Centres that accept a full range of materials and send to the regional RR Parks for bulking (or to Connected Facilities for local processing). Not shown are smaller drop off sites.

The small yellow dots represent the potentially hundreds of facilities that are not co-located at an RR Park or RR Centre but are linked and operate to the standards of the network. These facilities could accept materials from the RR Park or RR Centres for processing, or supply materials to these sites.

Figure 5: Concept Map of Circular Resource Network



The key roles and components of the system are:

RR Parks – Regional Hubs: The heart of each regional network consists of one or two large RR Parks, where a range of key functions are co-located. The purpose of the RR Park is to provide a 'hub' for the efficient regional consolidation of a wide range of materials collected at the RR Centre and Connected Facilities, as well as those that may be collected at the RR Park itself.

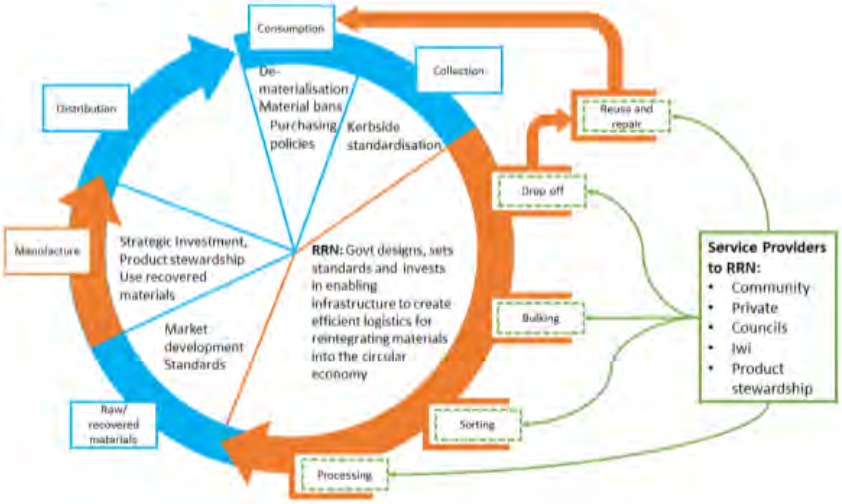
Local RR Centres: While the RR Parks are the hub of the regional networks, the RR Centre form the primary nodes, where the majority of material is dropped off and consolidated locally. Many RR Centres will start off as local transfer station sites that are upgraded and re-purposed to have a predominant focus on resource recovery.

Connected Facilities: While the heart of the circular resource network is the RR Park and RR Centre, a key feature of the circular resource network concept is the connection of potentially all resource recovery operations to the network. A range of resource recovery businesses that are not/do not need to be co-located at a network site are connected virtually. The facilities could be owned or operated by regional or national agencies, TAs, private sector, iwi, or community sector or through partnerships. As noted earlier, these

facilities would operate to the same standards as co-located facilities and could participate in the logistics and virtual network arrangements.

The figure below illustrates how the roles and functions of a national resource recovery network could integrate to provide key reverse logistics functions in the circular economy. The orange elements of the circle are the parts that form the circular resource network.

Figure 6: Roles and Functions of a Circular Recovery Network in the Circular Economy



In the above chart material flows around in a clockwise direction. The arrows represent the material flows. The boxes indicate the key steps within the value chain. The graphic shows how different providers to the can deliver all of the key functions, but within an overall connected framework (that is established and overseen by central/regional/local government).

8.2 Options Categorised by Work Area

These sections present the high-level options to address the key issues described above, broken down into the categories of regulation, measuring/monitoring, education/engagement, collections/services, infrastructure, and leadership/management. Options are presented this way as the role of TAs is likely to be fairly consistent within each of these categories and one option may address a number of key issues; also, this enables the options to show a progression of options in one category with (for example) an increasing level of circular economy alignment.

The Councils' roles can be:

Strategic: Simply identify the need at a strategic level, with other sectors able to respond to the need as they wish

Facilitation/Leadership: Take a facilitation and leadership role in addressing the need, such as by creating working groups focusing on a particular material e.g. construction waste

Regulator: Use regulatory tools available to councils to create an environment that encourages solutions, such as requiring construction site waste management plans, banning certain materials from landfill, etc.

Funder: Influence the way gaps addressed by others by making funding available for specific initiatives that address the need in some way

Provider: Take direct action by providing services or facilities that address the need.

For each option, we have identified the key issue being addressed, the extent to which we expect the issue to be addressed or the future demand to be met, and what Councils' role may be. An example of how this links to the key issues is below:

Reference number: To take forward to WMMPs, when more detailed actions are set out and options are narrowed down in preference For example: **Regulation 1 = R1**	High level description of an option that **addresses a key issue** For example: Adopt consistent solid waste bylaws and implement provisions	Detail of **how this option addresses a key issue** For example: A bylaw will enable data collection from private waste operators Bylaws can restrict the use of 240L wheeled bins for private rubbish collections	Statement of how this option would **address current and/or future demand** For example: Gives access to better data, and encourages/enables better management of some waste streams Statement of how this option is aligned with the Te rautaki para Phase 1 priorities and which ones	**Council's role**, as per the list shown above, with additional detail where applicable For example, when setting local bylaws, Council is the ***Regulator***

8.2.1 Regulation

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Councils' Role
R1	Adopt consistent solid waste bylaws and implement provisions	Data collection by licensing waste operators and requiring reporting C&D waste management through construction site waste management plans Restrict use of 240L wheeled bins for private rubbish collections through licensing conditions (regulations can also relate to MUDs, event waste management, etc)	Having access to better data enables better management of waste streams and future identification of issues Te rautaki para goal 1 priority 1.1	Regulator

8.2.2 Measuring and Monitoring

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Councils' Role
M1	Increase monitoring to provide data on participation and set out rates for all services, and monitor both organics and recycling collection for contamination, by locality	Improves understanding of the community's use of council services, particularly participation in the organic waste collections and types/causes of contamination in kerbside recycling	Will enable Councils to identify localities where there is low participation in services, or high contamination, and target education and engagement accordingly Te rautaki para goal 1, priority 1.3	Provider
M2	Increase monitoring where necessary to provide more information on commercial and industrial waste streams, and changes in Councils' data over time	Better quality data on wider range of waste types	Addresses some current gaps in understanding on certain waste streams. Better data could enable Council to improve and target services more appropriately Te rautaki para goal 1, priority 1.3	Regulator, Provider

8.2.3 Education and Engagement

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Councils' Role
EE1	Identify opportunities for consistent, targeted, direct engagement that can be delivered where there is low participation in recycling and/or organic waste services, and/or high contamination	Reduce contamination in kerbside recycling (and therefore at MRFs) through education and engagement Encourage participation in services such as kerbside recycling and organic waste collections E&E can be targeted in areas where it is needed, and where possible a region-wide campaign would be more effective and efficient	Need for education/ engagement (i.e. demand) is proactively identified and addressed Te rautaki para goal 3, priorities 3.1 and 3.2	Provider – deliver locally and/or employ a shared resource of 'waste educators' or similar to undertake direct targeted engagement across the region.
EE2	Initiate wider engagement with industry, community, and other agencies through regional waste action groups (e.g. C&D, health, retail, industry) Where appropriate, a single nominated TA officer could become a topic specialist for the region	Improve the management of specific materials, moving up the hierarchy, by engaging with the sources – C&D waste, non-household recyclables, agricultural wastes, etc. Collaborate with the community and industry would improve their engagement, understanding, and awareness of waste issues, and enable closer relationships with other agencies such as Te Whatu Ora	Improved understanding of needs in the region and service gaps, and who is best to address them. Increased responsibility taken by various sectors for waste management within the community. Better understanding across the board of non-household waste management and opportunities to move up the hierarchy Te rautaki para goal 1, priority 1.5; goal 2, priority 2.4	Facilitation/Leadership, Funder, Provider Councils could initiate groups and facilitate, possibly with low-level funding for project work Councils could provide options that support these other sectors in moving up the hierarchy Interaction through a single TA officer for the region would be more effective than all individual TAs engaging with every sector
EE3	Work closely with mana whenua, community groups, social enterprise, non-government organisations etc to	Reduce contamination in kerbside recycling (and therefore at MRFs) through education and engagement	Need for education/ engagement (i.e. demand) is proactively identified and addressed	Facilitation/Leadership, Funder, Provider

	develop and enable locally-led waste minimisation engagement and education, and support existing initiatives locally such as Sharewaste and Foodprint	Encourage participation in services such as kerbside recycling and organic waste collections E&E can be targeted in areas where it is needed and delivered locally Improve the management of specific materials, moving up the hierarchy, by engaging with the sources – C&D waste, non-household recyclables, agricultural wastes, etc. and reducing environmental harm Collaborate with the community and industry would improve their engagement, understanding, and awareness of waste issues	Increased responsibility taken by various sectors for waste management within the community. Better understanding across the board of non-household waste management and opportunities to move up the hierarchy Te rautaki para goal 1 priority 1.5; goal 3 priority 3.1 and 3.2	Councils should identify and facilitate collaboration with and between local groups to enable waste minimisation education and engagement.

8.2.4 Collection & Services

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Councils' Role
CS1	New council-contracted services are introduced to achieve a more consistent level of service across the region – mainly impacting on Waitaki and, to a lesser extent, Clutha (Dunedin have plans in place for new services, Central Otago began new services 1 July 2023)	Variation in service levels across the region – reducing the ability to collaborate in a number of areas	Service provision would be more closely aligned to demand. Demand would increase for suburban infrastructure, i.e. transfer stations and recycling centres Te rautaki para goal 2, priority 2.1; goal 5 priorities 5.2 and 5.3	Facilitation/leadership, Provider: Liaise with contractor to redefine service areas. Ensure transferred demand is met at recycling centres and transfer stations.
CS2	Ensure that the requirements of kerbside standardisation and performance standards are met – mainly impacting on Waitaki and, to a lesser extent, Clutha. Some small	Variation in service levels across the region – resulting in variable levels of alignment with the requirements of kerbside standardisation	Kerbside services would be aligned with central government's kerbside standardisation requirements	Provider

	adjustments required for Dunedin and Central Otago; Queenstown Lakes requires food scraps collections		Demand from some householders in the region for extended kerbside services would be met Te rautaki para goal 2, priority 2.1; goal 5 priorities 5.2 and 5.3	
CS3	Introduce a user-pays garden waste collection to urban areas where this is not already collected or plans are in place to do so (Queenstown, Waitaki, Clutha)	May encourage further diversion of green waste from landfill and reduce need for recycling centres and transfer stations	Demand appears to be moderate for this service, given the small quantities of garden waste that are present in rubbish bins Te rautaki para goal 7, priority 7.2	Liaise with contractors to facilitate provision of user-pays service
CS4	Where council-provided rubbish collections are provided, these should be funded through rates with restrictions on capacity and/or frequency	Contamination in kerbside collections is not reduced by user-pays rubbish collections Kerbside services are as consistent as possible	Encourages best use of existing diversion options such as kerbside recycling, home composting and organic waste collections (where available) Te rautaki para goal 5, priority 5.2	Provider - implement preferred collection methodology where possible – e.g. new or amended contracts
CS5	Provide access to kerbside services to the commercial sector on a user-pays basis	Will meet improve recycling diversion from the commercial sector by providing commercial premises that only need a household-type service with an easy option	Some increased diversion of commercial recycling and food waste services for those it is appropriate for. Te rautaki para goal 5 priority 5.2, 5.3; goal 7 priority 7.2	Provider - negotiate with contractor to provide service and administer customers
CS6	Support/introduce virtual trading marketplaces e.g. freecycle pages, Civilshare	Increase reuse of materials and diversion of target materials e.g. C&D waste	Meets demand for materials, and demand for increased reuse Te rautaki para goal 1, priority 1.5; goal 2, priority 2.4; goal 3 priority 3.2, goal 4 priority 4.1 and 4.3	Facilitate/leadership, and/or provision

8.2.5 Infrastructure

Infrastructure options have been categorised into infrastructure that addresses a specific material (such as C&D, or organic waste) and then into progressively increasing levels of alignment with circular economy principles and achieving a Circular Resource Network.

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Councils' Role
		Infrastructure for specific materials		
IN1	Processing for C&D waste and provision for C&D deconstruction	Increased diversion of C&D waste	Meet demand for C&D waste diversion Te rautaki para goal 2, priority 2.3, 2.4; goal 4 priority 4.1; goal 5 priority 5.3; goal 6 priority 6.1; goal 7 priority 7.2 (where C&D waste is organic in nature)	Strategic and/or facilitation/leadership and/or funder and/or provider
IN2	Processing for organic wastes	Organic waste	Meet demand for organic waste diversion Te rautaki para goal 2, priority 2.3 and 2.4; goal 4 priority 4.1; goal 5 priority 5.3; goal 6 priority 6.1 (if anaerobic digestion was introduced for organic wastes); goal 7 priority 7.2	Facilitation/leadership and/or funder and/or provider
IN3	Processing for difficult materials e.g. soft plastics	Difficult material streams	Meet demand for regional processing of difficult materials Te rautaki para goal 2, priority 2.3 and 2.4; goal 4 priority 4.1; goal 5 priority 5.3	Strategic and/or facilitation/leadership and/or funder and/or provider
IN4	Take a regional approach to Class 1 landfill provision	Efficient Class 1 landfill provision	Ensure that landfill access for coastal TAs is efficient	Facilitation/leadership and provide required disposal facilities

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Councils' Role
			Te rautaki para goal 1 priority 1.5; goal 2 priority 2.4	
		Circular Resource Network – First steps		
		Te rautaki para goal 1 priority 1.5; goal 2 priorities 2.1, 2.3, 2.4; goal 4 priorities 4.1 and 4.3; goal 5 priority 5.3; goal 7 priority 7.2		
IN5	Provide for reuse stores, repair sites, community workshops, demonstrations and courses at key network sites	Access to infrastructure, consistent service levels, manage a wide variety of waste materials more in accordance with the waste hierarchy, facilitate collaboration	There will be better access to infrastructure across the region, with consistent provision of the various facilities, materials accepted, and education/engagement undertaken	Collaborate and/or facilitate/leadership and/or provision
IN6	Standardised signs and branding, material acceptance and quality standards, customer service	Supports many other initiatives	Supports actions to meet many key issues	Facilitate/leadership – direct provision
IN7	Provide space for product stewardship schemes collection points at network sites	Supports and enables diversion of several difficult materials Could support focus on higher levels of waste hierarchy (depending on PS system)	Enables better management of many difficult materials	Facilitate/leadership – direct provision
IN8	Provide for container reuse at network sites (eg collection space)	Supports focus on higher levels of waste hierarchy Supports better management of some difficult materials	Increases reuse of materials	Facilitate/leadership – direct provision
		Circular Resource Network – Extended		
		Te rautaki para (in addition to above) goal 2 priorities 2.2 (and more strongly supports 2.1, 2.3 and 2.4 than above); goal 4 priorities 4.2 (more strongly supports 4.1 and 4.3 than above); goal 5 priorities 5.2 and 5.4		
IN9	Establish regional hubs	Supports wider RR network, enables better material diversion	Provides an infrastructure hub/s for the efficient regional consolidation of	Facilitate/leadership – direct provision

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Councils' Role
			a wide range of materials such as soft plastics, plastics excluded from kerbside recycling, bulky and reusable items, soft plastics, e-waste	
IN10	Provide for product stewardship programmes within network sites for bulking and processing	Supports and enables diversion of several difficult materials Could support focus on higher levels of waste hierarchy (depending on PS system)	Provides for better management of many difficult materials	Facilitate/leadership – direct provision
IN11	Use standard containers and logistics across all network sites	Supports and enables a number of other options by making capturing and diverting materials more straightforward and effective	Makes it easier for customers to use sites and increases the efficiency of capturing materials for recovery and transferring them between different parts of the Circular Resource Network	Facilitate/leadership – direct provision
IN12	Provide for container reuse at network sites (e.g. washing facilities)	Supports focus on higher levels of waste hierarchy Supports better management of some difficult materials	Increases reuse of materials	Facilitate/leadership – direct provision
		Circular Resource Network – Full		
		Te rautaki para – all of above, to a greater extent		
IN13	Centralised coordination of network	Maximises efficiencies and consistency, supporting better management of a wide range of materials	TAs actively work towards having a comprehensive network of facilities supporting the collection and circular management of products and materials that supports a national network	Facilitate/leadership – direct provision
IN14	Collaboration on inter-regional logistics	Maximises efficiencies and consistency, supporting better	Provides for better management of many materials	Facilitate/leadership – direct provision

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Councils' Role
		management of a wide range of materials		
IN15	Identify off-site re-processors and manufacturers and ensure that these parties are fully integrated and considered in the network design	Maximises efficiencies and consistency, supporting better management of a wide range of materials	Maximise the material types and quantities that can be diverted by ensuring that re-processors and manufacturers are fully considered in network design	Facilitate/leadership – direct provision
IN16	Extend the Circular Resource Network to include industrial symbiosis parks	Maximises efficiencies and consistency, supporting better management of a wide range of materials	Provides for better management of more materials by facilitating the co-location and development of more waste management options, particularly those further up the waste hierarchy	Facilitate/leadership – direct provision
IN17	Work with manufacturers & institutions to develop circular material models (e.g. product design, leasing systems etc.)	Maximises efficiencies and consistency, supporting better management of a wide range of materials	Supports the development and implementation of circular resource networks; locally, across the region, and supporting national work; moves up the waste hierarchy by supporting prevention and reduction of waste at source	Facilitate/leadership – direct provision

8.2.6 Leadership and Management

Ref	Option	Issues Addressed	Impact on Current/Future Demand Alignment with Te rautaki para	Councils' Role
LM1	Advocate to central government for extended producer responsibility	Implementation of product stewardship addresses problem waste streams at the source	Using the provisions in the WMA will help to ensure that the true cost of waste management of a product is reflected in its price. Product stewardship schemes for difficult waste streams such as e-waste and	Facilitate/leadership - advocate to central government for stronger regulation and extended producer responsibility.

			tyres will help Council provide management options for these waste streams. Te rautaki para goal 1 priority 1.1; goal 4 priorities 4.1, 4.2 and 4.3; goal 5 priorities 5.1 and 5.3; goal 7 priority 7.1	Work with other councils and agencies to support similar lobbying efforts.
LM2	Respond to central government consultations, engagements, technical advisory groups, and information sharing opportunities	Otago-specific issues are considered and reflected in national strategies, plans, regulation, and actions	Ensures that central government work supports local/regional work, and that local/regional issues are recognised. Te rautaki para goal 1; goal 2 priorities 2.1 and 2.4	Facilitate/leadership - advocate to central government
LM3	Work closely with mana whenua, community groups, and the private sector to progress opportunities for increased waste reduction and diversion	TAs, mana whenua, community groups and the private sector working together will increase waste reduction and diversion	Encourage the community to be more involved in waste minimisation, and potentially reduce waste and increase waste diversion. Te rautaki para goal 1 priority 1.5; goal 2 priority 2.4; goal 4; goal 5 priorities 5.2, 5.3 and 5.4; goal 7 priority 7.1	Facilitate/leadership, funder: coordinate and support initiatives.
LM4	Continue to develop collaborative projects and work towards increasingly formal collaborative arrangements	Addresses the current lack of formal collaborative arrangements	Puts in place collaboration arrangements that are appropriate to the collaborative work agreed Te rautaki para goal 1 priority 1.5	Facilitate/leadership - negotiate and agree collaborative working arrangements
LM5	Support regional and national initiatives and organisations campaigning for better waste management and minimisation such as WasteMINZ sector groups and the TAO Waste Manifesto	Otago-specific issues are considered and reflected in industry work programmes and Otago councils are aware and informed of work at the national scale	Ensures that national scale work supports local/regional work, and that Otago councils are well positioned to make the most of opportunities from these national initiatives and organisations	Facilitate/leadership: be involved, coordinate and support initiatives.

			Te rautaki para goal 1 priorities 1.1 and 1.5; goal 2 priorities 2.1, 2.2 and 2.3; goal 4 priorities 4.1, 4.2 and 4.3; goal 5 priorities 5.1 and 5.3; goal 7 priority 7.1	
LM6	Support regional and national projects improving waste management planning in disaster situations	Proactive planning in place for disaster waste	Proactive planning in place for disaster waste Te rautaki para goal 1 priority 1.5	Facilitate/leadership - provide information as requested, and any other input required.
LM7	Support national sector organisations in lobbying for better vocational training and to encourage new recruits to the sector	Otago-specific issues relating to staff and vehicle resources are incorporated in national-level work and addressed at a national level	Ensures that Otago-focused issues are incorporated in national-level work on these issues Te rautaki para goal 1 priority 1.5; goal 2 priority 2.1; goal 5 priority 5.2	Facilitate/leadership – provide support and information to national sector organisations.

8.3 Summary Table of Potential Scenarios

The above options can form an almost infinite number of combinations. To simplify consideration of the options, high level scenarios with logical combinations of the above options are laid out in the table below. These scenarios are for illustration only and can be fine-tuned and amended for draft WMMP action plans.

Scenario Name	Regulation	Measuring & Monitoring	Education & Engagement	Collections & Services	Infrastructure	Leadership & Management
Business as Usual (compliance with regulation and kerbside standardisation)	Each council makes its own decision on whether to have a solid waste bylaw, and these are implemented independently	Current levels of measuring and monitoring are continued	Each council continues their current education and engagement programmes, with the addition of communicating service changes	WDC introduce kerbside recycling and food scraps to Oamaru only CDC introduce glass collections only to Balclutha and Milton QLDC introduce food scraps collections to required areas CODC and DCC make minor amendments to comply with kerbside standardisation	Councils work independently to develop infrastructure required to accommodate new services, and continue existing collaborative projects	Councils continue to meet as a SOWN network, and continue discussions on potential collaborative initiatives as a region Councils largely engage with central government and national bodies individually on a reactive basis
First steps towards a Circular Economy	As above	Current levels of measuring and monitoring are continued, along with increased monitoring of participation/set out rates and contamination	Each council extends current education and engagement programmes to include targeted campaigns to increase participation and reduce contamination in kerbside services	Each council extends access to kerbside collections to businesses, on a user-pays basis Each council supports virtual material trading systems locally	Each council considers sources of waste materials in the area other than kerbside collections (such as organics, recyclables) when planning and developing infrastructure	Each council proactively engages with national government and bodies Councils commit to ongoing meetings as an Otago network and discussions of

Scenario Name	Regulation	Measuring & Monitoring	Education & Engagement	Collections & Services	Infrastructure	Leadership & Management
		Increased monitoring and analysis of non-household waste streams and Councils' data	Each council engages more with other sectors e.g. C&D, health, retail, industry		The Circular Resource Network approach is incorporated where possible	collaborative opportunities
Moderate collaboration, Circular Economy	Each council makes its own decision on whether to have a solid waste bylaw, but this is based on a standard template and some common areas are implemented collaboratively (such as guidance for events waste management)	As above, with Councils collaborating on monitoring and analysis of non-=household waste streams where appropriate	Rather than individual councils engaging with other sectors, this is done at a regional level, perhaps with each TA taking responsibility for a sector Branding and content of communications materials is consistent as far as possible Education and engagement on common issues are coordinated regionally	Details of services are aligned where possible to enable collaboration Collections are provided to areas other than 'small urban', where this can be done efficiently Additional collection services are offered other than those required, e.g. garden waste collections (user pays) and kerbside refuse (Waitaki) Councils collaborate to support virtual material trading systems	Councils collaborate when developing infrastructure and identify opportunities to share facilities where appropriate The Circular Resource Network approach is used as a template and infrastructure projects are proactively designed to align with this Smaller and community-led infrastructure is supported and integrated where possible	Otago Councils collaborate on national engagement, e.g. responding to submissions, engaging in technical advisory groups Otago Councils have a formal collaborative working arrangement and identify priority projects to deliver through this group
High collaboration, Full Circular Economy	Councils agree to adopt a consistent solid waste bylaw,	Councils work jointly collecting data from waste operators, and	There is a shared regional resource that engages with	Household kerbside refuse collections are consistently and	A Circular Resource Network is proactively designed	The Councils share a joint resource to coordinate regional

Scenario Name	Regulation	Measuring & Monitoring	Education & Engagement	Collections & Services	Infrastructure	Leadership & Management
	enabling regional implementation (such as waste operator licensing and data collection)	identifying issues and options from this information Councils jointly lobby for access to centrally-held data (e.g. levy and information reporting)	these sectors, with regular proactive discussion on waste management and minimisation opportunities Councils consistently and proactively engage with target communities to minimise contamination	largely rates-funded across the region to maximise participation in council diversion services Virtual material trading systems are supported by a regional resource	for the region, and any infrastructure projects are designed to fit with this Network. This extends to all levels of scale, with smaller and community-led infrastructure actively encouraged and prioritised over larger commercial infrastructure, where appropriate	collaboration, and commit a portion of funding to deliver priority collaborative projects. The Councils engage at a national level in a collaborative way, with individual TA officers able to represent a considered regional view

The options identified and the Councils' possible role in meeting forecast demand comprise a range of proposals. The specific actions and timeframes for delivery will be identified through the development of draft Waste Management and Minimisation Plans, and will be dependent on the strategic direction preferred by each TA; the extent of collaboration that is desirable and possible; and the resources available to each TA.

It is expected that the implementation of the preferred options from these proposals, as will be set out in the Councils' draft WMMPs, will meet forecast demand as well as support the Councils' goals and objectives for waste management and minimisation and support the phase 1, 2 and 3 goals of Te rautaki para. These goals and objectives will be confirmed as part of the development and adoption of the draft WMMPs.

8.4 Statement of Extent

In accordance with section 51 (f), a Waste Assessment must include a statement about the extent to which the proposals will (i) ensure that public health is adequately protected, (ii) promote effective and efficient waste management and minimisation.

8.4.1 Protection of Public Health

The Health Act 1956 requires councils to ensure the provision of waste services adequately protects public health. The Waste Assessment has identified potential public health issues, and appropriate mechanisms to manage these risks would be a part of any implementation programme.

In respect of Council-provided waste and recycling services, public health issues are and will continue to be addressed through setting appropriate performance standards for waste service contracts and ensuring performance is monitored and reported on, and that there are appropriate structures within the contracts for addressing issues that arise.

Privately provided services can be regulated through local bylaws where necessary.

Uncontrolled disposal of waste, for example in rural areas and in cleanfills, can be regulated at a local, regional and central government level. Recent regulation adopted by government has extended both levy requirements and information reporting requirements to a wider range of facilities, and TAs will work with the regional council to ensure that waste issues are reflected appropriately in the developing regional plan/s.

It is considered that, subject to any further issues identified by the Medical Officer of Health, the proposals would adequately protect public health.

8.4.2 Effective and Efficient Waste Management and Minimisation

The Waste Assessment has investigated current and future quantities of waste and diverted material and outlines the Councils' potential roles in meeting the forecast demand for services.'

It is considered that the process of forecasting has been robust, and that the Councils' intended role in meeting these demands is appropriate in the context of the overall statutory planning framework for the Councils.

Therefore, it is considered that the proposals would promote effective and efficient waste management and minimisation.

9 Statement of Councils' Intended Role

9.1 Statutory Obligations and Powers

Councils have a number of statutory obligations and powers in respect of the planning and provision of waste services. These include the following:

- under the WMA each Council "must promote effective and efficient waste management and minimisation within its district" (s 42). The WMA requires TAs to develop and adopt a Waste Management and Minimisation Plan (WMMP);[42]
- the WMA also requires TAs to have regard to the New Zealand Waste Strategy, Te rautaki para;
- under Section 17A of the Local Government Act 2002 (LGA) local authorities must review the provision of services and must consider options for the governance, funding and delivery of infrastructure, local public services and local regulation. There is substantial cross over between the section 17A requirements and those of the WMMP process in particular in relation to local authority service provision;
- under the Local Government Act 2002 (LGA) Councils must consult the public about their plans for managing waste;
- under the Resource Management Act 1991 (RMA), TA responsibility includes controlling the effects of land-use activities that have the potential to create adverse effects on the natural and physical resources of their district. Facilities involved in the disposal, treatment or use of waste or recoverable materials may carry this potential. Permitted, controlled, discretionary, non-complying and prohibited activities and their controls are specified within district planning documents, thereby defining further land-use-related resource consent requirements for waste-related facilities;
- under the Litter Act 1979 TAs have powers to make bylaws, issue infringement notices, and require the clean-up of litter from land;
- the Health Act 1956 provisions for the removal of refuse by local authorities have been repealed by local government legislation. The Public Health Bill is currently progressing through Parliament. It is a major legislative reform reviewing and updating the Health Act 1956, but it contains similar provisions for sanitary services to those currently contained in the Health Act 1956;
- the Hazardous Substances and New Organisms Act 1996 (the HSNO Act) provides minimum national standards that may apply to the disposal of a hazardous substance. However, under the RMA a regional council or TA may set more stringent controls relating to the use of land for storing, using, disposing of or transporting hazardous substances; and

[42] The development of a WMMP in the WMA is a requirement modified from Part 31 of the LGA 1974, but with even greater emphasis on waste minimisation.

- under current legislation and the Health and Safety at Work Act the Councils have a duty to ensure that its contractors are operating in a safe manner.

The Councils, in determining their role, need to ensure that their statutory obligations, including those noted above, are met.

9.2 Overall Strategic Direction and Role

The role taken by Councils in implementing the options described in the previous section can vary significantly, for example Councils can:

- simply identify the need at a strategic level, with other sectors able to respond to the need as they wish;
- take a facilitation and leadership role in addressing the need, such as by creating working groups focusing on a particular material e.g. construction waste;
- regulator - use regulatory tools available to Councils to create an environment that encourages solutions, such as requiring construction site waste management plans, banning certain materials from landfill, etc;
- influence the way gaps are addressed by others by making funding available for specific initiatives that address the need in some way; and/or
- take direct action by providing services or facilities that address the need.

The overall strategic direction and role is presented in the Waste Management and Minimisation Plans.

Appendices

A.1.0 Medical Officer of Health Statement

Te Whatu Ora - Southern
Private Bag 1921, Dunedin 9054
Waea: 03 476 9800

Te Whatu Ora - Southern
PO Box 1610, Invercargill 9840
Waea: 03 211 8500

Te Whatu Ora - Southern
PO Box 2180, Whakatipu, Queenstown 9349
Waea: 03 450 9156

4 July 2023

Te Whatu Ora
Health New Zealand

Lisa Eve
Eumonia Research & Consulting Ltd
PO Box 78 313
Grey Lynn
Auckland 1245

Tena koe Lisa

Medical Officer of Health Review of Otago Region Waste Assessment 2023

The Waste Minimisation Act 2008 requires that each Territorial Authority (TA) must review its Waste Management and Minimisation Plan (WMMP) at intervals of not more than six years after the last review (s50(1)). In doing so, it must make a waste assessment before conducting the review (s50 (2)). In making a waste assessment the TA must consult the Medical Officer of Health (s51(5)(b)).
A waste assessment must contain, amongst other things (sl(f)(i)), a statement about the extent to which the proposals contained in it will ensure that public health is adequately protected.

The following feedback is provided on the Draft Waste Assessment prepared for the Otago region (covering Queenstown Lakes, Central Otago, Clutha and Waitaki Districts, and Dunedin City) by Eunomia Research & Consulting Ltd.

1.0 General Comments

The Medical Officer of Health (MOoH) is supportive of the collaborative approach taken by TAs in the Otago region. However, the MOoH also recognises that individual TAs may have specific requirements depending on population demographics and waste streams and this will need to be taken into consideration.

It is also noted that consultation with Aukaha and Te Ao Marama has not yet occurred, and this will be important to fully inform this assessment.

The Waste Assessment is comprehensive and will be a valuable tool in the development of an Otago Waste Management and Minimisation Plan. From a public health perspective, the sanitary collection, disposal and ongoing review of waste streams is crucial for the following reasons:

- Disease prevention and control (i.e., pathogenic wastes, and reducing attraction to and containment of human disease vectors e.g., rats and mosquitoes).
- The control of leachate that may have an impact on the environment and public health.
- Prevention and control of nuisances created from dust, odour, and insects (e.g., wasps, flies, cockroaches) and inappropriate disposal of waste (i.e., illegal dumping, hoarding and burning).
- Public safety in terms of access in thoroughfares and exposure to physical solid waste.
- Direct health risks from hazardous materials (e.g., asbestos, heavy metals).
- Sustainability — best use of waste for the right purpose (e.g., economic benefits contributing to a healthy economy).
- Equity considerations (i.e., accessibility for all residents/ratepayers to an available and reliable waste disposal service).
- Future population demands and consumption rates on the current system and mitigation strategies.
- Climate change and impact on health - the contribution of effective waste management and minimisation in reducing greenhouse gas emissions (as well as reducing landfill size).
- Disaster waste management plans to support and enhance local resilience.

It is noted that the assessment has given regard to the Aotearoa New Zealand Waste Strategy 2023 and the guiding principles of Te rautaki para I Waste strategy.

Comments by chapter

1. Introduction

This provides a comprehensive overview of the current waste management system in Otago and will serve as a useful reference for the future.

2. Waste Infrastructure

It is clear from this assessment that Councils use different processes and end receiving points for waste across Otago and this includes disposal out of the region, in some instances. Recycling and recovery are carried out in various ways and to various degrees, by individual TAs and some thought is required to provide consistency in process, treatment and possibly end points across the region (standardisation). In this way synergies can be created and processes that are more efficient (and have a recycling component and or reuse) can be

utilised. The goal is to build a Circular Waste Economy across the region and meet both the current legislative requirements under the Waste Minimisation Act 2008 and the goals of the Ministry for the Environment alongside the Aotearoa NZ Waste Strategy 2023.

With new and reconsented landfills in the region meeting current controlled landfill standards, Otago is in a good position to consolidate disposal options and alleviate the requirement for Councils to run smaller less controlled landfills across the region. This will in turn ensure that economies of scale in waste recovery are utilised. We note that AB Lime has a landfill that has no limit on consent volumes and can receive waste not otherwise able to be disposed of within some Otago Councils own facilities (e.g., Clutha District Council, Waitaki District Council). Similarly, AB Lime could be considered by Clutha if their own landfill at Mt Cooee fails to obtain consent.

It is noted there is currently only limited plastics recycling with biosolids going to landfill, as well as gaps in reprocessing for organics and construction and demolition waste. Most material types are transported out of the region for recycling/reprocessing which in turn may make cost-benefit consideration of recycling marginal. However, this should be continually reviewed in the event of new technologies, or other options becoming available.

3. Waste Services

Currently, there is no kerbside collection for food scraps or garden waste. Although it is noted that this commenced on 1 July 2023 in Central Otago District Council with waste being sent to Redruth Recovery Park Timaru; Dunedin's new kerbside collection services are scheduled to start 1 July 2024.

The segregation and removal of organic (food) wastes using a multi bin system is a huge change for the areas having this implemented (such as Dunedin/Central Otago) but it will be necessary under the Aotearoa New Zealand Waste Strategy 2023 to divert as much organic material from the landfill as possible and reduce the production of biogenic methane. This new service will require a supporting community education programme.

It is noted that Green Island landfill consent expired in October 2023 with an extension being sort for 2029/30 to allow for the development of the future Dunedin Landfill (Smooth Hill). Smooth Hill Landfill is consented but won't be operational until around 2029, and it will be important to have appropriate measures in place to manage the risk of bird strike at Dunedin Airport.

Rural landfills/farm waste and private waste contractors can be controlled through the creation of Bylaws and the new Regional Land and Water Plan for Otago. In this way the future of waste disposal in Otago that meets current legislative needs and goals and protects Public Health, is well assured.

There appears to be good uptake of waste education and minimisation programmes, however, these will need continued support and delivery.

4. Situation Review

It will be important to have ongoing measurement of waste streams i.e., what quantity of what stream is going where, what needs to be recycled and what needs to be monitored? An ongoing audit will need to be considered.

Little consideration has been given to the potential reuse of wastewater sludges, and potential application of biosolids to land.

5. Performance Measurement

It is noted that Queenstown Lakes District Council (QLDC) have higher per capita disposal rates (0.833 compared to NZ 2021 0.685 and Otago 0.608). In the case of QLDC this likely relates to large numbers of tourists and construction and demolition waste. We understand that QLDC is looking at establishing targets in relation to their very high tourist numbers, which will be benchmarked against other areas in New Zealand with high tourist numbers. In view of this, QLDC may need to look at further specific strategies to address their unique waste situation.

The carbon footprint of waste management related operations may be difficult to quantify, given the current and future transboundary movement across TAs and regions. Consideration will have to be given as to how best to measure this. Consideration will also need to be given as to whether this may represent a false economy ie shifting the issue of waste disposal to another jurisdiction, outside of the region, to effectively manage.

6. Future Demand and Gap Analysis

The MOoH supports the recommendation for all TAs to revise current WMMPs and consult with communities (including iwi) on their new proposed plans. This needs to include medical waste which may have health and safety concerns for collecting and processing staff and may need further definition by TAs.

The importance of TAs investing in their waste workforce is also noted. This will be important in achieving desired outcomes.

7. Review of Waste Management and Minimisation Plans

Previous individual TA WMMPs have varying degrees of recognition of the importance of Public Health Protection and the involvement of the Medical Officer of Health. We expect a clear statement re public health protection in the finalised WMMP, and acknowledgement of the involvement of the MOoH as required under the Waste Minimisation Act 2008.

TA Long Term Plans should support the resultant WMMP and demonstrate adequate funding and progress against set milestones.

8. Statement of Options and Proposals

The MOoH encourages TAs to consider the options in 8.2 and 8.3, which provide a number of strategies for consideration and work towards a circular economy. It is anticipated that they will all have a positive impact on Public Health.

For information

Note that the Code of Practice for Unsealed Radioactive Material has recently been updated (31 July 2020) and replaces CSP 1 (use of unsealed radioactive material). An important consideration of this type of radioactive material is disposal, and the IAEA International Basic Safety Standards requires regulatory bodies to set out acceptable values for disposal. Therefore, this code imposes clear disposal obligations in Appendix 3: Waste Disposal of this code. This may not impact on TAs, as most of the radioactive waste generated by hospitals/medical facilities have a short half-life (measured in hours and days) and is stored until it decays, so that at the time of disposal it is not radioactive — but is provided here for completeness. Refer: Code of Practice for Unsealed Radioactive Material | Ministry of Health NZ

Recommendations

The Medical Officer of Health recommends that all TAs:

1. continuously review reprocessing collection and infrastructure of plastics/other recyclables as technology and economics allow. This includes ongoing audits to inform current practice.
2. engage more closely with private operators to obtain better information on waste quantities generated.
3. review potential opportunities for the use of biosolids on an ongoing basis.
4. communicate and engage with their communities (including iwi) on any changes to existing services, waste streams and recycling kerbside collections. This includes the ongoing review and development of waste education and minimisation programmes that engage with businesses and schools.
5. review workforce planning in relation to delivering waste management programmes.
6. work towards standardisation of waste management practices across Otago. This will help realise economies of scale that may be possible — particularly in relation to recyclables.

Conclusion

The Medical Officer of Health — Southern supports this Otago Waste Management Assessment and compliments Eunomia Research & Consulting Ltd for the thoroughness of their assessment.

The WMMP will need to show a clear direction/change in practice that demonstrates a more efficient use of resources and waste diversion.

We hope these comments assist with the development of the WMMP and look forward to seeing the Plan(s) finalised, resulting in further improvements in waste management across the region.

Ngā mihi

Dr Michael Butchard

Āpiha o te Hauora I Medical Officer of Health
Southern I Te Waipounamu I National Public Health Service

Otago Region Waste Assessment

A.2.0 Glossary of Terms

Class 1-5 facilities	Classification system for facilities where disposal to land takes place. The classification system is provided in appendix A.3.0 below for reference.
Cleanfill	A cleanfill (properly referred to as a Class 5 fill) is any disposal facility that accepts only cleanfill material. This is defined as material that, when buried, will have no adverse environmental effect on people or the environment.
C&D Waste	Waste generated from the construction or demolition of a building including the preparation and/or clearance of the property or site. This excludes materials such as clay, soil and rock when those materials are associated with infrastructure such as road construction and maintenance, but includes building-related infrastructure.
Diverted Material	Anything that is no longer required for its original purpose and, but for commercial or other waste minimisation activities, would be disposed of or discarded.
Domestic Waste	Waste from domestic activity in households.
ETS	Emissions Trading Scheme
ICI	Industrial, commercial, institutional
Landfill	A type of disposal facility as defined in S.7 of the Waste Minimisation Act 2008, excluding incineration. Includes, by definition in the WMA, only those facilities that accept 'household waste'. Also referred to as a Class 1 landfill.
LGA	Local Government Act 2002
Managed Fill	A Class 3 disposal site requiring a resource consent to accept well-defined types of non-household waste, e.g. low-level contaminated soils or industrial by-products, such as sewage by-products.
MfE	Ministry for the Environment
MRF	Materials recovery facility
NZ	New Zealand

Putrescible, garden, greenwaste	Plant based material and other bio-degradable material that can be recovered through composting, digestion or other similar processes.
RRP	Resource recovery park
RTS	Refuse transfer station
Service Delivery Review	As defined by s17A of the LGA 2002. Councils are required to review the cost-effectiveness of current arrangements for meeting the needs of communities within its district or region for good-quality local infrastructure, local public services, and performance of regulatory functions. A review under subsection (1) must consider options for the governance, funding, and delivery of infrastructure, services, and regulatory functions.
TA	Territorial authority (a city or district council)
TRP	Te rautaki para | New Zealand Waste Strategy
Waste	Means, according to the WMA: a) Anything disposed of or discarded, and b) Includes a type of waste that is defined by its composition or source (for example, organic waste, electronic waste, or construction and demolition waste); and c) To avoid doubt, includes any component or element of diverted material, if the component or element is disposed or or discarded.
WA	Waste Assessment as defined by s51 of the Waste Minimisation Act 2008. A Waste Assessment must be completed whenever a WMMP is reviewed
WMA	Waste Minimisation Act 2008
WMMP	A Waste Management and Minimisation Plan as defined by s43 of the Waste Minimisation Act 2008
WWTP	Wastewater treatment plant

A.3.0 Classifications for Disposal to Land

MfE have classified disposal and other waste facilities under two regulations, which enable the application of the disposal levy and the collection of data. Facilities had also previously been categorised according to the WasteMINZ 'Technical Guidelines for the Disposal of Waste to Land', and there are some slight variations between the two.

A.3.1 Technical Guidelines Definitions

Class 1 - Landfill

A Class 1 landfill is a site that accepts municipal solid waste. A Class 1 landfill generally also accepts C&D waste, some industrial wastes and contaminated soils. Class 1 landfills often use managed fill and clean fill materials they accept, as daily cover.

Class 1 landfills require:

- a rigorous assessment of siting constraints, considering all factors, but with achieving a high level of containment as a key aim;
- engineered environmental protection by way of a liner and leachate collection system, and an appropriate cap, all with appropriate redundancy; and
- landfill gas management.

A rigorous monitoring and reporting regime is required, along with stringent operational controls. Monitoring of accepted waste materials is required, as is monitoring of sediment runoff, surface water and groundwater quality, leachate quality and quantity, and landfill gas.

Waste acceptance criteria (WAC) comprises:

- municipal solid waste; and
- for potentially hazardous leachable contaminants, maximum chemical contaminant leachability limits (TCLP) from Module 2 Hazardous Waste Guidelines – Class A4.

WAC for potentially hazardous wastes and treated hazardous wastes are based on leachability criteria to ensure that leachate does not differ from that expected from non-hazardous municipal solid waste.

For Class 1 landfills, leachability testing should be completed to provide assurance that waste materials meet the WAC.

Class 2 Landfill

A Class 2 landfill is a site that accepts non-putrescible wastes including C&D wastes, inert industrial wastes, managed fill material and clean fill material. C&D waste can contain biodegradable and leachable components which can result in the production of leachate – thereby necessitating an increased level of environmental protection. Although not as strong as Class 1 landfill leachate, Class 2 landfill leachate is typically characterised by mildly acidic pH, and the presence of ammoniacal nitrogen and soluble metals, including heavy metals. Similarly, industrial wastes from some activities may generate leachates with chemical characteristics that are not necessarily organic.

Class 2 landfills should be sited in areas of appropriate geology, hydrogeology and surface hydrology. A site environmental assessment is required, as are an engineered liner, a leachate collection system, and groundwater and surface water monitoring. Additional engineered features such as leachate treatment may also be required.

Depending on the types and proportions of C&D wastes accepted, Class 2 landfills may generate minor to significant volumes of landfill gas and/or hydrogen sulphide. The necessity for a landfill gas collection system should be assessed.

Operational controls are required, as are monitoring of accepted waste materials, monitoring of sediment runoff, surface water and groundwater quality, and monitoring of leachate quality and quantity.

Waste acceptance criteria comprises:

- a list of acceptable materials; and
- • maximum ancillary biodegradable materials (e.g. vegetation) to be no more than 5% by volume per load; and
- • maximum chemical contaminant leachability limits (TCLP) for potentially hazardous leachable contaminants.

Class 3 Landfill – Managed/Controlled Fill

A Class 3 landfill accepts managed fill materials. These comprise predominantly clean fill materials, but may also include other inert materials and soils with chemical contaminants at concentrations greater than local natural background concentrations, but with specified maximum total concentrations.

Site ownership, location and transport distance are likely to be the predominant siting criteria. However, as contaminated materials (in accordance with specified limits) may be accepted, an environmental site assessment is required in respect of geology, stability, surface hydrology and topography.

Monitoring of accepted material is required, as are operational controls, and monitoring of sediment runoff and groundwater.

Waste acceptance criteria comprises:

- a list of acceptable solid materials; and

- maximum incidental or attached biodegradable materials (e.g. vegetation) to be no more than 2% by volume per load; and
- maximum chemical contaminant limits.

A Class 3 landfill does not include any form of engineered containment. Due to the nature of material received it has the potential to receive wastes that are above soil background levels. The WAC criteria for a Class 3 landfill are therefore the main means of controlling potential adverse effects.

For Class 3 landfills, total analyte concentrations should be determined to provide assurance that waste materials meet the WAC.

Class 4 Landfill – Controlled Fill

A Class 4 landfill accepts controlled fill materials. These comprise predominantly clean fill materials, but may also include other inert materials and soils with chemical contaminants at concentrations greater than local natural background concentrations, but with specified maximum total concentrations.

Site ownership, location and transport distance are likely to be the predominant siting criteria. However, as contaminated materials (in accordance with specified limits) may be accepted, an environmental site assessment is required in respect of geology, stability, surface hydrology and topography.

Monitoring of accepted material is required, as are operational controls, and monitoring of sediment runoff and groundwater.

Waste acceptance criteria comprises:

- a list of acceptable solid materials; and
- maximum incidental or attached biodegradable materials (e.g. vegetation) to be no more than 2% by volume per load; and
- maximum chemical contaminant limits.

A Class 4 landfill does not include any form of engineered containment. Due to the nature of material received it has the potential to receive wastes that are above soil background levels. The WAC criteria for a Class 4 landfill are therefore the main means of controlling potential adverse effects.

Class 5 – Landfill

A Class 5 landfill accepts only clean fill material. The principal control on contaminant discharges to the environment from Class 5 landfills is the waste acceptance criteria.

Stringent siting requirements to protect groundwater and surface water receptors are not required. Practical and commercial considerations such as site ownership, location and transport distance are likely to be the predominant siting criteria, rather than technical criteria.

Clean filling can generally take place on the existing natural or altered land without engineered environmental protection or the development of significant site

infrastructure. However, surface water controls may be required to manage sediment runoff.

Extensive characterisation of local geology and hydrogeology is not usually required.

Monitoring of both accepted material and sediment runoff is required, along with operational controls.

Waste acceptance criteria:

- virgin excavated natural materials (VENM), including soil, clay, gravel and rock; and
- maximum incidental inert manufactured materials (e.g. concrete, brick, tiles) to be no more than 5% by volume per load; and
- maximum incidental5 or attached biodegradable materials (e.g. vegetation) to be no more than 2% by volume per load; and
- maximum chemical contaminant limits are local natural background soil concentrations.

Materials disposed to a Class 5 landfill should pose no significant immediate or future risk to human health or the environment.

The WAC for a Class 5 landfill should render the site suitable for unencumbered potential future land use, i.e. future residential development or agricultural land use.

The WAC for a Class 5 landfill are based on the local background concentrations for inorganic elements, and provide for trace concentrations of a limited range of organic compounds.

Note: The Guidelines should be referred to directly for the full criteria and definitions.

A.3.2 Ministry for the Environment Classifications

The Ministry for the Environment have recently extended the payment of the landfill levy to a wider range of disposal facilities, and have also required reporting of data from 'cleanfills' and transfer stations. This has entailed two regulations – the first to extend the levy to other facilities[43] and the second to require data reporting from 'cleanfills' and transfer stations[44].

These regulations establish definitions for a range of disposal and other waste facilities beyond the Class 1 landfills that were captured by the landfill levy when it was first introduced.

---

[43] https://www.legislation.govt.nz/regulation/public/2021/0068/latest/LMS474556.html
[44] https://www.legislation.govt.nz/regulation/public/2021/0069/latest/whole.html

These are summarised in the table below:

Disposal facility class	Description	Types of waste not accepted	Examples of types of waste accepted
1 Municipal Disposal Facility	A facility, including a landfill: • where waste is disposed of • that operates, at least in part, as a business to dispose of waste • accepts waste that is or includes any one or more of the following: household waste waste from commercial or industrial sources waste from institutional sources (eg, hospitals, educational facilities and aged-care facilities) green waste (eg, degradable plant materials such as tree branches, leaves, grass, and other vegetation matter) waste that is not accepted at other disposal facilities in the WMA. It is not a: • class 2: construction and demolition disposal facility • class 3 and 4 managed or controlled fill disposal facility • an industrial monofill facility • a cleanfill facility.		Types of waste may include (but not limited to): • mixed municipal waste from residential, commercial and industrial sources • construction and demolition waste • contaminated soils • rocks, gravel, sand, clay • sludges • slurries • putrescible waste • green waste • biosolids • clinical waste • treated hazardous waste • incidental hazardous waste.
2 C&D Disposal	Accepts waste from construction and demolition activity It is not a: • class 3 and 4 managed or controlled fill disposal facility • an industrial monofil facility • a cleanfill facility.	Does not accept any of the following for disposal: • household waste • waste from commercial or industrial sources • waste from institutional sources (eg, hospitals, educational facilities, and aged-care facilities)	Mixed construction and demolition waste including: • rubble, plasterboard, treated and untreated timber • wood products,including softboard, hardboard, particle board, plywood, MDF, customwood, shingles, sawdust

Disposal facility class	Description	Types of waste not accepted	Examples of types of waste accepted
		• waste generated from a single industrial process (eg, steel or aluminium-making, or pulp and paper-making) carried out in one or more locations • Is not a class 3 and 4 managed or controlled fill facility	• concrete, including reinforced or crushed concrete blocks • clay products including pipes, tiles • asphalt (all types), and roading materials, including road sub-base • plasterboard and Gibraltar board • masonry, including bricks, pavers • metal, or products containing metals, including corrugated iron, steel, steel-coated tiles, wire, wire rope, wire netting, aluminium fittings • plastic products, including plastic bags, pipes, guttering, building wrap • insulation products • laminate products, including Formica • flooring products, including carpet and underlay, vinyl/linoleum, cork tiles • paper and cardboard products, including wallpaper, lining paper, building paper • site clearance and excavation materials including soils, clays, rocks, gravel, tree stumps

Disposal facility class	Description	Types of waste not accepted	Examples of types of waste accepted
3/4 Managed or Controlled Fill Disposal	Accepts any one of the following for disposal: • inert waste material from construction and demolition activities • inert waste material from earthworks or site remediation	Does not accept: • household waste • waste from commercial or industrial sources • waste from institutional sources (eg, hospitals, educational facilities, and aged-care facilities • waste generated from a single industrial process (eg, steel or aluminium-making, or pulp and paper-making) carried out in one or more locations • waste material from construction and demolition activity (except for inert waste material).	Types of waste may include (but not limited to): • lightly contaminated soil below applicable consent limits and inert construction and demolition materials, including: site facilities clearance and excavation materials including soils, clays, rocks, gravel, tree stumps masonry, including bricks and pavers clay products, including pipes, tiles concrete, including crushed concrete and blocks (for reinforced concrete, exposed reinforcing must be removed) asphalt (bitumen-based only) road sub-base.
5 Cleanfill	A facility that accepts only virgin excavated natural material (such as clay, soil, or rock) for disposal	Any materials other than virgin excavated natural materials (VENM)	VENM such as clay, soil and rock
Industrial monofill	A facility that accepts for disposal waste that: • discharges or could discharge contaminants or emissions • is generated from a single industrial process (eg, steel or aluminium-making, or pulp and paper-making) carried out in one or more locations.	• household waste • waste from commercial or institutional sources (eg, hospitals, educational facilities, and aged-care facilities) • waste not generated by a single industrial process.	Waste generated by industrial processes such as: • steel-making • aluminium-making • pulp and paper • oil exploration and extraction

Disposal facility class	Description	Types of waste not accepted	Examples of types of waste accepted
Transfer station	A facility: • that contains a designated receiving area where waste is received; and • from which waste or any material derived from that waste is: transferred to a final disposal site transferred elsewhere for further processing that does not itself provide long-term storage for waste or material derived from that waste.	N/A (no disposal of waste occurs)	N/A

A.4.0 National Legislative and Policy Context

A.4.1 The New Zealand Waste Strategy 2023

The New Zealand Waste Strategy 2023 provides the Government's strategic direction for waste management and minimisation in New Zealand. This strategy was released in 2023 and replaced the 2010 Waste Strategy.

The strategy aims to provide direction to central and local government, businesses (including the waste industry), and communities on where to focus their efforts to manage waste. It will be supported by an action and investment plan (AIP) which will be developed in consultation with local authories, the waste management sector, and others; and will set out priority actions required over the next five years. The 2023 strategy has a focus on achieving a more 'circular economy' for waste and sets out a multi-decade pathway towards this.

Under section 44 of the Waste Management Act 2008, in preparing their waste management and minimisation plan (WMMP) councils must have regard to the New Zealand Waste Strategy, or any government policy on waste management and minimisation that replaces the strategy. Guidance on how councils may achieve this is provided in section 4.4.3.

A copy of the current New Zealand Waste Strategy is available on the Ministry's website.

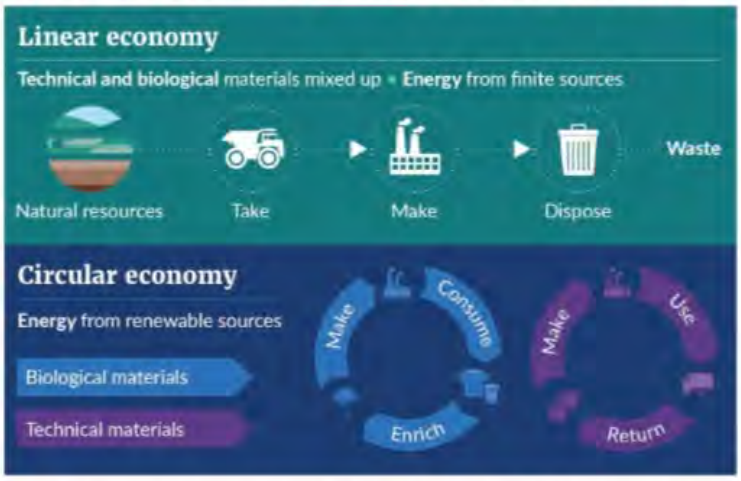
Sections of the new strategy are discussed here in more detail.

A.4.1.1 Circular Economy principles

The strategy includes some background on circular economy, including some summary figures that compare a linear economy to a circular economy, and a revised waste hierarchy. It also emphasises the role of te ao Māori in considering waste appraoches.

The figures mentioned above are shown here (with permission from MfE):

Figure 7: Characteristics of Linear and Circular Economies



Source: Te rautaki para | Waste Strategy (page 14), Ministry for the Environment 2023

The waste hierarchy is still a core principle guiding waste management and minimisation in New Zealand, but has been refined to more closely support and align with a circular economy approach.

Figure 8: Revised Waste Hierarchy

Source: Te rautaki para | Waste Strategy (page 14), Ministry for the Environment 2023

The strategy highlights several key facts that demonstrate New Zealand's relatively poor performance in waste management and minimisation:

- Emissions from waste produce 9% of New Zealand's biogenic methane emissions, and 4% of our total greenhouse gas emissions, with organic waste decomposing in landfills contributing 94% of these emissions.
- On average, nearly 700 kg of waste per capita goes to municipal landfills[45] annually – compared to the OECD average of 538 kg; and trends are for this to increase
- Domestic recovery infrastructure is limited, and exporting challenging due to our relative geographic isolation and distance from markets
- Lack of data relating to waste practices, significantly non-municipal landfills and diverted materials
- Historical management has been poor, with numerous legacy disposal sites around the country causing local environmental harm.

A.4.1.2 The Strategy

The direction of the strategy is important in many, very practical, ways; it provides a clear vision through to 2050, principles that support this vision, a phased approach with three clear stages, and targets to measure progress and encourage ambitious action.

Three key strategic issues are core to the strategy – domestic resource recovery and recycling, the role of waste to energy, and net zero emissions by 2050.

The vision is:

> *"By 2050, Aotearoa New Zealand is a low-emissions, low-waste society, built upon a circular economy.*
>
> *We cherish our inseparable connection with the natural environment and look after the planet's finite resources with care and responsibility."*

Six guiding principles are included.

A.4.1.3 A staged process

While the strategy has a view out to 2050, the work required to get there has been divided into three high level work stages:

1. 2022 – 30: embedding circular thinking into systems
2. 2030 – 40: expanding to make circular normal
3. 2040 – 50: Helping others do the same

Each stage has a number of goals, some of which are more relevant to TAs than others – Phase 1 is shown in the table below and has been addressed in the options list.

---

[45] 'municipal landfill', 'municipal solid waste landfill' 'sanitary landfill' and 'Class 1 landfill' are all terms that essentially refer to the same type of facility.

Phase 1 Goals – By 2030, our enabling systems are working well and behaviour is changing	
The building blocks are in place to enable change	
Strategic planning, regulatory, investment and engagement systems are in place and operating to drive and support change	TAs have a role in strategic planning at a local level (through WMMPs), which will both inform and be informed by the AIP TAs also have a role, albeit limited compared to the national role, to contribute through local bylaws and any local funding pools that are available TAs carry out local engagement and can support national campaigns
We have a comprehensive national network of facilities supporting the collection and circular management of products and materials	TAs will be well placed to understand what this means at a local level, and be able to drive and coordinate the development of a network approach
We all take responsibility for how we produce, manage, and dispose of things, and are accountable for our actions and their consequences	This is likely to be aimed mainly at personal responsibility – although TAs can encourage this attitude locally
Specific Priorities:	• Support the creation of national planning, regulatory and investment systems. • Consider how the timing and interactions of central government and local government waste planning could best be integrated, and communicate to MfE • Consider how to use waste levy funding to support the overall strategic framework of funding and investment, given the AIP context, direction and priorities – collaborate with other councils and with central government to a greater extent • Support the development of simple ways for central and local government to collaborate and work in partnership • Work with central government, the waste sector, and others to develop a shared view of what a 'comprehensive national network of facilities' looks like • Align overall direction and approach with this

	• The network needs to have nationwide coverage (significant for the Otago region), include a range of products and materials, and focus on circular management options where possible • Prioritise reducing greenhouse gas emissions • Ensure planning and consenting teams require new builds to have appropriate space for waste management, there is space for community facilities, and feed in to regional plans to ensure they provide for a 'coherent network' • Identify and work with community partners to extend services into hard-to-reach areas • Promote waste minimisation using long-term, evidence-based behaviour change programmes • Provide timely, accurate and clear information when creating additional obligations through bylaws or introducing new services •
More activity is circular and we produce less waste	
We use fewer products and materials, and using (sic) them for longer, by making them more durable, and repairing, reusing, sharing and repurposing them	As above, TAs have a detailed understanding of what is required to enable repair, reuse, sharing and repurposing at the local level
Resource recovery systems are operating effectively for core materials and across all regions	TAs will have a key role in developing and maintaining resource recovery systems at the local level. Regional and cross-regional collaboration will be needed to ensure these form part of a cohesive network.
We look for ways to recover any remaining value from residual waste, sustainably and without increasing emissions, before final disposal	TAs will need to consider any potential role for energy-from-waste technologies at the local and/or regional level – particularly those that operate landfills
Specific Priorities	• Support repair initiatives by, for example, making space in resource recovery centres or other community facilities • Think about how to cater for future reuse systems when developing infrastructure to support collection and processing of products and materials • Take responsibility for kerbside collection of household recycling and general waste

	• Find solutions to provide services to small towns and rural areas • Implement kerbside standardisation locally • Recover value from 'truly residual waste' without harming the environment • Consider the purpose, feedstock, processing and potential energy production of any 'waste to energy' methodology
Emissions and other environmental indicators are improving	
Emissions from waste are reducing in line with our domestic and international commitments	TAs will need to model and monitor emissions from their local activities – waste emissions are being considered at a regional level for the Otago region
Contaminated land is sustainably managed and remediated, to reduce waste and emissions and enhance the environment	TAs are responsible for the management of their closed landfills.
Specific Priorities	• Maximise the amount of organic waste being recycled into beneficial uses (composting and anerobic digestion are options) • Implement standardised kerbside collections locally for organic wastes (with support and education) • Fund and invest in infrastructure to collect, process, manage and recycle organic waste (food, garden and C&D organics) • Landfill gas capture at Class 1 facilities by the end of 2026 or cease accepting organic waste • Potentially implement landfill organics ban by 2030 at all Class 1 facilities • Address the management of 'vulnerable landfills' if any are identified that are council's responsibility that are not already included in a closed landfill management plan.

A.4.1.4 Targets

The strategy includes targets; although it is acknowledged that there currently isn't enough (or reliable enough) data to set an accurate baseline or monitor these fully.

TAs should consider these, however, when setting targets in their WMMPs as it would make sense for these metrics to be reflected in local target setting and monitoring. This will also provide more support to the process of monitoring these targets at a national level.

A.4.1.5 Strategic Planning Cycle

Many TAs are currently in the process of completing a Waste Assessment with a view to reviewing their WMMPs (if necessary) during the second half of 2023 so actions can be budgeted and included in 2024 LTPs. The current proposal is for the first of the MfE AIP to be out in 2024, and then a five year cycle to occur from there – so the second AIP will be due in 2029. This doesn't fit neatly with the local government planning cycle, particularly for the Otago region TAs which are all completing a Waste Assessment during 2023 (and therefore would need to repeat this process no later than 2029) .

It is not yet clear the extent to which local planning (through WMMPs) will be used to build, and be incorporated in, the AIPs. It is also not clear what the impact would be if the AIP included actions or investments that would require implementation at a local level, as is likely – and therefore may need to be included in WMMPs. Significant amendments to WMMPs do, of course, require that the full special consultative process is completed again.

The question then arises as to how TAs handle the situation where they are required, through regulation or through implementation of national AIPs and to take advantage of specific focuses for funding opportunities, to implement actions that their local communities have not had the opportunity to comment on fully through consultation.

The figure below attempts to align and show the interactions between the central and local government waste planning cycles.

Figure 9: Central and Local Government Waste Planning

A.4.1.6 Summary

The direction of the New Zealand Waste Strategy, the supporting goals, and the proposed targets all have clear implications for the future direction of waste disposal facilities in this country.

- The overall direction of the Waste Strategy is towards a circular economy, which is not supported by a landfill disposal-based linear system;
- there are specific actions relating to reducing a wide range of waste streams, and specifically and particularly organic waste – in concert with work to reduce emissions. This could extend to a ban on organic waste going to landfill; and
- the targets focus on reducing waste generation and waste disposal by 2030 – by quite significant proportions.

The overall tone of the strategic direction is not in support of continued or extended disposal of waste; and particularly not organic wastes.

A.4.2 Waste Minimisation Act 2008

The purpose of the Waste Minimisation Act 2008 (WMA) is to encourage waste minimisation and a decrease in waste disposal to protect the environment from harm and obtain environmental, economic, social and cultural benefits.

The WMA introduced tools, including:

- waste management and minimisation plan obligations for territorial authorities
- a waste disposal levy to fund waste minimisation initiatives at local and central government levels
- product stewardship provisions.

Part 4 of the WMA is dedicated to the responsibilities of a council, in that it "must promote effective and efficient waste management and minimisation within its district" (section 42).

To meet this requirement, councils are required to develop and adopt a WMMP. The development of a WMMP in the WMA is a requirement modified from Part 31 of the Local Government Act 1974, but with even greater emphasis on waste minimisation.

To support the implementation of a WMMP, section 56 of the WMA also provides councils the ability to:

- develop bylaws
- regulate the deposit, collection and transportation of wastes
- prescribe charges for waste facilities
- control access to waste facilities
- prohibit the removal of waste intended for recycling.

A number of specific clauses in Part 4 relate to the WMMP process. It is essential that those involved in developing a WMMP read and are familiar with the WMA and Part 4 in particular.

The Waste Minimisation Act 2008 (WMA) provides a regulatory framework for waste minimisation that had previously been based on largely voluntary initiatives and the involvement of territorial authorities under previous legislation, including Local Government Act 1974, Local Government Amendment Act (No 4) 1996, and Local Government Act 2002. The purpose of the WMA is to encourage a reduction in the amount of waste disposed of in New Zealand.

In summary, the WMA:

- Clarifies the roles and responsibilities of territorial authorities with respect to waste minimisation e.g. updating Waste Management and Minimisation Plans (WMMPs) and collecting/administering levy funding for waste minimisation projects.

- Requires that a Territorial Authority promote effective and efficient waste management and minimisation within its district (Section 42).
- Requires that when preparing a WMMP a Territorial Authority must consider the following methods of waste management and minimisation in the following order of importance:
    - Reduction
    - Reuse
    - Recycling
    - Recovery
    - Treatment
    - Disposal
    - Put a levy on all waste disposed of in a landfill.
    - Allows for mandatory and accredited voluntary product stewardship schemes.
    - Allows for regulations to be made making it mandatory for certain groups (for example, landfill operators) to report on waste to improve information on waste minimisation.
    - Establishes the Waste Advisory Board to give independent advice to the Minister for the Environment on waste minimisation issues.

Various other aspects of the Waste Minimisation Act are discussed in more detail below.

A.4.3 Waste Levy

The waste levy originally came in to effect from 1st July 2009, adding $10 per tonne to the cost of landfill disposal at sites which accept household solid waste (essentially Class 1 disposal facilities). The levy has two purposes, which are set out in the Act:

- to raise revenue for promoting and achieving waste minimisation
- to increase the cost of waste disposal to recognise that disposal imposes costs on the environment, society and the economy.

This levy is collected and managed by the Ministry for the Environment (MfE) who distribute half of the revenue collected to territorial authorities (TA) on a population basis to be spent on promoting or achieving waste minimisation as set out in their WMMPs. The other half is retained by the MfE and managed by them as a central contestable fund for waste minimisation initiatives (the Waste Minimisation Fund).

In April 2021, the government introduced regulation to expand the scope of the levy from Class 1 landfills to also include classes 2-4.[46]

The table below shows the timetable and rates for the new levy regime:

Figure 10: Levy Rates by Fill Type and Year

LANDFILL CLASS	1-Jul-21	1-Jul-22	1-Jul-23	1-Jul-24
Municipal landfill (class 1)	$20	$30	$50	$60
Construction and demolition fill (class 2)		$20	$20	$30
Managed fill (class 3)			$10	$10
Controlled fill (class 4)			$10	$10

https://www.mfe.govt.nz/waste/waste-and-government

As the landfill levy is expanded and raised, there will be an impact on the quantity of material going to the different destinations; however, the extent to which this occurs, and for which materials, depends on a number of other factors.

One impact that has been noted in some areas of New Zealand, for example, is operators choosing to close rather than add the landfill levy to their gate fee, and undertake the administrative task of monitoring waste quantities to the extent required by the online waste levy system (OWLS). Some of these facilities don't have weighbridges in place and instead base their charges on volume estimates. To report to the OWLS, these facilities then need to translate volumes to weights, and it is on this basis that their landfill levy obligations are calculated. Therefore, any variances in conversion rates between volume and weight could result in an over- or under-calculation of the required landfill levy at the gate.

A.4.4 Product Stewardship

Under the Waste Minimisation Act 2008, if the Minister for the Environment declares a product to be a priority product, a product stewardship scheme must be developed and accredited to ensure effective reduction, reuse, recycling or recovery of the product and to manage any environmental harm arising from the product when it becomes waste.[47]

---

[46] https://www.legislation.govt.nz/regulation/public/2021/0069/latest/whole.html
[47] Waste Management Act 2008 2(8)

The following voluntary product stewardship schemes have been accredited by the Minister for the Environment:[48]

- Agrecovery rural recycling programme
- Envirocon product stewardship
- Fonterra Milk for Schools Recycling Programme
- Fuji Xerox Zero Landfill Scheme
- Holcim Geocycle Used Oil Recovery Programme (no longer operating)
- Interface ReEntry Programme
- Kimberly Clark NZ's Envirocomp Product Stewardship Scheme for Sanitary Hygiene Products
- Plasback
- Public Place Recycling Scheme
- Recovering of Oil Saves the Environment (R.O.S.E. NZ)
- Refrigerant recovery scheme
- RE:MOBILE
- Resene PaintWise
- The Glass Packaging Forum

Further details on each of the above schemes are available on: http://www.mfe.govt.nz/waste/product-stewardship/accredited-voluntary-schemes

The first six priority products were named under the WMA in 2020 (shown below) and subsequently single-use packaging has been added. The first seven priority products named are:

1. Plastic packaging
2. Tyres
3. Electrical and electronic products (e-waste including large batteries)
4. Agrichemicals and their containers
5. Refrigerants
6. Farm plastics
7. Single-use plastic packaging
8. MfE has taken a 'co-design' approach, which involves industry developing and operating product stewardship schemes with central government oversight. Progress on the schemes, and parties involved, are summarised below.

[48] http://www.mfe.govt.nz/waste/product-stewardship/accredited-voluntary-schemes

Priority product	Progress made	Lead agency/ies
Tyres	Consultation on proposed regulations late 2021 Scheme accredited October 2022 Regulation in effect from late 2023	Tyrewise
Large batteries	Consultation on proposed regulations late 2021 Accreditation expected late 2023 Regulation in effect from 2024	Battery Industry Group
Refrigerants (and other synthetic greenhouse gases)	Consultation on regulations in late 2022 Scheme accreditation mid 2023 Regulation in effect from 2024	Synthetic Refrigerant Stewardship group
Farm plastics, agrichemicals and containers (farm waste)	Consultation on regulations planned late 2023	The Agrecovery Foundation
Electrical and electronic products (e-waste)	Scheme design in 2023 Consultation on regulations in 2024	TechCollect
Plastic packaging	Co-design underway	Packaging Forum and Food & Grocery Council

A.4.5 Waste Minimisation Fund

The Waste Minimisation Fund has been set up by the Ministry for the Environment to help fund waste minimisation projects and to improve New Zealand's waste minimisation performance through:

- Investment in infrastructure;
- Investment in waste minimisation systems and
- Increasing educational and promotional capacity.

Criteria for the Waste Minimisation Fund have been published:

1. Only waste minimisation projects are eligible for funding. Projects must promote or achieve waste minimisation. Waste minimisation covers the reduction of waste and the

reuse, recycling and recovery of waste and diverted material. The scope of the fund includes educational projects that promote waste minimisation activity.

2. Projects must result in new waste minimisation activity, either by implementing new initiatives or a significant expansion in the scope or coverage of existing activities.

3. Funding is not for the ongoing financial support of existing activities, nor is it for the running costs of the existing activities of organisations, individuals, councils or firms.

4. Projects should be for a discrete timeframe of up to three years, after which the project objectives will have been achieved and, where appropriate, the initiative will become self-funding.

5. Funding can be for operational or capital expenditure required to undertake a project.

6. For projects where alternative, more suitable, Government funding streams are available (such as the Sustainable Management Fund, the Contaminated Sites Remediation Fund, or research funding from the Foundation for Research, Science and Technology), applicants should apply to these funding sources before applying to the Waste Minimisation Fund.

7. The applicant must be a legal entity.

8. The fund will not cover the entire cost of the project. Applicants will need part funding from other sources.

9. The minimum grant for feasibility studies will be $10,000.00. The minimum grant for other projects will be $50,000.00.

Application assessment criteria have also been published by the Ministry.

The current funding round opened in October 2022 and will consider applications as they are received, and will agree to fund successful applications until funds are exhausted.

A.4.6 Local Government Act 2002

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

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

More information on the LGA can be found at ww.dia.govt.nz/better-local-government.

A.4.6.1 Section 17A Review

Local authorities are now under an obligation to review the cost-effectiveness of current arrangements for meeting community needs for good quality infrastructure, local public services and local regulation. Where a review is undertaken local authorities must consider options for the governance, funding and delivery of infrastructure, local public services and local regulation that include, but are not limited to:

a) in-house delivery
b) delivery by a CCO, whether wholly owned by the local authority, or a CCO where the local authority is a part owner
c) another local authority
d) another person or agency (for example central government, a private sector organisation or a community group).

Local authorities had three years from 8 August 2014 to complete the first review of each service i.e. they must have completed a first review of all their services by 7 August 2017 (unless something happened to trigger a review before then).

Other than completion by the above deadline, there are two statutory triggers for a section 17A review:

- The first occurs when a local authority is considering a significant change to a level of service
- The second occurs where a contract or other binding agreement is within two years of expiration.

Once conducted, a section 17A review has a statutory life of up to six years. Each service must be reviewed at least once every six years unless one of the other events that trigger a review comes into effect.

While the WMMP process is wider in scope – considering all waste service provision in the local authority area – and generally taking a longer term, more strategic approach, there is substantial crossover between the section 17A requirements and those of the WMMP process, in particular in relation to local authority service provision. The S17A review may however take a deeper approach go into more detail in consideration of how services are to be delivered, looking particularly at financial aspects to a level that are not required under the WMMP process.

Because of the level of crossover however it makes sense to undertake the S17A review and the WMMP process in an iterative manner. The WMMP process should set the strategic direction and gather detailed information that can inform both processes. Conversely the consideration of options under the s17A process can inform the content of the WMMP – in particular what is contained in the action plans.

A.4.7 Resource Management Act 1991

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

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

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

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

In addition, the RMA provides for the development of national policy statements and for the setting of national environmental standards (NES). There are currently two enacted NESs that directly influence the management of waste in New Zealand:

6) The Resource Management (National Environmental Standards for Air Quality) Regulations 2004; this NES requires certain landfills (e.g., those with a capacity of more than 1 million tonnes of waste) to collect landfill gases and either flare them or use them as fuel for generating electricity. Unless exemption criteria are met, the NES for Air Quality also prohibits the lighting of fires and burning of wastes at landfills, the burning of tyres, bitumen burning for road maintenance, burning coated wire or oil, and operating high-temperature hazardous waste incinerators. These prohibitions aim to protect air quality.
7) The Resource Management (National Environmental Standards for Storing Tyres Outdoors) Regulations 2021; this NES provides nationally consistent rules for the responsible storage of tyres.

The implementation of the National Policy Statement for Freshwater Management[49] may reduce the application rates of some organic wastes to land, which is currently a low cost management option for wastes such as effluent. This may increase the quantities of these organic materials that will be available for processing, which would then impact on the types of materials requiring processing, the technologies best suited to these material mixes, and the markets for the end product.

The RMA is currently subject to extensive reform, which will entail repealing the RMA and replacing it with three separate pieces of legislation:

8) National and Built Environments Act;
9) Spatial Planning Act; and
10) Climate Adaptation Act.

It is likely that this reform process will be completed before the end of 2023.

A.4.8 New Zealand Emissions Trading Scheme

The Climate Change Response Act 2002 and associated regulations is currently the Government's principal response to manage climate change. A key mechanism for this is the New Zealand Emissions Trading Scheme (NZ ETS). The NZ ETS puts a price on greenhouse gas emissions, providing an incentive for people to reduce emissions and plant forests to absorb carbon dioxide. Certain sectors are required to acquire and surrender emission units to account for their direct greenhouse gas emissions or the emissions associated with their products. Landfills that are subject to the waste disposal levy are required to surrender emission units to cover methane emissions generated from landfill. These disposal facilities are required to report the tonnages landfilled annually to calculate emissions (this is separately to the tonnages required to be reported for the landfill levy, through the OWLS).

The NZ ETS was introduced in 2010 and, from 2013, landfills have been required to surrender 'New Zealand emissions units' or NZUs for each tonne of CO_2 (equivalent) that they produce. Until around 2017, however, the impact of the NZETS on disposal prices was limited. There were a number of reasons for this:

- The global price of carbon crashed during the GFC in 2007-8 and was slow to recover in the following years. Prior to the crash it was trading at around $20 per tonne. The price had been as low as $2, although in June 2015, the Government moved to no longer accept international units in NZETS and the NZU price increased markedly. NZUs[50] currently change hands for between $70 and $85, with prices at $74.40 at the time of writing[51].

[49] https://environment.govt.nz/publications/national-policy-statement-for-freshwater-management-2020/
[50] NZUs are carbon credits that are officially accepted to offset liabilities under the NZETS
[51] According to carbon prices on www.carbonforestservices.co.nz and https://www.carbonmatch.co.nz/

- The transitional provisions of the Climate Change Response Act, which were extended in 2013 but have now been reviewed, meant that landfills only had to surrender half the number of units they would be required to otherwise. These transitional provisions were removed in January 2017, effectively and immediately doubling the price per tonne impact of the ETS.
- Landfills are allowed to apply for 'a methane capture and destruction unique emissions factor (UEF)'. This means that if landfills have a gas collection system in place and flare or otherwise use the gas (and turn it from methane, CH_4 into carbon dioxide, CO_2) they can reduce their liabilities in proportion to how much gas they capture. Up to 90% capture and destruction is allowed to be claimed under the regulations, with large facilities applying for UEF's at the upper end of the range.

Taken together (a low price of carbon, only two-for-one surrender required, and methane destruction of 80-90%) the actual cost of compliance with the NZETS had been small for most landfills – particularly those that were able to claim high rates of gas capture. Disposal facilities typically imposed charges (in the order of $5 per tonne) to their customers, but these charges mostly reflected the costs of scheme administration, compliance, and hedging against risk rather than the actual cost of carbon.

The way the scheme has been structured has also resulted in some inconsistencies in the way it is applied – for example class 2-5 landfills and closed landfills do not have any liabilities under the scheme. Further, the default waste composition (rather than a SWAP) can be used to calculate the theoretical gas production, which means landfill owners have an incentive to import biodegradable waste, which then increases gas production and which can then be captured and offset against ETS liabilities.

Recently, however the scheme has had a greater impact on the cost of landfilling, and this is expected to continue in the medium term. Many small landfills which do not capture and destroy methane are now beginning to pay a more substantial cost of compliance. The ability of landfills with high rates of gas capture and destruction to buffer the impact of the ETS will mean a widening cost advantage for them relative to those without such ability. This appears to be putting further pressure on small (predominantly Council-owned) facilities and will drive further tonnage towards the large regional facilities (predominantly privately owned).

For example, with a price of carbon at $75 per tonne, the liability for a landfill without gas capture will be $68.25 (based on a DEF of 0.91 tonnes of CO_2e per tonne of waste), whereas for a landfill claiming 90% gas capture (the maximum allowed under the scheme), the liability will be only $6.83. This type of price differential will mean it will become increasingly cost competitive to transport waste larger distances to the large regional landfills.

More information is available at www.climatechange.govt.nz/emissions-trading-scheme.

A.4.9 Litter Act 1979

Under the Litter Act[52] it is an offence for any person or body corporate to deposit or leave litter:

- in or on any public place; or
- in or on any private land without the consent of its occupier.

The Act enables Council to appoint Litter Officers with powers to enforce the provisions of the legislation.

The legislative definition of the term "litter" is wide and includes 'refuse, rubbish, animal remains, glass, metal, garbage, debris, dirt, filth, rubble, ballast, stones, earth, waste matter or other thing of a like nature'.

Any person who commits an offence under the Act is liable to:

- An instant fine of $400 imposed by the issue of an infringement notice; or a fine not exceeding $5,000 in the case of an individual or $20,000 for a body corporate upon conviction in a District Court.
- A term of imprisonment where the litter is of a nature that it may endanger, cause physical injury, disease or infection to any person coming into contact with it.

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

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

Council powers under the Litter Act could be used to address illegal dumping issues that may be included in the scope of a council's waste management and minimisation plan.

The Litter Act may be reviewed alongside the review of the Waste Minimisation Act.

A.4.10 Health Act 1956

The Health Act 1956 places obligations on TAs to provide sanitary works for the collection and disposal of refuse, for the purpose of public health protection (Part 2 – powers and duties of local authorities, section 25). Where the Ministry of Health

[52] https://www.legislation.govt.nz/act/public/1979/0041/latest/DLM33082.html

considers that a local authority is not taking the necessary action to meet these obligations and protect public health, it can require a local authority to do so.

It specifically identifies certain waste management practices as nuisances (S 29) and offensive trades (Third Schedule) and section 23 directs every local authority to improve, promote, and protect public health by inspecting its district regularly to identify any nuisance or condition likely to be offensive or harm human health. If any issues are noted, the local authority should take steps to rectify the situation. Improperly managed waste would be considered a nuisance. Section 34 enables councils to abate nuisances without notice and recover costs.

Section 54 places restrictions on carrying out an offensive trade and requires that the local authority and medical officer of health must give written consent and can impose conditions on the operation. The local authority's responsibilities under section 54 only applies where resource consent has not been granted under the RMA (i.e., no need to give written consent twice). Local authorities should seek to coordinate with their local public health unit where offensive trades are being established, such as refuse collection and other waste treatment practices.

The Health Act enables TAs to raise loans for certain sanitary works and/or to receive government grants and subsidies, where available.[53] It also means that where TAs incur costs in meeting their responsibilities to abate nuisances by (for example) removing refuse that is likely to harm public health, the TA can seek payment of these costs.

Health Act provisions to remove refuse by local authorities have been repealed.

A.4.11 Hazardous Substances and New Organisms Act 1996 (HSNO Act)

The HSNO Act addresses the management of substances (including their disposal) that pose a significant risk to the environment and/or human health. The Act relates to waste management primarily through controls on the import or manufacture of new hazardous materials and the handling and disposal of hazardous substances.

Depending on the amount of a hazardous substance on site, the HSNO Act sets out requirements for material storage, staff training and certification. These requirements would need to be addressed within operational and health and safety plans for waste facilities. Hazardous substances commonly managed by TAs include used oil, household chemicals, asbestos, agrichemicals, LPG and batteries.

The HSNO Act provides minimum national standards that may apply to the disposal of a hazardous substance. However, under the RMA a regional council or TA may set more

[53] From: MfE 2009: Waste Management and Minimisation Planning, Guidance for Territorial Authorities.

stringent controls relating to the use of land for storing, using, disposing of or transporting hazardous substances.[54]

A.4.12 Health and Safety at Work Act 201555

The new Health and Safety at Work Act, passed in September 2015 replaces the Health and Safety in Employment Act 1992. The bulk of the Act came into force from 4 April 2016.

The Health and Safety at Work Act introduces the concept of a Person Conducting a Business or Undertaking, known as a PCBU. The Council will have a role to play as a PCBU for waste services and facilities.

The primary duty of care requires all PCBUs to ensure, so far as is reasonably practicable:

11) the health and safety of workers employed or engaged or caused to be employed or engaged, by the PCBU or those workers who are influenced or directed by the PCBU (for example workers and contractors)
12) that the health and safety of other people is not put at risk from work carried out as part of the conduct of the business or undertaking (for example visitors and customers).

The PCBU's specific obligations, so far as is reasonably practicable:

- providing and maintaining a work environment, plant and systems of work that are without risks to health and safety
- ensuring the safe use, handling and storage of plant, structures and substances
- providing adequate facilities at work for the welfare of workers, including ensuring access to those facilities
- providing information, training, instruction or supervision necessary to protect workers and others from risks to their health and safety
- monitoring the health of workers and the conditions at the workplace for the purpose of preventing illness or injury.

A key feature of the new legislation is that cost should no longer be a major consideration in determining the safest course of action that must be taken.

WorkSafe NZ is New Zealand's workplace health and safety regulator. WorkSafe NZ will provide further guidance on the new Act after it is passed.

---

[54] From: MfE 2009: Waste Management and Minimisation Planning, Guidance for Territorial Authorities.
[55] http://www.legislation.govt.nz/act/public/2015/0070/latest/DLM5976660.html#DLM6564701

A.4.13 Other legislation

Other legislation that relates to waste management and/or reduction of harm, or improved resource efficiency from waste products includes:

- Biosecurity Act 1993
- Radiation Protection Act 1965
- Ozone Layer Protection Act 1996
- Agricultural Chemicals and Veterinary Medicines Act 1997.

For full text copies of the legislation listed above see www.legislation.govt.nz.

A.4.14 International commitments

New Zealand is party to international agreements that have an influence on the requirements of our domestic legislation for waste minimisation and disposal. Some key agreements are the:

- Montreal Protocol
- Basel Convention
- Stockholm Convention
- Waigani Convention
- Minamata Convention.

More information on these international agreements can be found on the Ministry's website at www.mfe.govt.nz/more/international-environmental-agreements.

A.5.0 A Circular Resource Recovery Network

Historically, our economic system has operated primarily on the basis of linear processes. This system involves extraction, processing, manufacturing, consumption and disposal (end-of-life). This system is not sustainable as it involves systematically using up non-renewable raw materials (such as minerals and fossil fuels) and degrading the natural environment, which is necessary to support life, through unsustainable agricultural and extractive activities (such as logging of native forests), and the creation of waste and pollution. To address this, a paradigm shift is needed. This requires a change in how the economic system produces, assembles, sells and uses products in order to minimise waste and maximise the value of materials in use. The circular economy is a model that enables resources to be kept in use for as long as possible, extract maximum value from them, and then recover and regenerate materials at end-of-life.

Within the context of enabling a circular economy, it is proposed to re-organise how the recovery of materials in the economy occurs by establish a **'circular resource network'**.

The key organising principle behind the concept of a circular resource network is that the resource recovery system should be consciously designed to facilitate the circular flow of materials through the economy, by 'completing the circle'. To date, the 'reverse logistics' aspect of the economy that is responsible for collecting widely dispersed and mixed materials has been a poor relation to the 'logistics' part of the economy that is responsible for the dispersion.

The following subsections expand on what a circular resource network concept that is designed for the circular economy could entail. The circular resource network concept borrows from and builds on the existing concept of a resource recovery network (RRN).

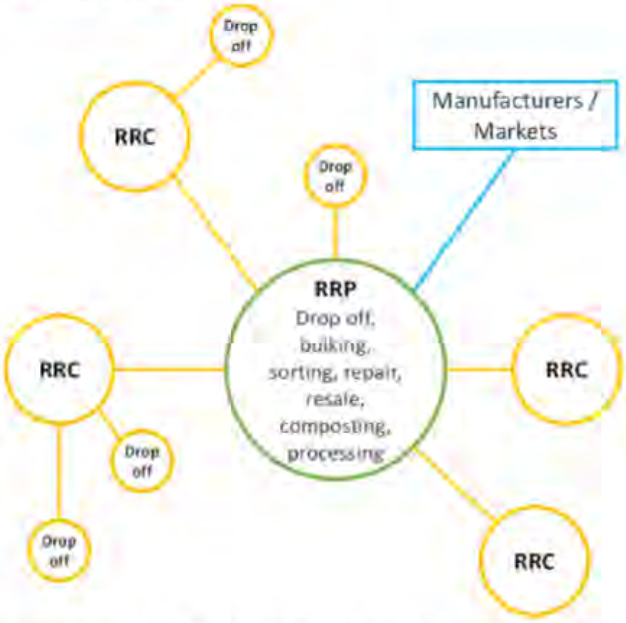
A.5.1 Conventional Resource Recovery Network (RRN)

The concept of a RRN is a longstanding one with various examples including Auckland Council working to develop a network of community run facilities in partnership with the Zero Waste Network[56], the development of a Māori and Pasifika Eco Park, in South Auckland[57], and Selwyn District Council recently announcing their resource recovery park concept[58].

[56] https://www.makethemostofwaste.co.nz/resource-recovery-network/
[57] https://www.stuff.co.nz/business/126810349/the-1-billion-plan-to-lift-mori-and-pasifika-prosperity-in-aucklands-south-and-west
[58] https://www.selwyn.govt.nz/services/rubbish,-recycling-And-organics/recovery-park/reconnect-project

These examples (which have different approaches) can be expanded into a nationwide state of the art network of resource recovery parks (RRPs) which consist of linked (sub) regional hubs, with smaller satellite facilities (resource recovery centres or RRCs) feeding recovered materials into the hub for processing and sale. These potentially can be further supplemented by local drop off sites that feed the satellite facilities. This concept is illustrated in the figure below.

Figure 11: Network of Resource Recovery Centres Linked to Resource Recovery Parks



The functions that are performed by the RRP consolidate a range of resource recovery functions into a single site. The intent is both to provide a 'one stop shop', but also to take advantage of economies of scale and sharing of infrastructure, services, and overheads, and optimising transport of materials to reduce costs. Furthermore, by co-locating functions there can arise the possibility of synergies between the different functions. For example, reclaimed timber and building materials can provide materials for a 'Community Shed' type operation[59], or items salvaged from the waste stream can be sold at low cost to the public. The proposed form of a resource recovery network is

[59] https://menzshed.org.nz/about-us/what-is-a-shed/

to have a series of sites with physically co-located functions, and for these to be operated by or overseen by a single entity.

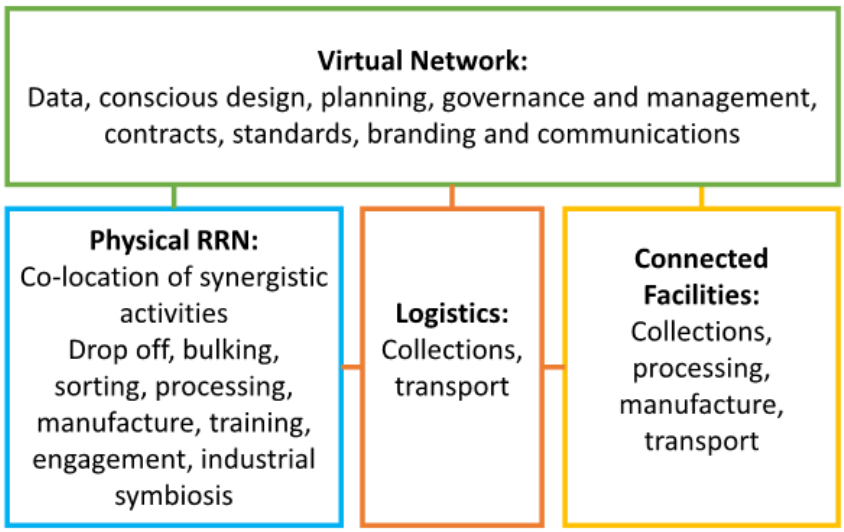
A.5.2 Expanding the Resource Recovery Network

While the conventional concept of a resource recovery network has much to recommend it, in our view there is potential to evolve it further to create the core functionality needed to enable the circular economy.

It is proposed to evolve the concept of physical co-location of synergistic activities to encompass a virtual and holistic network of sites, some co-located (where this provides efficiency gains, and is practical), but also including other sites that may be physically stand-alone sites, but which are connected to the circular resource network. The method of connection would be through supplying and receiving material, utilising network transport arrangements, operating to agreed performance standards, utilising standardised signage and specifications, providing and receiving data, and being linked through virtual directories.

A physical network of sites and logistic can be replicated virtually in an information management system. A nation-wide virtual circular resource network could, eventually, track and/or manage the flow or materials through the entire resource recovery sector in Aotearoa, and enable the optimisation of infrastructure, logistics, and services. Underpinning the virtual network is a physical network of sites and facilities that operate to agreed standards (akin to the traditional RRN concept), supplemented by standalone sites that are connected to the network. Connecting the physical network and standalone sites is a highly efficient, flexible, and low-carbon logistics network. The high-level structure of the network is illustrated in the figure below:

Figure 12: Circular Recovery Aotearoa High-Level Structure



A.5.2.1 Spatial Representation

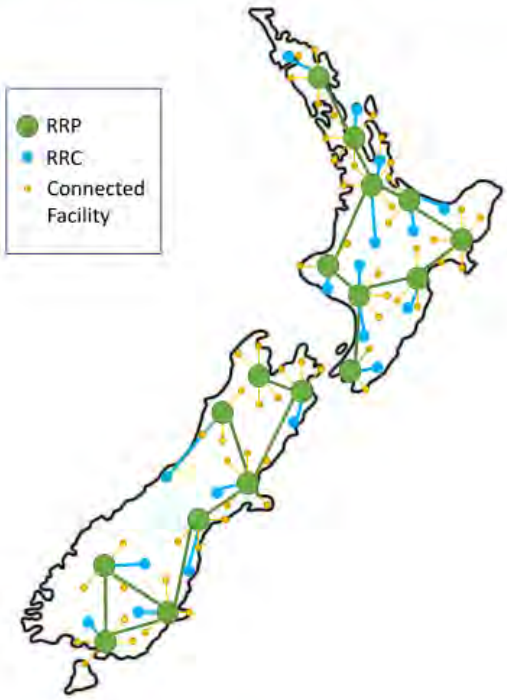
Figure 13 below shows a high-level visual representation of a national resource recovery network.

The large green dots represent regional RRPs that consolidate and process material at a regional level. Depending on the material stream, materials could also be transported between the regional hubs (for example glass being consolidated in Christchurch for shipping to Auckland for manufacture). Regional hubs could also specialise in processing certain materials and swap materials accordingly.

The mid-sized blue dots represent local RRCs that accept a full range of materials and send to the regional RRPs for bulking (or to 'connected facilities' for local processing). Not shown are smaller drop-off sites.

The small yellow dots represent the potentially hundreds of facilities that are not co-located at an RRP or RRC but are linked and operate to the standards of the network. These facilities could accept materials from the RRP or RRC for processing, or supply materials to these sites.

Figure 13: Concept Map of Circular Resource Network

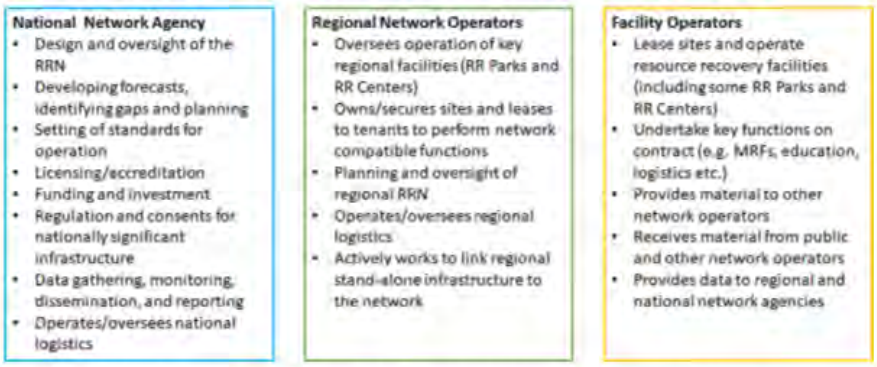


A.5.2.2 Virtual Network

The core of the concept is that the reverse logistics system is actively planned and optimised to 'close the circle' and enable a circular economy. This requires planning, analysis, and data gathering and analysis functions, alongside the active ongoing management of material flows. This is what is covered by the 'virtual network' element.

The roles of the key organisations involved in the circular resource network are shown in the figure below:

Figure 14: Key Agents and Roles in the Resource Recovery Network



A digital model could be developed of the key material flows within the resource recovery sector (ideally this would ultimately encompass a mass balance of materials through the economy, although this is likely to be more difficult to achieve and therefore a more long-term aspiration).

By digitally mapping material flows nationally, across both core facilities and connected facilities, potential gaps and issues could be quickly identified and planning undertaken to ensure the system remains optimised and is resilient and adaptive in the face of change.

The digital model would include current material flows and allow for projections and modelling of new facilities, changes to material types and quantities, logistics etc. This would enable the potential impact of new facilities and options to be investigated before implementation.

The core of the circular resource network is the establishment of a set of standards of operation that all facilities that form part of the circular resource network operate to. These standards would apply to both operations co-located at an RRP or RRC, as well as connected facilities. In this regard what is proposed is similar to a franchise model: as well as designing the overall system the government (or its agents) set the basis by which the circular resource network would function.

A.5.2.3 Physical RRN – Structure

The 'Physical RRN' is the aspect of the system that is most recognisable interface of the network. A national network could be made up of regional nodes (circular resource networks) that are linked but that can operate as independent regional entities.[60] This

[60] For the purposes of this exercise, it should be assumed that 'regional' broadly corresponds to current regional council and unitary council boundaries.

would enable planning with a national perspective (as noted above) but empower the governance and management at a regional level to enable agile response to regional and local requirements. It should be noted, however, that there could be a number of different models.

The role at a regional level is primarily:

- Site ownership, management, development, and leasing.
- Operating region-wide logistics to consolidate materials from RRCs and Connected Facilities at the regional RRP for bulking, sorting, processing and bulk transport or local manufacture.
- Overseeing and applying the operating standards for the network
- Advocating for the development of the network and working with operators and stakeholders to facilitate its continued development.
- Promotion and communication with users.

Regional networks would operate to national standards that include the following (as noted above):

- Branding and communications
- Core materials accepted and material acceptance criteria
- Output material quality standards and contamination levels (referencing existing market specifications or official standards where appropriate)
- Customer service levels
- Appropriate employment conditions
- Standard contracts and agreements for supply of services, provision or sale of materials, leases etc.
- Access to and participation in online marketplaces for recovered materials generated by network participants.

The regional network operators in turn would be responsible for applying and enforcing these standards for local and connected facilities.

A.5.2.4 RRPs – Regional Hubs

The heart of a regional network consists of one or two large RRPs, where a range of key functions are co-located. The purpose of the RRP is to provide a 'hub' for the efficient regional consolidation of a wide range of materials collected at the RRC and Connected Facilities, as well as those that may be collected at the RRP itself.

The core of the concept is to have regional consolidation of materials and provide a hub for the regional network. In addition, these sites could provide a 'flagship' centre with a full range of services for drop-off and community engagement etc.

The RRP all can have different mixes of facilities depending on local requirements. The logistics and flagship public facing operations could be co-located or at different sites depending on local situations.

Typical facilities may include:

- Material recovery facilities for sorting of collected comingled materials.
- Anaerobic digestion facilities to process putrescible wastes and generate biogas that is used to fuel the regional logistics collection fleet.
- Logistics sorting centre for managing the inputs and outputs of a range of facilities.
- Construction and demolition waste sorting facility
- Wash plants and fleet management facilities for reusable containers
- Regional consolidation and logistics for a range of product stewardship schemes such as:
  - E-waste dismantling and processing operations.
  - Used large battery (EV and stationary storage) assessment and consolidation centres.
  - Farm plastics and agrichemical containers
  - Tyres
  - Mattresses
- Education centre
- Reuse stores/mall
- Food rescue
- Repair hubs
- Manufacturing businesses utilising recovered materials. In some instances, these businesses are co-located to utilise others' discarded materials and surplus process heat, with ongoing work to develop industrial symbiosis models.
- Research on material reuse/recovery
- Drop off facilities for a full range of materials.

A.5.2.5 Local RR Centres

While the RRPs are the hub of the regional networks, the RRC form the primary nodes where the majority of material is dropped off and consolidated locally. Many RRCs will start off as local transfer station sites that are upgraded and re-purposed to have a predominant focus on resource recovery. The RRCs are the local centre for community activity, with many run by community enterprises or iwi, and serve to engage, educate and empower the local communities to not only recover materials but extract and apply the value of those materials for community benefit.

There are a range of different services and facilities at each site, but a set of core facilities could include the following:

- Drop off facilities for a standard range of materials (nominally as follows):
  - Cardboard
  - Metals
  - Paper
  - Glass
  - Plastics 1,2,5
  - Shrink-wrap
  - Garden waste
  - DIY construction and demolition waste
- Dropoff/consolidation sites for current and future product stewardship schemes, for example:
  - Reusable containers
  - Single use containers
  - E-waste and batteries
  - Farm plastics and chemical containers
  - Tyres
  - Mattresses
  - Textiles
  - Paint and household chemicals
- Reuse drop off, refurbishment and resale (furniture, household items, furnishings and clothing, toys, books, tools).

Optional services and facilities could include:

- Café
- Construction and bulky materials sales yard
- Education, training
- Workshops/refurbishment
- Food rescue
- Cooking oil – biodiesel/soap manufacture
- Reusable nappies
- Mattress recycling
- Business incubator space.

A.5.2.6 Logistics

A core feature of the concept is the establishment of an efficient logistics network that is able to consolidate and transport materials as efficiently as possible, including utilising

back-loading, bulk transport, and using flexible methodologies to facilitate bulk transport of smaller volume materials (for example, modular bins transported on side loaders).

Vehicles utilised by the network could take advantage of low-carbon and waste-based technologies to minimise the carbon footprint of materials managed by the network. For example:

- Vehicles could be powered by gas/energy generated from anaerobic digestion of organic waste.
- Battery electric vehicles could utilise second-life batteries or charging infrastructure built using second life batteries.
- Bulk transport using rail (ideally electrified).

Materials are dealt with in the most appropriate manner through the network with some materials manged locally or regionally, and other materials utilising the logistics capabilities of the network to be delivered to national end uses at low cost.

The figure below illustrates how certain materials are likely to be managed locally, regionally, nationally, or internationally.

Figure 15:Geographical Circulation of Material Types

In the above indicative representation, organics (such as garden waste), reusables, and repairable items are likely to be utilised in local communities; refillables, organics that require more capital intensive processes (such as food waste or sludges), construction and demolition waste, and e-waste dismantling are likely to be undertaken on a regional level; processing and manufacture of products from glass, paper, plastic, metal, e-waste,

and tyres are likely to be processed at national or sub-national scale facilities. Finally, there will be a range of materials that are sold into international commodity markets. These are likely to include paper, plastics, metals, e-waste, and textiles.

The above is intended purely for the purposes of illustration – as markets, material types, and processing technologies evolve these circles of re-integration into the economy are likely to change. The key point is that the network will involve a redistribution of different products and materials to different points and designing this redistribution to be as efficient and effective as possible will be critical to the functioning of the circular economy.

Local Logistics

A key part of the concept is to facilitate the ability to capture the widest possible range of materials by taking advantage of economies of scale to capture economic quantities. This can be achieved through a standardised modular approach to material separation and collection. An example of this is the system deployed in Upper Austria, which utilised 1 cubic metre stackable bins that can be moved using forklifts and transported on curtainsider trucks.

Figure 16: Standardised Bins Being Loaded onto Curtainsider Truck

The system collects 80 different types of separated material. The possible downside of it taking time to gather economic quantities of less common material types is minimised as

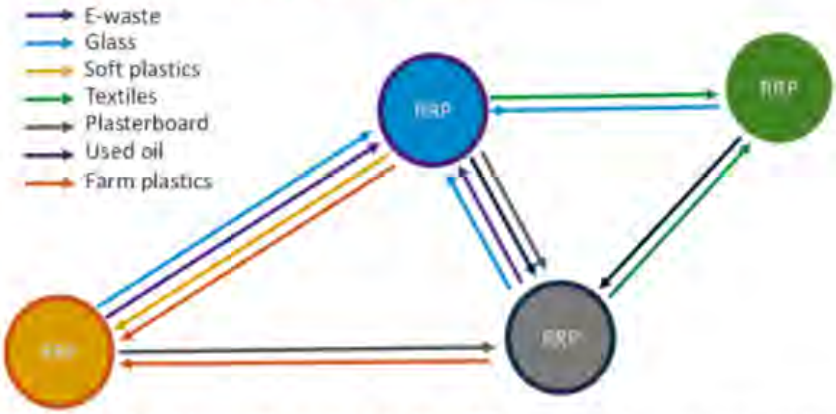
economic quantities can be achieved across the whole region, and the systems components are low cost and have proven efficiency.

The use of the same bins the same types of materials and common signage provides standardisation across the network, despite a wide range of operators being responsible for the individual resource recovery sites.

Inter-Regional Logistics

There is also potential to optimise the flows of materials between regional/sub regional hubs. For example, each regional hub could specialise in processing of one or more material types, with flows of materials then able to be balanced between sites, optimising logistics through backloading, as well as creating economies of scale. A hypothetical illustration is provided in the figure below.

Figure 17: Inter-Regional Logistics Model

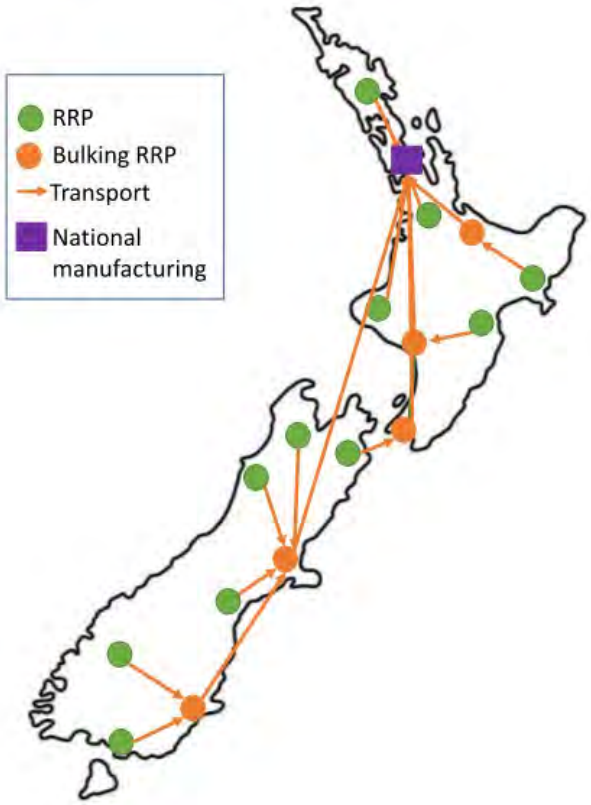


In the above hypothetical illustration, the blue RRP processes e-waste and glass from other proximate RRPs, while sending other materials such as soft plastics, farm plastics, textiles, plasterboard and used oil to other proximate RRPs. This is repeated across the RRPs, so that the quantities and movements of material are approximately balanced. The location of specialised processing and balancing of logistics would be part of the design and planning role of the national level 'virtual network'.

National Logistics

In addition to the local and inter-regional flows of materials, a range of materials handled by the network would need to go to national scale processing/manufacturing facilities (e.g. glass, paper, plastics). Logistics across the network could be optimised to take advantage of bulk transport through strategic bulking points, and there is even the possibility of constructing new national scale facilities in locations to balance national materials flows. The figure below illustrates how materials could be consolidated through regional networks to key bulking points for long-haul transport.

Figure 18: National Logistics Illustration



A.5.2.7 The Role of Local/Regional Government

Local government has historically had a major role in waste management planning and service delivery, and this is likely and desirable to continue. Local government own a significant proportion of the existing transfer station sites, and well as processing infrastructure sites and are familiar with local circumstances. Many councils are already in the process of developing resource recovery parks or local networks. These existing and planned sites could form a starting point for the physical circular resource network. It would primarily be a matter of collaborating to establish consistency and linkages across the existing and planned sites as well as promoting the development of new sites by local government.

In addition, there may be a vital role for regional entities. One of the key issues identified in the stocktake work was a lack of appropriate delivery structures for regional level infrastructure. Some facilities require a regional level approach to achieve appropriate economies of scale (for example processing of food waste, MRFs, regional bulking for key materials such as glass etc.). The proposed circular resource network concept is centred around a regional approach, with one or two regional scale RRPs that form the core hubs for collecting and consolidating material from the RRC sites, and undertaking processing and, potentially, manufacture. Key aspects of the roles for regional and local government could include:

- Service operation/contracting
- Local and regional expertise and coordination
- Local infrastructure investment and operation
- Identification and provision of appropriate sites
- Local consents monitoring, and enforcement
- Gathering and analysis of data

A.5.2.8 The Role of Iwi

Iwi also have an important role to play in the co-development of the circular resource network. The concept of resource recovery is aligned with the te ao Māori principle of kaitiakitanga, and the Para Kore programme is already in place in 476 marae across the country[61]. In addition to performing a similar role to the private and community sectors in service delivery, iwi have a role as kaitiaki of the land and people, and where resources are available, iwi can contribute financial investment and sites to the network and provide leadership in the development of the network. Key aspects of the roles for iwi could include:

---

[61] https://www.parakore.maori.nz/our-story/

- Service operations
- Infrastructure investment and operation
- Guardians / developers of RR Park and RR Centre sites
- Recovering value from materials
- Ownership and sale of recovered materials
- Utilising recovered value to leverage other community outcomes (e.g. employment, training, rehabilitation)

A.5.2.9 The Role of Private Sector Operators

Private sector operators currently manage the vast majority of waste materials recovered and disposed of in NZ, whether via private commercial arrangements or under contract to the public sector, and this would be expected to continue under the proposed model. The expectation is that, for the operation of the physical circular resource network, the public sector would generally own the land and generic infrastructure (such as buildings or, concrete pads, roading etc.) but would lease the sites or contract out for the delivery and operation of the circular resource network sites (such as separation of materials, composting, processing, manufacture). Sites could have a range of private and community sector operators involved (see below). Key aspects of the roles for private sector operators could include:

- Service operations
- Infrastructure investment and operation (either privately or under contract)
- Recovering value from materials (including repair and reuse)
- Ownership and sale of recovered materials

A.5.2.10 The Role of the Community Sector

Although the community sector is a minor player in terms of the total quantity of waste materials managed in New Zealand, they have had a significant role in the industry in terms of community engagement, innovating around recovery, and extracting value from waste materials to apply to social and community outcomes. The community sector role can potentially be further embedded and given added importance in the delivery of the circular resource network concept. Community groups could not only provide services such as reuse and repair across multiple sites but could also be empowered to deliver all services on sites (as has been demonstrated in Auckland). Key aspects of the roles for community sector operators could include:

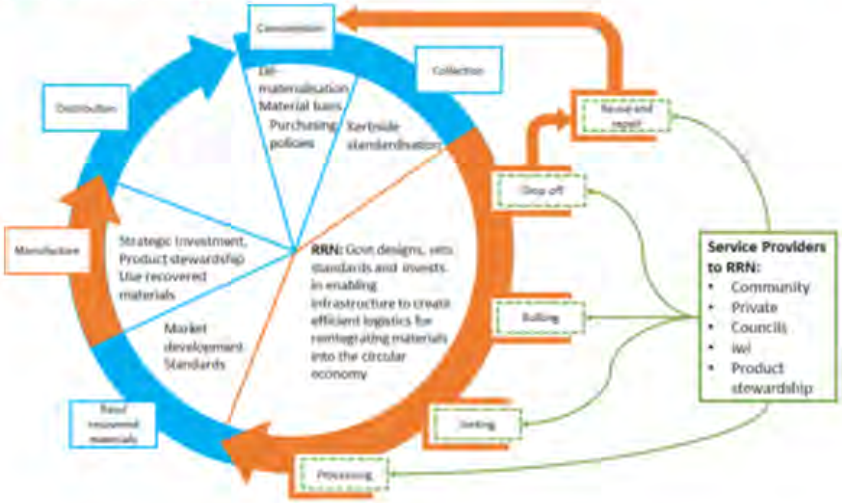
- Service operations
- Infrastructure operation
- Recovering value from materials (including repair and reuse)

- Ownership and sale of recovered materials
- Utilising recovered value to leverage other community outcomes (e.g. employment, training, rehabilitation)

A.5.2.11 Summary

The figure below illustrates how the roles and functions of a national resource recovery network could integrate to provide key reverse logistics functions in the circular economy. The orange elements of the circle are the parts that form the circular resource network.

Figure 19: Roles and Functions of a Circular Recovery Network in the Circular Economy



In the above chart material flows around in a clockwise direction. The arrows represent the material flows. The boxes indicate the key steps within the value chain. The graphic shows how different providers to the can deliver all of the key functions, but within an overall connected framework (that is established and overseen by central/regional/local government).

A.5.3 Benefits of Circular Resource Network Approach

A Circular Resource Network approach would have a range of benefits. These include:

- **Consistent with the Waste Strategy.** At its core the approach is about enabling the circular economy by building out the infrastructure required for the circular flow of

materials in the economy. The circular resource network concept synthesises this into a practical approach with wide ranging applications.

- **A practical, easily articulated, investment strategy**. Because the core component of the circular resource network concept is an arrangement of physical infrastructure it is intuitively easy to communicate the intent.
- **Improved efficiency and value.** By focusing on how value can be preserved and enhanced through the resource recovery value chain rather than purely on environmental and social outcomes, it is possible to unlock the potential value of recovered materials and unleash the innovative power of the sector to achieve environmental and social outcomes.
- **Future flexibility.** Flows of materials will change over time. By government investing in the skeleton structures that enable functions, then investment is not locked into a time-limited solution. As materials, markets and processes change over time existing infrastructure and governance can be efficiently and nationally adapted for the new functions.
- **Data harvesting.** The development of the digital model circular resource network will enable an unprecedented level of insight into recovered material flows and enable effective and intelligent planning and nimble responses by the sector to evolving situations.
- **Baskets of materials.** By co-locating and handling of a range of material and product types at single locations this enables efficiencies through the sharing of support structures and cross subsidisation, and hence the viable recovery of a wider range of materials.
- **Builds on existing infrastructure.** As noted, existing infrastructure (such as existing and planned RR Parks, and transfer stations) would form the foundation of the circular resource network, and these could be progressively integrated.
- **Provides valuable roles for all stakeholders.** The circular resource network will be significant in scale and scope, and it will require the input, collaboration, innovation, and power of all parts of the sector to fully realise its' potential.
- **'No regrets' approach.** The circular resource network concept proposed here is potentially far reaching in its scope and what it could eventually encompass. However, whatever level the concept is implemented to, it will still have multiple benefits. At a minimum it would result in the creation of a number of RR Parks or regional circular resource networks, which will still be positive outcomes.
- **Scalability.** The network can be "right"-sized in a flexible manner with the ability to effectively respond to changing circumstances.

A.6.0 Issues, Evidence, Options

Key Issue Summary	Data and Evidence	Options
The region has relatively low access to material reprocessing infrastructure; ie most recovered materials have to be transported out of the region and, in some cases, long distances to be reprocessed (such as glass, transported to Auckland to be reprocessed into new glass bottles). This impacts on the economics of recovering materials and has a strong influence on which materials can be recovered, and to what extent.	• Infrastructure assessment section 2 • Otago Infrastructure Review and Options report	• All infrastructure options • Advocate to central government for extended producer responsibility • Work closely with mana whenua, community groups, and the private sector to progress opportunities for increased waste diversion • Continue to develop collaborative projects and work towards increasingly formal collaborative arrangements
The performance of the two MRFs in the region currently is an issue both in terms of material quality and sheer capacity. Both Queenstown Lakes and Dunedin (which operate the existing MRFs) have intentions to address this issue, but it is considered appropriate to still highlight this as a key issue	• Infrastructure assessment section 2 • Feedback from councils on the current operation of MRFs section 2.1.4 • Feedback from councils and operators that recovered material quality could be higher with a higher quality MRF section 2 and also Otago Infrastructure Review and Options report • Incidents of diverted material not being recovered successfully due	• Identify opportunities for consistent, targeted, direct engagement that can be delivered where there is low participation in recycling and/or organic waste services, and/or high contamination, delivered regionally where possible • Introduce new council-contracted services to increase consistency and enable more regional education and behaviour change • Ensure that the requirements of kerbside standardisation and performance standards are met (once available) • Status quo - new MRFs • Supported by - Standardised signs and branding, material acceptance and quality standards, customer service • Establish regional hubs as described in section A.5.0, particularly A.5.2.4 • Use standard containers and logistics across all network sites as described in section A.5.0, particularly A.5.2.6

Key Issue Summary	Data and Evidence	Options
	to operational MRF issues section 2 and also Otago Infrastructure Review and Options report	• Centralised coordination of network • Collaboration on inter-regional logistics • Link off-site re-processors and manufacturers to network • Advocate to central government for extended producer responsibility • Work closely with mana whenua, community groups, and the private sector to progress opportunities for increased waste diversion • Continue to develop collaborative projects and work towards increasingly formal collaborative arrangements
Landfill provision in the coastal area of the region presents a number of challenges – Dunedin's access to a local landfill in the medium-long term requires completing consenting for a new facility; Clutha District Council is currently reconsenting Mt Cooee as a Class 1 – which will mean there are two Class 1 landfills within roughly 50 minutes' drive; and Waitaki District currently transports all residual waste to AB Lime in Southland	• Infrastructure assessment section 2, specifically section 2.1.1 • Otago Infrastructure Review and Options report	• Take a regional approach to Class 1 landfill provision • Continue to develop collaborative projects and work towards increasingly formal collaborative arrangements
Class 2-5 landfill provision around the region is variable. Where access is poor, this could lead to residual waste being managed through informal (and potentially illegal) means such as farm dumping	• Infrastructure review section 2.1.3 • Otago Infrastructure Review and Options report	• No direct actions – better information on number and location, and data on quantities, will enable a better assessment here for future work
As is found in other parts of the country, there is a significant data gap relating to private waste collections, Class 2-5 fills, and	• Infrastructure review section 2 • Services review	• Increased data collection and monitoring should be undertaken (through regulation or national requirement); this would enable councils to better understand what private waste services are in use, why customers choose to use these

Key Issue Summary	Data and Evidence	Options
farm waste management practices. This lack of information makes it difficult to identify gaps and issues, and therefore to effectively manage/minimise this waste.	(data gaps noted in each section)	in preference to council services, and whether these services are supporting strategic goals and targets • Council services could be introduced and/or amended to provide a better fit for purpose overall; demonstrated through a higher market share for councils • All infrastructure options • Continue to develop collaborative projects (ie regulation) and work towards increasingly formal collaborative arrangements • Collection better data on use of Class 2-5 fills to enable councils to better understand current management options - composition of this waste would still be unknown however (possible future opportunity?) • increased data collection and monitoring for agricultural and non-household waste streams could be achieved through regulation, resulting in increased understanding of, and influence over, private sector service and infrastructure provision
Variation in service levels across the region, and specifically in council-provided service levels (both existing and planned). This means that the extent to which the region is compliant with kerbside standardisation proposals is variable, and the ability to collaborate regionally or nationally on education, behaviour change, and awareness raising is reduced	• Kerbside standardisation section 1.5.6.2 • Services review e.g. sections 3.1.1 and 3.1.2	• Introduce regulation to manage and increase consistency in services provided by the private sector • Introduce new council-contracted services to achieve a more consistent level of service across the region – mainly impacting on Waitaki and, to a lesser extent, Clutha (Dunedin and Queenstown already have plans in place for new services) • Ensure that the requirements of kerbside standardisation and performance standards are met (once available) • Introduce a user-pays garden waste collection to urban areas where this is not already collected or plans are in place to do so (Queenstown, Waitaki, Clutha) • Fund council-provided rubbish collections through rates with restrictions on capacity and/or frequency

Otago Region Waste Assessment

Key Issue Summary	Data and Evidence	Options
		• Provide access to kerbside services to the commercial sector on a user-pays basis • Support/introduce virtual trading marketplaces e.g. freecycle pages, Civilshare • Continue to develop collaborative projects and work towards increasingly formal collaborative arrangements • Implement consistent regulation across the region to support more consistent education and engagement • Provide for reuse stores, repair sites, community workshops, demonstrations and courses at key network sites • Standardise signs and branding, material acceptance and quality standards, customer service • Use standard containers and logistics across all network sites • Centralise coordination of network
As is the case in many other parts of the country, contamination in household kerbside recycling collections is high (in the order of 20 – 25%) at the MRFs in Queenstown and Dunedin	• Infrastructure assessment section 2 • Feedback from councils on the current operation of MRFs section 2.1.4 • Feedback from councils and operators that recovered material quality could be higher with a better quality MRF (section 2) and also Otago Infrastructure Review and Options report • Incidents of diverted material not being recovered successfully due to operational MRF issues	• Identify opportunities for consistent, targeted, direct engagement that can be delivered where there is low participation in recycling and/or organic waste services, and/or high contamination • Advocate to central government for extended producer responsibility • Work closely with mana whenua, community groups, and the private sector to progress opportunities for increased waste diversion • Continue to develop collaborative projects and work towards increasingly formal collaborative arrangements • Introduce new council-contracted services to achieve a more consistent level of service is provided across the region – mainly impacting on Waitaki and, to a lesser extent, Clutha (Dunedin and Queenstown already have plans in place for new services)

Key Issue Summary	Data and Evidence	Options
	section 2 and also Otago Infrastructure Review and Options report	• Ensure that the requirements of kerbside standardisation and performance standards are met (once available)
The market share of household kerbside services held by councils is low in some areas. This may indicate that the services being provided by the councils is not considered fit for purpose by their residents. While this issue is being addressed by several councils, such as Central Otago and Dunedin, it is considered appropriate to still highlight this as a key issue. Private rubbish collections are frequently provided using large (240L) wheeled bins. This has been shown elsewhere to have a significant negative impact on the diversion of recyclables and organic waste.	• Services review section 3.1 (supported by previous studies e.g. Dunedin Waste Futures), note that Waitaki is an outlier as no council services • Services review – provision of collection services by the private sector section 3.2	• Identify opportunities for consistent, targeted, direct engagement that can be delivered where there is low participation in recycling and/or organic waste services, and/or high contamination, delivered regionally where possible • Council services could be introduced and/or amended to provide a better fit for purpose overall; demonstrated through a higher market share for councils • Regional regulation to better manage private sector service provision
A number of waste materials could be managed more in accordance with the waste hierarchy to improve diversion from landfill; particularly biosolids/sludges, C&D waste, non-household recyclables, agricultural wastes, glass, organic waste generally, and textiles. These materials appear in relatively high quantities in landfill waste analyses. Many of the materials are non-household waste streams, which are very difficult for councils to influence alone.	• Waste situational analysis section 4.3 including SWAP data from landfills (Green Island, Victoria Flats and Mt Cooee) and transfer stations (WAM in Oamaru) • Infrastructure review section 2.1.4- known facilities and quantities of material diverted at these facilities for these types of waste, also lack of (for e.g.) large scale C&D	• Collection services for organic wastes – food scraps and garden waste collections • Improve infrastructure provision for organic wastes, C&D waste, soft plastics, textiles, non-household recyclables, agricultural waste, hazardous waste, glass • Provide infrastructure that encourages deconstruction rather than C&D • Provide for reuse stores, repair sites, cafes/playgrounds, community workshops, demonstrations and courses at key network sites • Standardised signs and branding, material acceptance and quality standards, customer service • Provide space for product stewardship schemes at network sites

Otago Region Waste Assessment

Key Issue Summary	Data and Evidence	Options
	waste diversion facilities in the district	• Establish regional hubs as defined in section A.5.2.4 • Provide for product stewardship programmes within network sites for bulking and processing • Use standard containers and logistics across all network sites • Centralised coordination of network • Collaboration on inter-regional logistics • Link off-site re-processors and manufacturers to network • Extend network to include industrial symbiosis parks • Work with manufacturers & institutions to develop circular material models (e.g. product design, leasing systems etc.)
As in most parts of the country, relatively less resources and budget spent (by councils or other agencies) on waste prevention, reduction and reuse activities; compared to lower levels of the waste hierarchy such as recycling and reprocessing.	• Infrastructure assessment section 2 • Services assessment section 0 • To a lesser extent, WMMP reviews section 6	• Identify opportunities for consistent, targeted, direct engagement • Provide for reuse stores, repair sites, community workshops, demonstrations and courses at key network sites • Provide space for product stewardship schemes at network sites • Provide for container reuse at network sites (eg collection space) • Provide for product stewardship programmes within network sites for bulking and processing (depending on type of system) • Provide for container reuse at network sites (eg washing facilities) • Collaboration on inter-regional logistics (depending on type of system) • Extend network to include industrial symbiosis parks • Work with manufacturers & institutions to develop circular material models (e.g. product design, leasing systems etc.)

Key Issue Summary	Data and Evidence	Options
Council contract timeframes across the region are variable, reducing the ability to collaborate and partner on procurement and service provision	• Infrastructure assessment section 2 • Services assessment section 0	• Addressed by a number of collection-related actions listed above • Continue to develop collaborative projects and work towards increasingly formal collaborative arrangements
There is no formal mechanism to jointly fund and collaborate on regional or sub-regional waste-related projects, which makes it more difficult to leverage on opportunities and funding sources	• Infrastructure assessment section 2 • Services assessment section 0 To a lesser extent, WMMP reviews section 6	• Continue to develop collaborative projects and work towards increasingly formal collaborative arrangements
There is variability in strategic direction for waste across the region, particularly in relation to the council's role in providing waste management and minimisation services (e.g. direct service provision compared to influence through partnerships and regulation). This makes it more difficult for the councils to collaborate and to access funding that prioritises collaboration.	• Infrastructure assessment section 2 • Services assessment section 0	• Continue to develop collaborative projects and work towards increasingly formal collaborative arrangements, including development of a shared strategic direction
As is the case nationally, some services and infrastructure are affected by a lack of trained resource. The waste sector as a whole does not have a comprehensive or consistently available vocational training programme	• National context section 1.5 • Infrastructure assessment section 2 • Services assessment section 0	• Advocate to central government agencies for a more comprehensive vocational training programme, delivered consistently • Work closely with mana whenua, community groups, and the private sector to progress opportunities for increased waste diversion

Otago Region Waste Assessment

Key Issue Summary	Data and Evidence	Options
Proactive plans to manage disaster waste, such as that caused by severe weather events and other natural disasters, are required	• Identified as a future demand, section 7.1	• Develop local disaster waste management plans based on national disaster waste management research

A.7.0 Dunedin City Council

This section covers off issues that are specific to Dunedin city; including a detailed review of the current WMMP, a consideration of the implications of kerbside standardisation, and specific comments on the options list.

A.7.1 Review of the 2018 Waste Management and Minimisation Plan

As required by the WMA, Council has carried out a review of their last WMMP, which was adopted in June 2020. This followed a Waste Assessment which was adopted as complete in November 2018, meaning this Waste Assessment, containing this review, needs to be completed and adopted by Council by November 2024.

This WMMP had a vision that Dunedin "is actively committed to zero waste, inclusive of a circular economy, to enhance the health of our environment and people by 2040".

This vision was supported by five goals, with supporting guiding principles.

Goal	Guiding Principles
G1: Advocate, educate and enable waste minimisation, recycling and resource recovery	GP1: advocate for a holistic approach to waste minimisation and management which embraces the principles of kaitiakitaka (including the ethics of stewardship) and ki uta, ki tai. GP2: Promote circular economies to maximise the use of products and resources. GP3: Promote the stewardship of resources and the diversion of waste from landfill (reduce, reuse, repurpose) to protect the natural environment for future generations
G2: Encourage social enterprise and commercial development	GP4: Build on initiatives to support circular economies GP5: Reduce reliance on external markets for recyclable material GP6: Facilitate regional and national market development
G3: Collect information to enable informed decision-making	GP7: Support and promote the National Waste Data Framework
G4: Minimise the harmful effects of waste	GP8: Protect both public health and the environment from the adverse effects of waste through regulation and upholding best practice standards
G5: Provide infrastructure to meet goals and objectives	

Otago Region Waste Assessment

The WMMP doesn't include a description of 'key issues' as such, as there had been a business case process worked through alongside the Waste Assessment known as the 'Waste Futures' project.

The WMMP does include a summary of proposals described for a variety of services or facilities, including:

- Kerbside collection services – noting demand to introduce an organic waste collection service
- Landfill facilities – with ongoing demand for a facility that accepts municipal solid waste
- Transfer station facilities – possible need for additional transfer stations to meet demand
- Resource Recovery Centre – possible need to extend/additional RRCs to meet demand

A number of options were assessed through a fairly simple traffic light approach, including an assessment of economic, social, cultural, and environmental impacts and external factors such as legislation and national-scale projects.

This assessment was carried through to the 'Waste Futures' business case project, where options were explored and assessed in more detail and preferred options identified for procurement.

The options set out to achieve "ambitious waste minimisation targets", by implementing new collection arrangements and focusing on diversion of waste from landfill.

The waste minimisation targets/measures of success are set out in the WMMP and are shown below.

Targets/Measures

- Reduce the municipal solid waste generation per capita by at least 15% by 2030 compared to 2015
- Reduce the amount of municipal solid waste disposed to landfill and incineration by at least 50% by 2030 compared to 2015
- Increase the diversion rate away from landfill and incineration to at least 70% by 2030
- Overall satisfaction with rubbish disposal services (through annual resident opinion survey) (measure only, not baseline or target identified)

Measures

- The DCC achieves 100% compliance with waste facility consent conditions under the Resource Management Act 1991
- The composition of waste at the DCC's Green Island waste facility reflects a decrease in waste materials targeted by waste minimisation and waste recovery programmes (measured through SWAP audits)
- The quantity and quality of diverted material collected via the DCC's kerbside collection service for diverted material with >2% annual growth in diverted material sold
- The number of customers with access to DCC diverted material facilities is increasing
- The quantity and quality of diverted material collected via the DCC's diverted material facilities is increasing

- Zero waste education programmes and workshops provide valuable learning opportunities to participants (feedback received and summarised, increasing participation)
- Number of businesses involved in a business education programme around circular economy is increasing (case studies are produced)
- Number of successful waste levy grant applications is increasing (applicants' project outcomes reports are received)

The table below comments on the vision, goals, objectives, and target.

2018 Plan	Commentary
Vision	The previous vision was focused on a zero waste philosophy, incorporating a reference to the circular economy. This is considered to have been quite appropriate, as 'zero waste' was the dominant waste minimisation philosophy at the time. Recent years have seen a focus on the concept of a 'circular economy' for waste which incorporates many zero waste principles, but goes a step further to raising the importance of 'circularity' in waste systems - linked to a growing awareness of the environmental impacts (especially GHG emissions) of waste management practices. The vision is considered largely fit for purpose and could be used as is, or with slight amendments to reflect the increasing dominance of circular economy principles.
Goals	The goals in the current WMMP are heavily reflective of the previous New Zealand Waste Strategy. The goals would benefit from revision to better reflect a circular economy strategic approach. Depending on the scope of the revisions, this alone may not require the full consultation process.
Objectives	Similarly, the objectives need reviewing alongside the goals particularly in the context of Te Rautaki Para (Ministry for the Environment,2023 Waste Strategy). Additional goals could be added to reflect the wider circular economy approach to waste management and minimisation.
Target	There are a large number of targets/measures. To make it easier for mana whenua and communities to understand, the targets could be rephrased so that there are just two or three overarching targets, with the others included as methods for measuring the success of specific fixed-term interventions. It isn't entirely clear from the WMMP how the targets are going to be measured or what the baseline actually is (the specific number could be included). It also isn't clear whether the targets relate to *all* waste from the city, or predominantly household waste. If all waste, some of these targets are going to be extremely challenging to achieve. It may also be useful to clarify that the targets relate to waste to Class 1 landfill, rather than landfill generally.

A.7.1.1 Actions

The current WMMP includes a number of actions with associated timeframes. These are set out below.

Review of the Previous WMMP Action Plan (actions with contribution towards targets)

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 1: All DCC Policies and Plans clearly align with the vision, goals, guiding principles and targets of the Waste Minimisation and Management Plan		
The Waste Minimisation and Management Plan is implemented across Council through various communication channels	Ongoing	
The Dunedin City District Plan recognises the storage and access needs in the provision of services and land use (i.e. the management of best practice cleanfill operations in relation to city earthworks)	2021, 2022	Aligned with Waste Futures Plan, with Ministry for the Environment and Waste Levy Requirements, and with National Environmental Standards
Each DCC activity is accountable for managing resources and minimising waste in accordance with the Waste Management and Minimisation Plan	Ongoing	DCC procurement toolkit used to support the reduction of waste and increased resources efficiency
Review and adopt a solid waste bylaw under Section 56 of the Waste Minimisation Act 2008 – *prohibiting or regulating the deposit of waste	2021 – 2022: adopt solid waste bylaw 2023 – 2024: establish licensing protocol, provision of space for the sanitary collection of waste	Bylaw development is currently on hold, pending consideration of other regulatory mechanisms (e.g., through Building Act) and resourcing of compliance/enforcement. Incentives based approach in the meantime.

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 1: All DCC Policies and Plans clearly align with the vision, goals, guiding principles and targets of the Waste Minimisation and Management Plan		
* regulating the collection and transportation of waste * prohibiting, restricting or controlling access to waste management and minimisation facilities owned by DCC * prohibiting the removal of waste intended for recycling from receptacles provided by DCC	and recycling from multi-unit dwellings and residential apartment buildings 2025 – 2026: ongoing administration of compliance	
The DCC will collect information and data to inform future plans and reviews of DCC services and facilities in line with the National Waste Data Framework	Continuous improvement of reporting processes	The DCC reports city waste and diverted material information and data to the community annually

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 2: The community has access to diverted material services		
Continue and extend the DCC's kerbside collection service for recycling into selected areas	2021 – 2022: Engage with Kāi Tahu and the community on future kerbside collection model	Engagement through 2021-2031 10-year Plan completed.

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 2: The community has access to diverted material services		
	in Annual Plan 2020 – 2021; Proposed kerbside collection service engagement as part of the 2021 – 2031 10 year plan 2023 – 2024: Establish new kerbside collection service 2025 – 2026: Ongoing administration of contracts and bin inspection programme	The new contract will extend the existing kerbside recycling collection service to new rural areas, from 1 July 2023. An extended kerbside service will commence from 1 July 2024. This will include weekly food waste collections (with an option for a combined weekly food and garden waste collection) and red lidded bins to replace black rubbish bags
Investigate a collection service for organic waste – food scraps and/or green waste	2021 – 2022: Engage with Kāi Tahu and the community on future kerbside collection model in Annual Plan 2020 – 2021; Proposed kerbside collection service engagement as part of the 2021 – 2031 10 year plan 2023 – 2024: Establish new kerbside collection service 2025 – 2026: Ongoing administration of contracts and bin inspection programme	Engagement through 2021-2031 10-year Plan completed. The July 2024 rollout of new kerbside collections will include weekly food waste/combined food and garden waste.
Provide residents in the Central Business District and South	2021 – 2022: Engage with Kāi Tahu and the community on	Engagement through 2021-2031 10-year Plan completed.

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 2: The community has access to diverted material services		
Dunedin Shopping Precinct with a DCC collection service for recyclables	future kerbside collection model in Annual Plan 2020 – 2021; Proposed kerbside collection service engagement as part of the 2021 – 2031 10 year plan 2023 – 2024: Establish new kerbside collection service 2025 – 2026: Ongoing administration of contracts and bin inspection programme	From 12 December 2022, 14 padlocked off street collection points for cardboard were introduced in the Central Business District and in South Dunedin shopping precinct
The DCC maintains collection and maintenance contracts for servicing the city's public places recycling bins	Ongoing	Collection and maintenance contracts to be centralised under one provider, from 1 July 2023.
The DCC will provide a service to the community and/or support and promote community events that divert household items from going to landfill	2021 – 2022: Investigate 2023 – 2024: Initiate 2025 – 2026: Embed	Planned provision of Diversion Days for rural areas (this is a change from Rural Skip Days).

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 3: The community has access to diverted material facilities		
The DCC will continue to develop DCC-owned resource recovery parks at Green Island, Waikouaiti and Middlemarch	2021 – 2022: Future-proof design	A resource consent application is being prepared and detailed design work is underway for the redevelopment of the Green Island resource recovery park.
The DCC will explore development of additional resource recovery parks	2021 – 2022: Assess and develop options (refer to Waste Futures project) 2023 – 2026: Embed	Potential central city site identified but no work has commenced yet on consents and design.
The DCC will expand the network of Rummage reuse stores	2021 – 2022: Investigate 2023 – 2026: Implement	Potential for the central city site to include a rummage store.
The DCC will provide communities distanced from a DCC resource recovery park, with insufficient recycling capacity to meet local demand, or with a kerbside collection service, with a recycling hub	Extend the network of recycling hubs into new areas	Three rural recycling hubs are in place and research is currently underway into potential additional resource recovery parks in the rural area.
The DCC will work in collaboration with businesses, not-for-profit organisations and social enterprise to establish a network of resource recovery	Continually seek out opportunities	Circular economy proposals currently being developed in partnership with the council's Zero Carbon team. The development of a local resource recovery network will be investigated through a dedicated new role, jointly working with the zero carbon team and waste and environmental solutions team.

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 3: The community has access to diverted material facilities		
centres for the collection of diverted material		
The DCC will continue to support the national 'LoveNZ recycle with care' brand and engage stakeholder participation	Continually seek out opportunities	Four recycling hubs have been provided in the CBD and two in the tertiary precinct. The programme includes four more planned hubs, to be in place over the next ten years.

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 4: The community has access to services for waste management		
The DCC will ensure a suitable level of service for the kerbside collection of waste can be accessed or provided in both city and residential areas	2021 – 2022: Investigate 2023 – 2026: Establish service level model	A new collection and processing contract will be in place from 1 July 2023, with comprehensive updated levels of service.
The DCC maintains collection and maintenance contracts for servicing the city's litter bins	Continuous improvement	Collection and maintenance contracts to be centralised under one provider, from 1 July 2023.
The DCC will collect illegally dumped rubbish deposited on public land under collection contracts	Regulate and monitor for compliance	Collection and maintenance contracts to be centralised under one provider, from 1 July 2023.

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 5: The community has access to well managed disposal facilities		
The DCC will ensure all resource consent requirements for DCC owned operational waste facilities are complied with and kept current in line with both regional and district plans	Maintain best practice	Continuous review to confirm compliance maintained at 100%.
The DCC will continue to meet its statutory obligations under the New Zealand Emissions Trading Scheme	Continuous improvement to mitigate landfill gas emissions	Continuous review to ensure obligations are met.
The DCC will investigate landfill disposal options in readiness for the closure of Dunedin landfills	Assess and develop options (as part of the Waste Futures project)	Planning consent approved for new Smooth Hill landfill site – expected to be operational by 2030. Use of the Green Island landfill will be extended for the interim period and a resource consent application for this is being processed by Otago Regional Council.
The DCC will provide transfer station facilities at Green Island, Waikouaiti and Middlemarch	Assess other Dunedin sites for suitability (as part of the Waste Futures project)	Transfer stations in place at Green Island, Waikouaiti and Middlemarch.
The DCC will review and set gate charges for DCC owned waste facilities annually, ensuring that the true costs associated with landfill	Continually review and adjust landfill gate charges to reflect the true cost of landfill disposal including introducing a second	Ongoing review through Annual Plan process.

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 5: The community has access to well managed disposal facilities		
operations, future closure and aftercare are recovered	weighbridge at the Green Island facility	

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 6: Hazardous waste is managed in accordance with best practice		
The DCC will work collaboratively with the Otago Regional Council to ensure standards for the safe treatment and disposal of hazardous waste are managed and monitored in accordance with the current legislation, regulation and best practice guidelines	Continuous improvements to mitigate the harmful effects of waste	Continuous review to ensure obligations are met.
The DCC will investigate options for the collection of hazardous household waste chemicals	Continuous improvements to mitigate the harmful effects of waste	Continuous review to ensure obligations are met.
The DCC will use provisions of a Solid Waste Bylaw to ban prohibited waste from landfill disposal	2021 – 2022: Investigate 2023 – 2024: Develop options	An investigation of potential bylaw provisions in 2021/2022 led to a decision to put bylaw development on hold pending consideration of the wider regulatory environment.

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 6: Hazardous waste is managed in accordance with best practice		
	2025 – 2026: Embed Continually review and adjust landfill acceptance criteria inline with New Zealand legislation, regulation and best practice standards	

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 7: All open and closed landfills in Dunedin District have been identified and are operating in accordance with industry best practice		
The DCC will work collaboratively with Otago Regional Council to strengthen working relationship between DCC/ ORC and neighbouring Councils	2021 – 2022: Revise plans 2023 – 2026: Embed plans	Ongoing liaison and monitoring of closed landfill sites and Green Island open landfill.

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 8: Dunedin communities and learning agencies are actively engaged in zero waste education and are empowered to act with local initiative		
The Enviroschools programme is supported and funded by both the Otago Regional Council through regional co-ordination and the DCC via local facilitation.	Ongoing	Work continues with Enviroschools to empower young people to lead waste minimisation and sustainability projects and embed behaviour change. Two Enviroschools facilitators working with over 30 primary and secondary schools across the Dunedin area.
DCC staff and contracted facilitators will work with community groups to deliver zero waste educational programmes.	Ongoing	A programme of ongoing waste minimisation activities is being delivered both online and in person. The new kerbside contractor will be providing further education and awareness services, including a refresh of the existing DCC Kerbside App.
The DCC will encourage members of the community to practice waste minimisation in their homes and neighbourhoods and support the development of community-led initiatives that make beneficial use of diverted materials locally.	Ongoing	Waste Minimisation Community Project Grants (and Small Project Grants) are funded via the Waste levy and support the development of community-led initiatives. The DCC website and related social media are the main communication channels used to reach community members.

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 9: Dunedin businesses minimise waste, are resource efficient and demonstrate innovation which grows or attracts sustainable market opportunities to the city		
The DCC, working with others, will develop and/or deliver a business education programme to assist and improve organisational performance and engagement with the circular economy.	Ongoing	Engagement with businesses is facilitated by working with Business South and other local networks. Subsidies have been offered to local businesses to complete the Sustainable Business Network 'starting out on sustainability' workshops on the circular economy and product stewardship. Construction and demolition case studies have been added to the DCC website, showcasing best practice in materials separation, sorting and diversion as part of local building projects.
The DCC will invest in infrastructure that aligns with the goals and objectives of its Waste Minimisation and Management Plan.	2020-2025 - identify priorities for investigation and development	Discussion is underway with the new kerbside contractor on the design of a construction and demolition diversion centre at the new Resource Recovery Park.
The DCC will assess, partner, endorse or support Waste Levy Contestable Fund applications which minimise waste and/or add value to recovered materials with the potential to create local employment opportunities.	Ongoing	The Waste Minimisation Development and Innovation (Commercial) Grant scheme is funded from the Waste Levy and has so far funded 22 businesses and start-ups to deliver waste minimisation projects. Case studies of grant recipients are being prepared for dissemination, to inspire behaviour change in other businesses.

Action	Planned timeframe and progress	Contribution to target and commentary
Objective 9: Dunedin businesses minimise waste, are resource efficient and demonstrate innovation which grows or attracts sustainable market opportunities to the city		
The DCC will work collaboratively with Central Government, other Councils, industry, businesses, associations and the community to establish, encourage and support the realisation of product stewardship initiatives	Actively support and encourage the introduction of product stewardship initiatives	Product stewardship is being promoted through awareness raising and engagement with businesses (and networks), including through case studies. Contracts or Memoranda of Understanding are in place to support local stewardship and diversion schemes (Food waste, E-waste, Bicycles, Car Seats, Tyres, Polystyrene, Plasterboard)

Council has completed many of the planned actions and in some cases the outcome of the planned action has been implemented. An example is the introduction of council-contracted kerbside collection services.

The new service, to be introduced from 1 July 2024, is shown here:

Significant progress has been made on other actions, such as public engagement and education, and these will continue to be a core part of solid waste activities for DCC.

As many of the actions have been completed, it is considered necessary for DCC to develop a new action plan. However, the vision is still appropriate – although new goals, and targets are recommended. Given that the majority of the WMMP does need to be updated, it is recommended that DCC begin work on developing a new plan that demonstrates how the city's vision will be implemented over the next six-year period and consult with its community.

A.7.2 Kerbside Standardisation Alignment

The new services proposed will ensure that Dunedin city is fully compliant with kerbside standardisation; once these begin from 1 July 2024.

It should be noted that the garden waste collected cannot be counted towards the diversion target – providing a separate opt-in, user-pays service is considered good practice for this type of service and will make it straight forward for DCC to calculate their kerbside diversion rate (which is only based on residual rubbish, recyclables, and food scraps).

A.7.3 Proposed Options

In addition to the region-wide options put forward in the regional Waste Assessment, the presence of the student population in Dunedin city indicates that actions specifically related to waste minimisation for short-term residents will be required.

There are several examples of successful tertiary-education focused waste initiatives, such as student-led education and engagement, and a service that aims to capture reusable items at the end of one academic year, and then offer them back for sale at low cost at the beginning of the next academic year. This can be useful for students that live in shared houses, but also for those that live in furnished residences where items such as toasters and kettles are still in demand.