

**Absolutely Positively
Wellington City Council**

Me Heke Ki Pōneke

Ordinary Meeting of Kōrau Tūāpapa | Environment and Infrastructure Committee Rārangi Take | Agenda

9:30am Rāpare Thursday, 14 Mahuru September 2023
Ngake (16.09)
Level 16, Tahiwī
113 The Terrace
Pōneke | Wellington



MEMBERSHIP

Mayor Whanau
Deputy Mayor Foon
Councillor Abdurahman
Councillor Apanowicz
Councillor Brown (Deputy Chair)
Councillor Calvert
Councillor Chung
Councillor Free
Pouiwi Hohaia
Pouiwi Kelly
Councillor Matthews
Councillor McNulty
Councillor O'Neill
Councillor Pannett
Councillor Paul (Chair)
Councillor Randle
Councillor Wi Neera
Councillor Young

Have your say!

You can make a short presentation to the Councillors, Committee members, Subcommittee members or Community Board members at this meeting. Please let us know by noon the working day before the meeting. You can do this either by phoning 04-803-8337, emailing public.participation@wcc.govt.nz or writing to Democracy Services, Wellington City Council, PO Box 2199, Wellington, giving your name, phone number, and the issue you would like to talk about. All Council and committee meetings are livestreamed on our YouTube page. This includes any public participation at the meeting.

AREA OF FOCUS

The Kōrau Tūāpapa | Environment and Infrastructure Committee has responsibility for:

- 1) RMA matters, including urban planning, city design, built environment, natural environment, biodiversity, and the District Plan.
- 2) Housing.
- 3) Climate change response and resilience.
- 4) Council property.
- 5) Waste management & minimisation.
- 6) Transport including Let's Get Wellington Moving.
- 7) Council infrastructure and infrastructure strategy.
- 8) Capital works programme delivery, including CCOs' and Wellington Water Limited's capital works programmes.
- 9) Three waters

To read the full delegations of this committee, please visit wellington.govt.nz/meetings.

Quorum: 9 members

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1. Meeting Conduct

1.1 Karakia

The Chairperson will open the meeting with a karakia.

Whakataka te hau ki te uru,	Cease oh winds of the west
Whakataka te hau ki te tonga.	and of the south
Kia mākinakina ki uta,	Let the bracing breezes flow,
Kia mātaratara ki tai.	over the land and the sea.
E hī ake ana te atākura.	Let the red-tipped dawn come
He tio, he huka, he hauhū.	with a sharpened edge, a touch of frost,
Tihei Mauri Ora!	a promise of a glorious day

At the appropriate time, the following karakia will be read to close the meeting.

Unuhia, unuhia, unuhia ki te uru tapu nui	Draw on, draw on
Kia wātea, kia māmā, te ngākau, te tinana,	Draw on the supreme sacredness
te wairua	To clear, to free the heart, the body
I te ara takatū	and the spirit of mankind
Koia rā e Rongo, whakairia ake ki runga	Oh Rongo, above (symbol of peace)
Kia wātea, kia wātea	Let this all be done in unity
Āe rā, kua wātea!	

1.2 Apologies

The Chairperson invites notice from members of apologies, including apologies for lateness and early departure from the meeting, where leave of absence has not previously been granted.

1.3 Conflict of Interest Declarations

Members are reminded of the need to be vigilant to stand aside from decision making when a conflict arises between their role as a member and any private or other external interest they might have.

1.4 Confirmation of Minutes

The minutes of the meeting held on 3 August 2023 will be put to the Kōrau Tūāpapa | Environment and Infrastructure Committee for confirmation.

1.5 Items not on the Agenda

The Chairperson will give notice of items not on the agenda as follows.

Matters Requiring Urgent Attention as Determined by Resolution of the Kōrau Tūāpapa | Environment and Infrastructure Committee.

The Chairperson shall state to the meeting:

1. The reason why the item is not on the agenda; and
2. The reason why discussion of the item cannot be delayed until a subsequent meeting.

The item may be allowed onto the agenda by resolution of the Kōrau Tūāpapa | Environment and Infrastructure Committee.

Minor Matters relating to the General Business of the Kōrau Tūāpapa | Environment and Infrastructure Committee.

The Chairperson shall state to the meeting that the item will be discussed, but no resolution, decision, or recommendation may be made in respect of the item except to refer it to a subsequent meeting of the Kōrau Tūāpapa | Environment and Infrastructure Committee for further discussion.

1.6 Public Participation

A maximum of 60 minutes is set aside for public participation at the commencement of any meeting of the Council or committee that is open to the public. Under Standing Order 31.2 a written, oral or electronic application to address the meeting setting forth the subject, is required to be lodged with the Chief Executive by 12.00 noon of the working day prior to the meeting concerned, and subsequently approved by the Chairperson.

Requests for public participation can be sent by email to public.participation@wcc.govt.nz, by post to Democracy Services, Wellington City Council, PO Box 2199, Wellington, or by phone at 04 803 8334, giving the requester's name, phone number and the issue to be raised.

2. General Business

ZERO WASTE PROGRAMME - COLLECTIONS AND PROCESSING BUSINESS CASE

Kōrero taunaki | Summary of considerations

Purpose

1. This report to Kōrau Tūāpapa | Environment and Infrastructure Committee seeks agreement to consult on a shortlist of three options for waste collections in Wellington as part of the Long-term Plan 2024-34. The options include the introduction of food scraps and garden waste (organics) collections as well as changes to rubbish and recycling collections.
2. The report also proposes an approach to the establishment of a regional organics processing facility in partnership with Hutt City Council and Porirua City Council.

Strategic alignment with community wellbeing outcomes and priority areas

Aligns with the following strategies and priority areas:

- Sustainable, natural eco city
- People friendly, compact, safe and accessible capital city
- Innovative, inclusive and creative city
- Dynamic and sustainable economy
- Functioning, resilient and reliable three waters infrastructure
- Affordable, resilient and safe place to live
- Safe, resilient and reliable core transport infrastructure network
- Fit-for-purpose community, creative and cultural spaces
- Accelerating zero-carbon and waste-free transition
- Strong partnerships with mana whenua

Strategic alignment with priority objective areas from Long-term Plan 2021–2031

Relevant Previous decisions

Outline relevant previous decisions that pertain to the decision being considered in this paper.

Pūroro Waihanga | Infrastructure Committee – 27 April 2022
In relation to the Para Kai Miramar Food Diversion Trial:

4) Agree that, subject to the findings of the resource recovery network business case, kerbside services review and the availability of a suitable organic waste processing plant, an organic food waste collection service is established by the time a solution is operational to remove sludge from the landfill and instruct officers to bring a business case to the Committee by the end of 2023.

5) Agree that Council supports all Wellington City residents having

access to organic waste collection and that a report comes back during 2023 to enable this.

Pūroro Waihanga | Infrastructure Committee – 27 April 2022

In relation to ‘Transforming Recycling’ submission to Ministry for the Environment:

2 - g) Add a new bullet that states that WCC explicitly agrees with the Ministry on the need to divert more food waste from landfills to reduce emissions and then turn it into compost or other products that replenish the soil.

Kōrau Tūāpapa | Environment and Infrastructure Committee – 27 April 2023

2) Adopt the Zero Waste Strategy.

**Wellington Region Waste Management and Minimisation plan
Joint Committee – 24 July 2023**

Approval to consult on the draft Wellington Region Waste Management and Minimisation Plan 2023-2029

Significance

The decision is **rated medium significance** in accordance with schedule 1 of the Council’s Significance and Engagement Policy. Whilst the project is of high significance, the decisions being requested in this paper are of low – medium significance.

Financial considerations

Nil Budgetary provision in Annual Plan / Long-term Plan Unbudgeted \$X

3. The paper recommends a move away from a user-pays rubbish collection system and the introduction of a targeted rate for waste in 2026/27.

4. The indicative costs for a new collection service are:

- The capital costs for the new bins (rubbish, recycling, glass and food/garden waste) is \$14.1M. This is likely to be subsidised by Ministry for the Environment funding of up to 75% for organic collections (\$4M). The remaining costs can be met by the Landfill Surplus Fund.
- Operating costs for the recommended option over the next ten years (adjusted for household growth and inflation)

\$ million	2023/ 24	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Total Opex	\$0.6	\$0.9	\$1.6	\$26.4	\$26.3	\$26.3	\$26.8	\$27.5	\$28.3	\$29.1	\$32.1	\$225.8

- Based on forecasts of the number of rateable residential units in 2026/27, this equates to a targeted rate of \$258 per household per year. Households would receive a saving from no longer paying separately for rubbish collection, which costs \$182 annually for one council rubbish bag per week, or \$395 or more per year for a private wheelie bin service.

5. The Wellington region does not have an adequately sized organics processing facility to process collected food/garden waste. Wellington City Council is working with Hutt City Council and Porirua City Council on the procurement of a facility. At a high level the estimated costs are:
 - The capital cost for a new suitable facility is up to \$70M, and the viability of the project is highly dependent on the Ministry for the Environment funding a 50% share.
 - The cost will be split between the three council's based on population. Wellington City Council's portion equates to \$22.8M (including project delivery costs and adjusted for inflation).
 - This capital funding requirement is reduced to \$18M by utilising \$4.8M from the Landfill Surplus Fund.
6. These costs could be lower depending on the outcome of the procurement process, particularly the type of location of the facilities and the appetite from companies to partner with council.
7. Updated cost estimates will be presented in May 2024, and any impact on our financial parameters in our financial strategy (rates and debt to revenue limits) will be considered through the Long-term Plan 2024-34.

Risk

| Low | Medium | High | Extreme

8. The decision is rated med significance in accordance with schedule 1 of the Council's Significance and Engagement Policy. Whilst the project is of high significance, the decisions being requested in this paper are of low – medium significance.

Author	Stephanie Steadman, Senior Waste Planner
Authoriser	Siobhan Procter, Chief Infrastructure Officer

Taunakitanga | Officers' Recommendations

Officers recommend the following motion

That the Kōrau Tūāpapa | Environment and Infrastructure Committee:

- 1) Receive the information.
- 2) Note that a significant reduction of organic material from landfill is required to deliver the Zero Waste Targets.
- 3) Note that without a significant reduction of organic material from landfill it is unlikely that Wellington City Council will achieve its emissions reduction target of 57% by 2030.
- 4) Note the waste collection vehicle fleet has reached its end of life, it must be replaced in June 2026, and lead times for ordering these specialised vehicles are significant.
- 5) Note the proposed legislation to require organics collections for all urban households by 2030, or earlier if there are existing processing facilities within 150km.
- 6) Note the collections options and the organics processing options are inextricably linked and need to be considered together.
- 7) Request that officers report back prior to the final approval of the 2024-34 Long-term Plan (likely May 2024) with updated details on these changes to levels of service including:
 - a) the progress of the regional organics processing procurement process
 - b) a procurement approach for a new collections contract to implement the councillor selected preferred option, including detailed specifications such as bin types and truck fleet requirements.
 - c) Updated cost estimates for the proposed changes to levels of service, including both operating and capital costs.
 - d) Additional information about the implementation of these change to levels of service, including proposals for phasing the transition to new collections services and further information about bespoke collections.

Collections

- 8) Agree to include the short listed options for new waste collection service configuration shown in the table below and detailed in the attached business case, as well as a status quo “do nothing” option, in the Long-term Plan 2024-34 consultation document:

Option	Rubbish	Recycling	Organics
D	Fortnightly 120L wheelie bin	Fortnightly 240L wheelie bin excl glass + four-weekly 80L wheelie bin	Weekly 80L food and garden wheelie bin
E	Fortnightly 120L wheelie bin	Fortnightly 240L wheelie bin + fortnightly 45L glass only crate	Weekly 23L food only
F (preferred)	Fortnightly 120L wheelie bin	Fortnightly 140L wheelie bin + fortnightly 45L glass only crate	Weekly 80L food and garden wheelie bin

- 9) Note the significant safety improvements for collection workers when wheelie bins are emptied automatically by the collection vehicle.
- 10) Note that community and local groups can provide additional social, environmental, education and food resilience benefits over and above a centralised organics and

processing facility. Ongoing support of these groups and initiatives will continue to be provided through grants and the waste minimisation fund.

- 11) Note that rubbish collections are currently funded by the purchase of rubbish bags and recycling collections are funded by a recycling levy component of landfill gate fees.
- 12) Note a nationwide trend is councils are moving towards a targeted rate to allow for greater control and transparency of the full waste collections system for rubbish, recycling and organics.
- 13) Agree to consult on a change to the Revenue and Financing Policy to introduce a new targeted rate to fund organics and rubbish collection starting in 2026/27 as part of the Long-term Plan 2024-34 consultation.
- 14) Note that recycling collections will continue to be funded from the recycling levy and that in future the targeted rate may need to be expanded to include funding for recycling collections when landfill revenue falls due to the reduction of waste going to landfill.
- 15) Agree to include the following operating costs for new collections services in the Long-term Plan 2024-34 budget for consultation (adjusted for household growth and inflation):

\$ million	2023/ 24	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Total Opex	\$0.6	\$0.9	\$1.6	\$26.4	\$26.3	\$26.3	\$26.8	\$27.5	\$28.3	\$29.1	\$32.1	\$225.8

- 16) Note that based on the forecast costs, recycling levy and 78,768 rateable residential units in 2026/27 a targeted rate would cost \$258 per household per year. Based on the current ratio (based on the 2023/24 Annual Plan) that \$4.8M additional spending equals a 1% increase in rates this would be equivalent to a 4.2% increase in rates.
- 17) Note that households would no longer need to pay separately for rubbish collection. For a household that puts out one council rubbish bag per week it currently costs \$182 and approximately \$395 for a household with a weekly rubbish collection of a 120L wheelie bin.
- 18) Note that Ministry for the Environment has a funding pool of \$120M that offers up to 50% funding assistance for organics processing facilities and up to 75% for organic collections (to be used for organics bins, project management costs and communications / engagement). This funding pool is being heavily contested throughout NZ.
- 19) Note that the estimated cost to council of new bins for all urban households for preferred Option F is \$14.1M in 2025/26.
- 20) Agree to continue our funding application to the Ministry of the Environment for \$4.7M contribution to the roll out of changes to collections services, including \$4M the cost of new organics bins, to be reimbursed on receipt of payment.
- 21) Note that the Landfill Surplus Fund is provisionally \$20.7M at 30 June 2023.
- 22) Agree to retain \$2M in the Landfill Surplus Fund to manage the risk of landfill operating deficits.
- 23) Agree to retain \$3.7M in the Landfill Surplus Fund to fund the proposed expansion of the Tip Shop and related resource recovery projects.
- 24) Agree to include \$10.1M in additional capital expenditure in 2025/26 for the net cost of new bins in the Long-term Plan 2024-34 budget for consultation and to fully fund the net cost of these new bins from the Landfill Surplus Fund.

Organics Processing Facility

- 25) Agree to continue working with our regional partners Hutt City Council and Porirua City Council on the procurement of an organics waste processing facility.
- 26) Agree to continue the joint funding application to Ministry of the Environment for \$35M contribution to the new regional organics waste processing facility.
- 27) Note that WCC officers will agree a procurement approach for the new regional organics processing facility with HCC and PCC.
- 28) Agree to begin a regional procurement process for a regional organics processing solution, which could involve constructing a facility that is jointly owned with other councils, partnering with a waste management company to build a new facility, or a contractual agreement to process organic material at a privately owned facility.
- 29) Note the full capital expenditure for a new organics processing facility (adjusted for inflation):

\$ million	2023/24	2024/25	2025/26	2026/27	2027/28	Total
WCC share of organics processing facility	\$0.0	\$0.0	\$2.1	\$9.6	\$9.8	\$21.5
Project delivery costs	\$0.4	\$0.4	\$0.3	\$0.1	\$0.1	\$1.3
Total Organic Processing Facility capex	\$0.4	\$0.4	\$2.4	\$9.7	\$9.9	\$22.8

- 30) Note that \$4.8M of the Landfill Surplus Fund is available for an organics processing facility from the Landfill Surplus Fund, reducing the necessary capital funding total as follows (inflation adjusted):

	Total \$ million
Organics Processing Facility	\$22.8
Less Contribution from Landfill Surplus Fund	\$4.8
Remaining capex required	\$18.0

- 31) Agree to allocate \$8.1M in 2026/27 and \$9.9M in 2027/28 of capital expenditure to allow for the WCC share of a jointly council owned new organics processing facility.

\$ million	2023/24	2024/25	2025/26	2026/27	2027/28	Total
Total Organic Processing Facility capex	\$0.4	\$0.4	\$2.4	\$9.7	\$9.9	\$22.8
Less \$4.8M Landfill Surplus Funds	\$0.4	\$0.4	\$2.4	\$1.6	\$0.0	\$4.8
Capital Funding requirement	\$0.0	\$0.0	\$0.0	\$8.1	\$9.9	\$18.0

- 32) Note that the capital expenditure requirements for an organics processing facility could be lower depending on the outcome of the procurement process (particularly the type and location of proposed facilities and the appetite from waste management companies to partner with council) and that officers will report back with updated cost estimates in May 2024.

- 33) Note that the impact of the increased capital expenditure and revenue on council's borrowings and debt to revenue ratio will be reported back through the 2023/24 Long-term plan.
- 34) Note that a new organics processing facility is unlikely to be operational by July 2026.
- 35) Agree to investigate transporting collected organic material to existing facilities in the North Island until the new regional facility is operational, the estimated cost of which is included in the operational costs in resolution 15.
- 36) Note that all the inflation adjusted figures in this paper could change slightly when updated inflation forecasts are received from BERL as the Long-term Plan budget is prepared.

Whakarāpopoto | Executive Summary

9. The purpose of this report is to present the short listed options and to seek approval to consult on a change in level of service in relation to waste collection services. The changes relate to:
 - Introducing kerbside food scrap collections and potentially garden waste.
 - Changing frequency of rubbish collections and a move from bags to bins.
 - Increase recycling bin capacity.
 - Moving to a targeted rates funding service for residential properties.
10. Working regionally to build an organics processing facility.
11. To achieve these changes, funding will need to be provisioned for in the Long-term Plan in early 2024.
12. The Zero Waste Strategy vision to achieve intergenerational sustainability by achieving a circular economy shows Wellington City Council's commitment to Te Atakura Climate Change Strategy and the pae hekenga (priority waypoint) in Tūpiki Ora entitled tiakina te taiao (caring for our environment).
13. Without a new organics collection service and processing facility, we cannot achieve the following targets of the Zero Waste Strategy:
 - Reduce total waste to landfill by 50% by 2030
 - Reduce per capita kerbside waste to landfill by 40% by 2030
 - Divert 50-70% of organic waste from landfill by 2030
 - Reduce biogenic methane emissions by at least 30% by 2035
14. Now is the window of opportunity for a holistic review of WCC waste collection services and to make transformational changes where these are justified. This is because:
 - a. The current Government has announced that councils will be required to provide a food scrap collection service to all urban households by 2030 at the latest. Whilst the supporting legislation is not expected to be introduced to the House before the general election, this step is necessary to achieve the targets of Te rautaki para – New Zealand Waste Strategy and the national Emissions Reduction Plan 2022.
 - b. The Ministry for the Environment has made funding available to councils to support this transition.

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- c. The waste collection contract for WCC expires in June 2026 and the current vehicle fleet has reached the end of its life. A new contract is required that includes a new vehicle fleet that can meet the collections requirements. Rubbish collection vehicles tend to have a life of between 10-15 years.
 - d. The Sludge Minimisation Facility is expected to be operational by 2026, which will remove the operational constraint of the 4:1 mix ratio of rubbish to sludge required at the Southern Landfill
15. The introduction of an organics collection service means that other recycling and rubbish collection services need to be reconsidered. For example, removal of food scraps from general rubbish means that frequency of general rubbish collection (excluding food scraps) can be reduced.
 16. Wellington's topography with its many steep, narrow streets and high winds presents significant challenges for waste collection that are not shared by other New Zealand cities. Therefore, a hybrid collection service will always be needed to accommodate the difficult terrain. We propose that a standard service is developed to serve accessible properties (approximately 65% of households) and a bespoke service including a variety of options is delivered to less accessible properties.
 17. The challenges of delivering a hybrid service mean that it will be difficult for per household collections costs in Wellington city to match other cities and towns that can offer a more uniform service.
 18. Designing a waste collection service is complex with multiple interdependencies. Choices made about collections, for example whether food scraps are collected separately to garden waste or combined, changes the available processing options. It also impacts on the value of the end products produced. The frequency of collection for organics also influences the options for frequency of rubbish collection.
 19. The combination of choices made will also influence the amount of behaviour change required and the appropriate methods to achieve that.
 20. A new organics collection service will most likely require a new organics processing facility for the region, as the closest existing facilities are out of the region, such as in Ohakune, Waikato, and Hawke's Bay.
 21. The Ministry for the Environment has grant funding available to support regional organic processing facilities. WCC staff are working with HCC and PCC are working together on this proposal. A regional facility would likely reduce the capital commitment needed from WCC but comes with associated co-ordination challenges. If collections commence prior to a facility being available, transportation of organic material out of the region for processing will need to be investigated.
 22. A multi criteria analysis supported by a cost benefit analysis was used to evaluate different options for a standard collection service. Throughout the evaluation a strong focus has remained on increasing waste diversion and providing an attractive and accessible service, as per the approved strategy. The multi criteria analysis considered diversion, accessibility, emissions reduction, cost of service, worker safety, and circularity/value of end products.
 23. The cost benefit analysis found that options D, E and F were the best performing options and these have been short listed for consultation.

- The preferred option for standard collection service is option F which includes:
 - A weekly collection of mixed food and garden waste in an 80L wheelie bin,
 - A fortnightly collection of paper, plastics, tins and cans in a 240L wheelie bin,
 - A fortnightly collection of rubbish in a 120L wheelie bin, and
 - A fortnightly collection of glass in a 45L crate.
24. This option is preferred despite not having the highest cost benefit ratio due to several other factors:
- A fortnightly glass crate collection will be more flexible if a container return scheme is introduced in future and glass recycling volumes fall.
 - A glass crate is manually colour sorted when collected, which means the glass can be recycled into bottles. This is a more circular outcome than glass collected in wheelie bins, which cannot be colour sorted and is used as a sand substitute in roading aggregate.
 - Option F performed best in the cost benefit analysis when costs were held steady across options. This means the better value for money of option D is driven entirely by the lower \$50 cost per household, which may not be fully realised in practice.
25. Given the interdependencies between the different collection types, making changes to individual components may have unintended consequences to the overall performance of the system. For example, if an organics collection is offered but a weekly rubbish collection still occurs then there is less motivation to utilise the organic collections.
26. A bespoke service will be varied and include:
- Bin depots or shared bins on private land such as in apartment buildings, townhouse complexes, or on private roads,
 - Continuing bagged collection of rubbish and recycling where needed, or
 - Providing bin depots or shared bins on public land where there is no private land available.
27. A targeted rate is recommended to fund the new rubbish and organics collection service. This is the funding method used at all other major metro councils. Recycling collections will continue to be funded out of landfill fees. In future if landfill revenues can no longer fully fund recycling services, the targeted rate could be extended to include recycling collections.
28. Having a targeted rate which applies to all households, achieves greater diversion rates as it discourages the use of larger privately provided rubbish bins which are shown to have higher levels of potentially divertible material in them¹.
29. A centralised organic collection system is needed to achieve the targets of the Zero Waste Strategy and the direction set by central government. However, it is acknowledged that there are a number of compost focused community groups and providers. These groups and providers can provide benefits which cannot be achieved through a centralised system, these include community, social, environmental, education and food resilience benefits.

¹ [SWAP full report \(wellington.govt.nz\)](https://www.wellington.govt.nz) (section 3.2)

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30. The procurement process will be designed to ensure different providers can submit tenders, and broader outcomes can be integrated into the assessment criteria. An example could be ‘a portion of collected organics will be made available to community gardens and groups’.
 31. Ensuring the procurement process provides for a number of different providers and broader outcomes is important, but equally important is that these groups continue to have council support. Any behaviour change and education messaging needs to emphasise the value of localised solutions and how these can co-exist alongside a centralised system. The increased messaging about organics raises the level of awareness within a population and also provides an opportunity for better discussions to take place.
 32. A detailed commercial plan will be brought back to the Environment and Infrastructure Committee in May 2024. This will include further detailed analysis of how many households could receive standard service, results of market engagement for a regional organics processing facility, the funding contribution agreed by the Ministry for the Environment, and refined cost estimates based on this additional information.

Takenga mai | Background

Policy drivers and Zero Waste Strategy

33. On 27 April 2023 the Environment and Infrastructure Committee unanimously approved the Zero Waste Strategy, the goal of which is to achieve intergenerational sustainability by moving to a circular economy.
34. The outcomes and objectives of the Zero Waste Strategy are included in the draft objectives for the 2024-34 Long-term Plan which closed to public consultation on 24 May 2023. These include a priority statement that “waste reduction is attractive and accessible with the systems and infrastructure in place to increase resource circularity”.
35. The disposal of waste to landfill represents the loss of potential economic value of materials. Reuse of these materials is consistent with the principles of the circular economy incorporated within the Zero Waste Strategy 2023 and the Economic Wellbeing Strategy 2022. The revenue generated from the sale of reprocessed materials can off-set the cost of collecting materials, improving affordability of these services at a household level.

Objectives of proposal:

- Waste reduction is attractive and accessible to Wellingtonians.
- Significantly reduce organics waste going to landfill.
- Significantly reduce household and commercial waste going to landfill, while providing value for money for ratepayers.
- Reduce carbon emissions from waste.
- Address the diverse commercial and residential waste-related kerbside servicing needs of stakeholders in a fair and equitable manner.
- Support operational efficiency for the council.

- Stakeholders are enabled and have the knowledge to recycle items and organics correctly to reduce waste going to landfill.
- Promote the health and safety of both waste service providers and users.

What is being proposed?

36. There are two components to this report which are inextricably linked. The first is that introducing an organic collection allows for wider changes to the current way waste and recycling collections are managed in Wellington city. By removing food scraps from general rubbish, the frequency of rubbish collection can be reduced and this gives an opportunity to consider the best way to maximise diversion from landfill in relation to recycling.
37. The second component is that if food scraps and / or garden waste are collected separately there needs to be an appropriate processing facility in an acceptable location. As there are currently no such facilities in the Wellington region, council officers are working closely with Porirua City Council and Hutt City Council to determine options for a regional facility.

Why should organic/food waste be diverted from landfill?

38. Food waste is particularly problematic in terms of landfill disposal because it is buried by other rubbish and crushed, which limits its exposure to sunlight, oxygen, and helpful microorganisms. As it breaks down anaerobically (without oxygen), it releases more methane than it would if it decomposed naturally, such as in a compost bin. Methane is a powerful greenhouse gas and has roughly 30 times the impact of carbon dioxide on climate change.
39. In addition, the large volume of food waste going to landfill is shortening the life of the landfill. There is a missed opportunity to align to the circular economy through the production of compost.

Para Kai Miramar Peninsula Food Diversion Trial

40. In 2020 – 2021 a trial involving 950 households in Miramar Peninsula was undertaken to measure the effectiveness of two different methodologies for diverting residential food waste from landfill². The two methodologies were:
 - enhanced home composting (compost bins, worm farms and bokashi systems)
 - a weekly kerbside food waste collection service
41. In total, 500 of the households had a weekly kerbside food waste collection, and 450 households were provided with a free compost bin, worm farm or bokashi system.
42. The Trial showed the average weight of food waste set out per household reduced by 38.8% in the Food Waste Collection trial area and by 16.4% for households participating in the Home Composting trial.
43. The participants were surveyed before and during the trial to gauge perceptions on the success of the trial. The survey indicated that participants thought the trial was a good idea for Wellington, in particular the food waste collection and compost bin options.
44. The trial and associated survey indicate that organic kerbside collection is the most effective method for diverting food waste from landfill.

² [Reducing your waste - Para Kai Miramar Peninsula Trial - Wellington City Council](#)

Why now?

45. Due to the proposal involving a significant change to services, a business case has been prepared (Attachment 1) to allow for public consultation to be undertaken as part of the Long-term Plan 2024-34 process early next year.
46. In addition to the reasons for removing organic material from landfill as outlined in the Zero Waste Strategy and Te Atakura, there is a window of opportunity for holistic review of WCC waste collection services for the following reasons:
 - The current waste collection contract for WCC expires in June 2026. From a commercial perspective, having certainty around the services required from the start of the negotiations, rather than changing part way through the contract will avoid unnecessary costs.
 - The existing vehicle fleet is reaching end of life. The type of bins and waste streams collected will impact on the appropriate collection vehicles that need to be ordered to provide future services.
 - Wellington City Council is currently constrained in its waste minimisation activities by the 4 to 1 mixing ratio required to bury sewage sludge at the Southern Landfill. The opening of a new Sludge Minimisation Facility at Moa Point will remove this key constraint on waste minimisation activities. The new Sludge Minimisation Facility is expected to be operational by 2026.
 - The Ministry for the Environment has funding available to support the introduction of new organics collections and necessary processing facilities. Some of this funding will be awarded on a first come, first served basis. It is uncertain how much (if any) additional funding will be provided in future, making it important that WCC is well positioned to apply for this funding in the immediate future.

Kōrerorero | Discussion

Collections

47. Too much divertible waste is going to landfill, creating emissions, and preventing the re-use of valuable resources. In response to this issue, the council has committed to reduce the per capita kerbside waste by 40% by 2030 and divert 50-70% of organic waste from landfill by 2030³.
48. One of the ways we can achieve this commitment is to optimise Wellington City's residential waste collection service which accounts for approximately 33.5% of all levied waste disposed of at the landfill ⁴.
49. In addition to suburban residential properties, the business case considers service levels provided to multi-unit developments (consisting of 10 or more households), private roads, community facilities (such as schools, clubs, marae), and commercial premises. Currently they do not receive the same level of service when it comes to recycling, which raises questions of fairness.

Existing services

³ [Wellington City Council Zero Waste Strategy](#)

⁴ [SWAP full report \(wellington.govt.nz\)](#), 2018, Table 6.1

50. The council currently provides some rubbish and recycling collections. These are summarised in the table below:

Council Services	Rubbish	Recycling	Separated Cardboard	Glass	Organics
Suburban residential	Weekly in 50L council yellow bag	Fortnightly 140L wheelie bin or 70L council clear / green bag	none	Fortnightly 45L crates	none
CBD residential	Daily in 50L council yellow bag	Weekly 70L council clear recycling bag or any clear bag	Weekly bundled	Included in recycling bags	none
CBD commercial	none	none	Weekly bundled	none	none
Suburban commercial	none	none	none	none	none
Community facilities (on request)	Weekly in 50L council yellow bag	Fortnightly 140L wheelie bin or 70L council clear / green bag	none	Fortnightly 45L crates	none

51. Where council does not provide a service, the private sector meets the waste collection needs.

Bespoke Service

52. Due to the topography, narrow streets and areas of high density there is no 'standard' service which could be used for all residential purposes. As such, a 'bespoke' service will need to be designed and implemented for different situations. This could include providing bags, bin depots or shared bins on private land and bin depots or shared bins on public land where suitable private land is not available.
53. A standard service may not be appropriate for multi-unit developments and private roads, as such, a bespoke service may be required.
54. The business case recommends that a bespoke service for community facilities such as marae, schools and clubs should be considered in the detailed commercial case in May 2024.
55. The business case does not recommend developing a bespoke service for commercial premises at this time.
56. A detailed commercial plan will be brought back to the Environment and Infrastructure Committee in May 2024. This will include further detailed analysis of how many households could receive standard service, what a bespoke service could look like.

Funding

57. A targeted rate is recommended to fund the new rubbish and organics collection service. This is the funding method used at all other major metro councils. Recycling collections will continue to be funded out of landfill fees. In future if landfill revenues can no longer fully fund recycling services, a targeted rate for recycling collections could be added.
58. The funding contribution agreed by the Ministry for the Environment and refined cost estimates will be provided in the detailed commercial plan in May 2024.

Affordability for households

59. Only 40% of households are estimated to use the council rubbish bag service with 60% using a private wheelie bin service. A household putting out one rubbish bag per week would have an annual cost of \$182. Private wheelie bin collections vary in price. One company offers a 140L wheelie bin weekly rubbish collection for \$395. Larger sized bins are more expensive.
60. In 2026/27 the targeted rate is forecast to be \$258 per household. Based on the current ratio that \$4.8M additional spending equals a 1% increase in rates this would be equivalent to a 4.2% increase in rates.
61. The following table gives an indication of the current costs of collection services paid by residents and what a future targeted rate could be.

	Current	Targeted rate
Rubbish	\$182 (one bag/week) \$395 140L private weekly	\$140-\$180
Recycling + glass	Landfill fee	Landfill fee
Organics	none	\$70-\$100
Total	\$182-\$395	\$210-\$280

62. It is very likely that every household currently using a private rubbish collection service will be better off, even when the additional cost of an organics collection is included. For the 40% of households that use bags the new rubbish collection service should be comparable in price, with an additional charge for the organics collection.

Organics Processing Facility

63. A new organics collection service will most likely require a new organics processing facility for the region, as the closest existing facilities are in Ohakune, Hawke's Bay and the Waikato.
64. There are a variety of processing technologies ranging from open windrows, vermiculture (worms), in-vessel composting and anaerobic digestion. Each has different strengths and weaknesses. The decision on what type of organic materials are being collected will impact which processing technology is appropriate. However, it is proposed to go to market to see which options are available rather than specifying the technology prior to the procurement process.
65. The Ministry for the Environment has grant funding available to support projects such as this and have said they will favour applications with a regional lens. Therefore, WCC staff are working with Hutt City Council and Porirua City Council to prepare a proposal for a new regional organics processing facility. A regional facility would likely reduce the capital commitment needed from WCC but comes with associated coordination challenges. It is also possible that other councils within the Wellington region will choose to join in this initiative.

Localised composting solutions

66. A centralised organic collection system is needed to achieve the targets of the Zero Waste Strategy and the direction set by central government. However, it is acknowledged that there are a number of compost focused community groups and providers. These groups and providers can provide benefits which cannot be achieved through a centralised system, these include community, social, environmental, education and food resilience benefits.
67. Ensuring the procurement process provides for a number of different providers is important, but equally important is that these groups continue to have council support. Any behaviour change and education messaging needs to emphasise the value of localised solutions and how these can exist alongside a centralised system.
68. A benefit of increased messaging about organics raises the level of awareness within a population and also provides an opportunity for better discussions to take place.

Kōwhiringa | Options

Collections Options

69. Tonkin +Taylor (T+T) were engaged by the Council to develop options for the service configuration of organic materials, recycling and rubbish collections. Their full report is included within the attached business case. T+T are highly experienced, and their team have been involved in designing and rolling out changes to kerbside collections both nationally and in Australia.
70. T+T have identified a number of different options. These have been based on the criteria of diversion from landfill, circular economy/after markets, accessibility, greenhouse gas emissions, cost to user and safety/handling. The options have been viewed through a lens of what are reasonably practicable in order to achieve the objectives.

Table 5-8: Shortlisted options

Option	Rubbish	Recycling ¹⁴	Organics	Indicative costs ¹⁵
SQ	Weekly bag (pay as you throw)	Fortnightly wheelie bin + fortnightly 45L glass only crate	No collection	
A	Fortnightly 120L wheelie bin	Fortnightly wheelie bin incl glass	Weekly 23L food only bin (manually collected)	\$300 - \$350
B	Fortnightly 120L wheelie bin	Fortnightly wheelie bin excl glass + four-weekly 80L wheelie bin	Weekly 23L food only bin (manually collected)	\$250 - \$300
C	Fortnightly 120L wheelie bin	Fortnightly wheelie bin incl glass	Weekly 80L food and garden wheelie bin	\$250 - \$350
D	Fortnightly 120L wheelie bin	Fortnightly wheelie bin excl glass + four-weekly 80L wheelie bin	Weekly 80L food and garden wheelie bin	\$200 - \$250
E	Fortnightly 120L wheelie bin	Fortnightly wheelie bin + fortnightly 45L glass only crate	Weekly 23L food only bin (manually collected)	\$200 - \$270
F	Fortnightly 120L wheelie bin	Fortnightly wheelie bin + fortnightly 45L glass only crate	Weekly 80L food and garden wheelie bin	\$250 - \$300

Figure 1- Table 5-8 Shortlisted Options, T+T Redesigning Rubbish and Recycling Collections Report (page 36)

71. Figure 2 below illustrates the bin requirements for the shortlisted options.



Figure 2 - Bins required for each option

72. The methodology for determining these options is discussed in detail in the business case. This includes the rationale for choosing Option D – food and garden waste/glass wheelie bin, Option E – food scraps only/glass crate and Option F - food and garden waste/glass crate for consultation.
73. The recommended option for a standard collection service is Option F which includes.
- A weekly collection of mixed food and garden waste in an 80L wheelie bin,
 - A fortnightly collection of paper, plastics, tins and cans in a 240L wheelie bin,
 - A fortnightly collection of rubbish in a 120L wheelie bin, and
 - A fortnightly collection of glass in a 45L crate.

74. This option is preferred despite not having the highest cost benefit ratio due to several other factors:
- A fortnightly glass crate collection will be more flexible if a container return scheme is introduced in future and glass recycling volumes fall.
 - A glass crate is manually colour sorted when collected, which means the glass can be recycled into bottles. This is a more circular outcome than glass collected in wheelie bins, which cannot be colour sorted and is used as a sand substitute in roading aggregate.
 - Option F performed best in the cost benefit analysis when costs were held steady across options. This means the better value for money of option D is driven entirely by the lower \$50 cost per household, which may not be fully realised in practice.
75. Option E would provide a food scrap only collection which might be lower cost than food and garden collection, but diverts less material. Also a 23L bin creates health and safety challenges with repetitive lifting for drivers and the bin is likely to cause a tripping hazard or be damaged by the wind. It is not recommended but is suggested to include in consultation to offer the public a choice for a food only collection.
76. Option D provides better health and safety than the recommended option as all bins could be lifted automatically. However, it is less circular as the glass is not colour sorted and cannot be recycled into bottles / jars. It could however be used as lower value sand-substitute in roading aggregate. It may offer a lower cost option than option F.
77. Options A, B and C do not meet the project objectives as well as Options D, E and F. For this reason it is recommended that Options A, B and C are not taken to consultation.

Organics Processing Options

78. The attached business case details the different organics processing options available and the associated costs. Whilst no decision will be made on the type of facility prior to the formal procurement process, it is important to note that different technologies suit different types of materials. In addition, this is an emerging field where innovations are constantly emerging around the world.
79. More processing methods are suitable for food only collections than for food and garden waste combined (FOGO). This is because the small pieces of wood material in garden waste such as branches and twigs are harder to break down than food scraps or soft/green garden waste like grass and leaves. However, the options shown below are / or could be suitable for FOGO.
80. In vessel composting is an enclosed system which is a proven technology. It has short processing times and allows for a wide range of materials to be composted. It creates high quality compost and has minimal odour or leachate issues. In addition, it requires a relatively small land area, but does require an appropriate buffer distance from residential areas to manage odour.



Figure 3 – example of in-vessel composting

81. Dry anaerobic digestion can process FOGO but this is an emerging technology. There are currently no dry anaerobic digestion sites operating at a city-wide scale in Australasia at present.
82. Wet anaerobic digestion is traditionally only suitable for food scraps, however, EcoGas who operate the anaerobic digestion facility in Reporoa claim that pre-sorting of mixed food and garden waste combined with “tweaking” the digestion process means that new anaerobic digestion facilities could accept FOGO. It is unclear how effective or costly these adaptations to anaerobic digestion may prove to be. EcoGas have said they are interested in tendering for the new Christchurch organics processing facility which is for an existing mixed food and garden waste collection⁵.

⁵ [Councils are transporting food scraps hundreds of kilometres as NZ tries to avoid dumping 350,000 tonnes of food waste into landfills each year | Stuff.co.nz](#)



Figure 4 – example of wet anaerobic digestion facility

83. Aerated static pile composting is also suitable for processing FOGO. Aerated static pile composting requires more land than in vessel composting and has more potential for odour and pest management issues. There are options to provide covered or open composting windrows.



Figure 5 – example of covered aerated pile

84. Regardless of processing method these facilities generally require sufficient scale to operate cost effectively, which means they will likely continue to operate at a regional level. It is also advantageous for them to be located rurally as this places them close to

the main customers of their end products – agriculture and horticulture. It also allows for buffer distances from residential areas to minimise the effects of odour.

Whai whakaaro ki ngā whakataunga | Considerations for decision-making

Alignment with Council’s strategies and policies

85. On 27 April 2023 the Environment and Infrastructure Committee unanimously approved the Zero Waste Strategy, the goal of which is to achieve intergenerational sustainability by moving to a circular economy. One of the key outcomes of the strategy is to treat landfill capacity as finite. Resources should instead be reused or repurposed so we can regain their value. To do this, the community needs to be equipped to reduce waste, with services that make material capture and waste diversion an easy choice. The strategy sets the following relevant targets for reducing waste to landfill and biogenic methane gas emissions:
- Reduce total waste to landfill by 50% by 2030
 - Reduce per capita kerbside waste to landfill by 40% by 2030
 - Divert 50-70% of organic waste from landfill by 2030
 - Reduce biogenic methane emissions by at least 30% by 2035
86. The outcomes and objectives of the Zero Waste Strategy are included in the draft objectives for the 2024-34 Long-term Plan which closed to public consultation on 24 May 2023. These included a priority statement that “waste reduction is attractive and accessible with the systems and infrastructure in place to increase resource circularity”.
87. The disposal of waste to landfill represents the loss of materials with potential economic value. Reuse of these materials is consistent with the principles of the circular economy incorporated within the Zero Waste Strategy 2023 and the Economic Wellbeing Strategy 2022. The revenue generated from the sale of reprocessed materials can off-set the cost of collecting materials, improving affordability of these services at a household level.
88. Investments in the collection of organic and recyclable materials also contribute to council’s Te Atakura goals to reduce emissions. It also contributes to the priority waypoint of tiakina te taiao in Tūpiki Ora Māori Strategy – ‘caring for our environment’.
89. The strategic context is illustrated below⁶.

⁶ [Wellington City Council Zero Waste Strategy](#)

Strategic context

Our vision

Our vision for Wellington 2040 is an inclusive, sustainable and creative capital for people to live, work and play.

Our community outcomes

Environment

A sustainable, climate friendly eco capital

Social

A people friendly, compact, safe and accessible capital city

Cultural

An innovative, inclusive and creative city

Economic

A dynamic and sustainable economy

Key Council strategies

LTP priority

Te Atakura - First to Zero

Economic Wellbeing Strategy

Resilience Strategy

An accelerating zero-carbon and waste-free transition

Global

UN Sustainable Development Goals

Paris Agreement

Global shift to a Circular Economy

National

Climate Change Response Act 2002

Emissions Reduction Plan 2002

National Waste Strategy (in dev) - Shifting NZ to a Circular Economy

Waste Minimisation Act 2008

Transforming Recycling

Regional

Wellington Region Waste Management and Minimisation Plan

Figure 6 - Strategic Context Wellington City Council Zero Waste Strategy 2023 (page 19)

90. At a high level there has been wide ranging consultation and engagement for this project in the form of consultation on the Zero Waste Strategy and the consultation on the draft Wellington Region Waste Management and Minimisation Plan 2023-2029. Within these, community views from across Wellington were collected.
91. T+T and WCC staff also met with several waste management companies and community organisations operating in organic waste collection and processing. These companies included Organic Waste Management, Civic Waste, Kaicycle, Garden to Table, Organic Wealth, Waste Management NZ and Enviro NZ.

Engagement and Consultation

92. At a high level there was an acknowledgement that residential food scrap collections are coming, and that private collectors are likely to focus on commercial premises or would hope to get the wider collections contract. Further details of engagement are included in the business case and T+T Collections report.
93. With the organisations involved in community composting or localised composting solutions, there were varying views on whether a centralised system was required. Some acknowledged this was necessary due to the challenges of operating at scale, whereas others thought it was a lost opportunity for education of all residents and localised solutions.

-
94. There was strong feedback that community composting facilities are not simply about waste management but have wider impacts in terms of food security, soil enrichment, community networks and education. In the main, it was acknowledged that they can co-exist with a wider collection service.
 95. When developing the scope of the project a number of presentations and discussions took place with relevant teams within WCC including the climate change team, annual plan team, city design, cleansing and growth, commercial partnerships, city consenting and compliance, finance, risk and assurance and legal.
 96. In preparing their report T+T and WCC staff presented to key internal stakeholders to discuss in more detail the options for collections being considered. In particular the waste operations team to understand what was going well and what wasn't.
 97. WCC staff have also engaged with other territorial authorities who have recently rolled out changes to their kerbside collections. The lessons learned by those councils have been freely shared and have informed the approach taken to develop the options and to understand the requirements for designing bespoke services, procurement and considerations for implementing any changes.

Implications for Māori

98. The changes proposed to waste collection and processing services are consistent with values articulated in our Tākai Here agreement. In particular, the concept Matua te tapū, which speaks to a deep connection and kinship to all elements of our natural environment.
99. Reusing materials, particularly to restore soil quality, is consistent with improving the mauri of te taiao, a key element of the vision set out in Tūpiki Ora.
100. The changes recommended in this business case will support human behavioural changes and actions that will create a more sustainable future and provide a reduction in emissions, which are both long-term actions in Tūpiki ora.
101. The Council will continue to work with mana whenua on areas of interest to them. We are working on ways to include mana whenua at a strategic and regional level in waste minimisation. This may include new mana whenua representation on the Zero Waste Programme Steering Group.
102. The procurement approach will consider the Broader Outcomes Strategy, in particular those council can achieve with our mana whenua partners. This could include opportunities for rangatahi employment, a target for the percentage of Māori employees, or utilising Māori owned businesses.
103. There are no known direct implications for iwi.

Financial implications

104. Rubbish collections are funded with revenue from purchases of council bags. The current price is \$3.50 per bag. Recycling collections are funded with a recycling levy charged on waste going to landfill. The recycling levy on a tonne of mixed commercial waste is \$67.50. The existing funding pathways are illustrated in Figure 7 below.

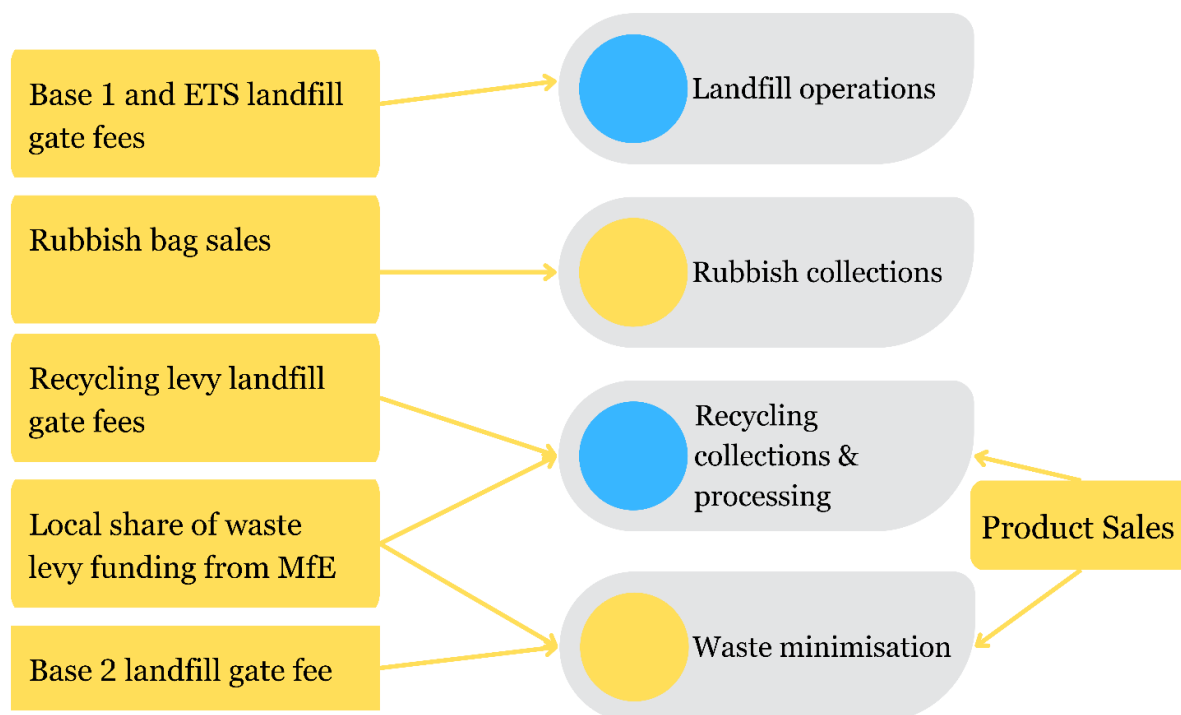


Figure 7 – existing operational funding sources

105. The capital expenditure requirements for an organics processing facility could be lower depending on the outcome of the procurement process (particularly the type and location of proposed facilities and the appetite from waste management companies to partner with council) and that officers will report back with updated cost estimates in May 2024.
106. Under the recommended options, wheelie bins will be provided for rubbish collection instead of bags. Revenue from rubbish bag sales will no longer be an available funding source. Charging households every time their wheelie bin is emptied is not recommended as the technology is unreliable and results in many errors.
107. Instead, officers recommend introducing a new targeted rate to fund rubbish and organic collections. Targeted rates for waste collection are common across New Zealand. Generally a flat fee is charged per residential unit to fund the full cost of the collection service.
108. Officers recommend continuing to fund recycling collections via the recycling levy on waste going to landfill. This revenue stream will decline over time as the tonnes of waste going to landfill reduce due to greater waste diversion activity. At some point in future recycling collections will need to be added to the targeted rate.

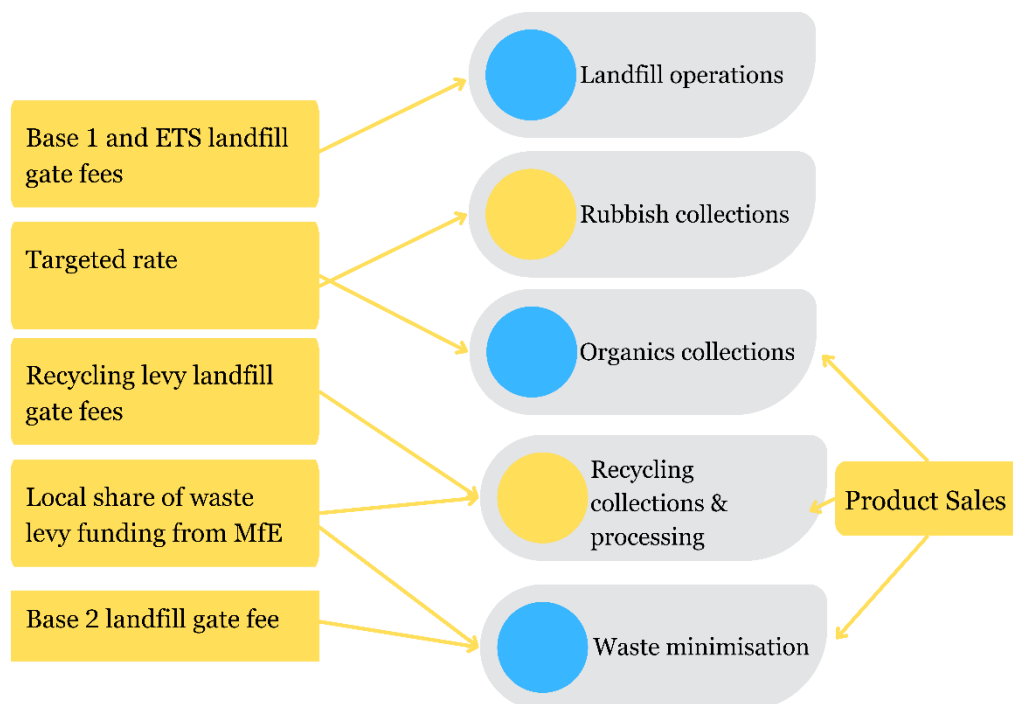


Figure 8 – proposed operational funding sources

109. The indicative cost ranges for each option were estimated by T+T based on the waste collection targeted rates of other councils. These cost ranges are therefore on a per household basis. Targeted rates generally include the full cost of providing collection services, including the cost of processing material, depreciation and interest charges on any assets, and net of any end product revenue.
110. The total cost of option F was estimated based on the number of rateable residential unit used to strike the 2023/24 rate. This number has been adjusted for household growth in future years using SensePartners forecast data.
111. The indicative operating cost (adjusted for inflation) associated with option F – FOGO/glass crate are:

\$ million	2023/ 24	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Standard Service (Option F)	\$0.0	\$0.0	\$0.0	\$15.0	\$15.4	\$15.9	\$16.3	\$16.8	\$17.3	\$17.8	\$18.2	\$132.7
Bespoke Service (Option F)	\$0.0	\$0.0	\$0.0	\$9.5	\$9.8	\$10.1	\$10.4	\$10.7	\$11.0	\$11.3	\$11.6	\$84.2
Comms and education	\$0.0	\$0.0	\$0.7	\$1.2	\$0.3	\$0.3	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$2.9
Project Delivery	\$0.6	\$0.9	\$0.9	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$2.2	\$4.6
Interim trucking organic material out of region	\$0.0	\$0.0	\$0.0	\$0.7	\$0.7	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$1.4
Total Opex	\$0.6	\$0.9	\$1.6	\$26.4	\$26.3	\$26.3	\$26.8	\$27.5	\$28.3	\$29.1	\$32.1	\$225.8

112. The forecast recycling levy revenue (adjusted for landfill tonnage forecasts, but no change to 2023/24 price) is:

\$ million	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Recycling levy forecast	\$7.5	\$7.5	\$6.1	\$5.6	\$5.6	\$5.6	\$5.6	\$5.7	\$5.7	\$5.7	\$60.6

113. Based on a forecast number of rateable residential units in 2026/27 a targeted rate for rubbish and organics collection would be \$258.
114. This compares to an annual cost of \$182 for households that put out one council rubbish bag per week, and approximately \$395 for households with weekly collection of a 140L rubbish wheelie bin.
115. The Ministry for the Environment has a funding pool of \$120M that offers up to 50% funding assistance for organics processing facilities and up to 75% for organic collections (to be used for organics bins, project management costs and communications / engagement). This funding pool is being heavily contested throughout NZ.
116. The Landfill Surplus Fund is used to smooth out any operating deficits at the Southern Landfill. When there is an operating surplus it gets paid into the fund which can then be used to fund any future operating deficit without increasing rates. In the past seven years there has only been a deficit in 2018/19 of \$1.1 million. Surpluses have been run in every other year and the Landfill Surplus Fund is provisionally \$20.7M at 30 June 2023.
117. Officers recommend that \$2M is retained in the Landfill Surplus Fund to manage the risk of landfill operating deficits. Significant landfill operating surpluses are unlikely in the next 3 years as the remaining capacity in stage 3 of the Southern Landfill declines. To ensure the remaining capacity lasts until the landfill extension is operational contaminated soil tonnage (a significant source of revenue in recent years) may need to be turned away.
118. Officers recommend that \$3.7M is retained in the Landfill Surplus Fund to fund the proposed expansion of the Tip Shop and related resource recovery projects in the Resource Recovery business case that is being considered at the same committee meeting.
119. The estimated cost of new bins for all urban households for preferred Option F is \$14.1M in 2025/26.
120. Staff have submitted a funding application to the Ministry of the Environment for \$4.7M contribution to the roll out of changes to collections services, including \$4M the cost of new organics bins, to be reimbursed on receipt of payment.
121. The net cost of new bins is \$10.1M and it is recommended that this is funded from the Landfill Surplus Fund.
122. The high-end cost estimate for a new organics processing facility from Tonkin+Taylor is \$70M at current prices.
123. Staff intend to submit a funding application to the Ministry for the Environment for 50% of the cost of a new facility. The application will be jointly submitted with Hutt City Council and Porirua City Council.
124. Staff from WCC agreed with staff from HCC and PCC that the remaining \$35M should be shared by the three councils on a population basis. WCC's share is \$19.5M.
125. The total capital expenditure for an organics processing facility including project delivery costs and adjusted for inflation is as follows:

\$ million	2023/24	2024/25	2025/26	2026/27	2027/28	Total
WCC share of organics processing facility	\$0.0	\$0.0	\$2.1	\$9.6	\$9.8	\$21.5
Project delivery costs	\$0.4	\$0.4	\$0.3	\$0.1	\$0.1	\$1.3
Total Organic Processing Facility capex	\$0.4	\$0.4	\$2.4	\$9.7	\$9.9	\$22.8

126. \$4.8M is available from the Landfill Surplus Fund and using this funding would reduce the capital requirements for a new organics processing facility as follows:

\$ million	2023/24	2024/25	2025/26	2026/27	2027/28	Total
Total Organic Processing Facility capex	\$0.4	\$0.4	\$2.4	\$9.7	\$9.9	\$22.8
Less \$4.8M Landfill Surplus Funds	\$0.4	\$0.4	\$2.4	\$1.6	\$-	\$4.8
Capital Funding requirement	\$-	\$-	\$-	\$8.1	\$9.9	\$18.0

127. The capital expenditure requirements for an organics processing facility could be lower depending on the outcome of the procurement process (particularly the type and location of proposed facilities and the appetite from waste management companies to partner with council) and that officers will report back with updated cost estimates in May 2024.

128. Committing capital funding to this project will reduce the available debt headroom for other council projects.

Legal considerations

129. Collectively, the Local Government Act (2002), the Waste Minimisation Act (2008), the Litter Act (1979), the Climate Change Response Act (2002), the Resource Management Act (1991), and the Health Act (1956), provide a legislative framework for waste management and minimisation in New Zealand.

130. While the Council is not required to provide any waste or recycling facility or service, in accordance with the Waste Minimisation Act, it is required to promote effective and efficient waste management and minimisation within its city or district. The Council is also required to adopt a Waste Management and Minimisation Plan, and to review this plan at least every 6 years.

131. In this paper, Council is being asked to “shortlist” three reasonably practicable options for consultation. The Local Government Act 2002 (LGA) sets out requirements for a local authority in relation to decision-making (s77). It requires a council to identify and assess all reasonably practicable options for the achievement of the objective of a decision. The business case and T+T report outline the reasonably practicable options, their advantages, disadvantages and how a short-list has been determined.

132. The shortlisted options, along with the proposed changes to levels of service, funding and capital expenditure will be consulted on as part of the Long-term Plan process. The Long-term Plan process is required to follow a special consultative procedure under the LGA.

Risks and mitigations

133. This proposal has been assessed using the committee and subcommittee risk analysis tool and emerges as a moderate risk, with a moderate consequence and a likelihood of 'unlikely'. There are three relevant consequences being:

Democracy and Governance

134. The decision being sought is to consult on a shortlist of three options. There is a risk that challenges are made as to why these three options have been put forward for consultation instead of other options. The mitigation to this risk is the transparent workings within the business case and T+T collections report.

Significant projects and programmes:

135. This project forms part of the Zero Waste Programme. It is a priority project within the programme due to the potential diversion rates which can be achieved and the emission reductions. If separate collection of food scraps / garden waste is not provided for then the diversion targets of the Zero Waste Strategy will be less likely to be achieved.

Reputation and trust:

136. The proposal involves consulting on changes to a key public service. Whilst no decisions are being made at this stage on what option will be progressed, there is potential for the council's reputation to be impacted. To mitigate this risk, the full consultation and decision-making process of the Long-term Plan 24/25 is to be utilised.

Disability and accessibility impact

137. It is intended to present to the Accessibility Advisory Group once the business case is endorsed.

138. Accessibility is also one of the criteria against which the potential options have been ranked. This is both for manoeuvrability of the bins and for tripping hazards. Accessibility will also be a key consideration in relation to a roll-out of additional services the potential impact that may have on footpaths.

139. There is currently an assisted collection service which can be applied for where residents have a disability or health condition that prevents them from taking recycling or rubbish bags to the kerbside. This service incurs an annual cost of \$125 for rubbish only and \$225 for rubbish and recycling or can be provided for free if financial hardship applies. The uptake for this is relatively low, sitting around 80.

140. With the potential increase in the number of bins, the need for assisted collections may increase. The process for managing this will be reviewed in the implementation phase.

Climate Change impact and considerations

141. The reduction of organic material being disposed of to landfill is a significant step towards achieving Wellington's zero carbon goal.

142. The cost benefit analysis calculated the emissions reduction associated with different options. The recommended option is projected to reduce CO₂e emissions by of 2,400 t/year will be achieved. If higher participation rates are achieved there will be additional emissions savings.

143. The type of processing facility will impact on the emission calculations. Emissions will be a key consideration in the procurement approach.

Communications Plan

144. A press release will go out with the meeting agenda and will be updated when a decision is made by the committee. The project's communication plan will be updated to reflect consultation going ahead. It is proposed that public consultation will occur through the Long-term Plan consultation process in early 2024.

Health and Safety Impact considered

145. The proposed changes to the level of service have considered the health and safety impact of collections on both public and the collectors.

146. The business case provides specific details, however, at a high level changing the standard service from rubbish bags to bins will improve the health and safety risks of drivers needing to pick up bags which potentially have sharp items in them, manually lifting heavy bags and having to get in and out of the truck repeatedly.

Ngā mahinga e whai ake nei | Next actions

147. The short listed options will be included into the draft Long-term Plan 2024-34 consultation document. Option F will be included in the budget for the consultation document. This will ensure consultation with the community through the formal Long-term Plan consultation in the first half of 2024.

148. Officers will report back to the Kōrau Tūāpapa | Environment and Infrastructure Committee prior to the final approval of the Long-term Plan 2024-34 (likely May 2024), with updated details on the proposed changes to levels of service, including:



- the progress of the regional organics processing procurement process
- a procurement approach for a new collections contract to implement the councillor selected preferred option, including detailed specifications such as bin types and truck fleet requirements.
- Updated cost estimates for the proposed changes to levels of service, including both operating and capital costs.
- Additional information about the implementation of these change to levels of service, including proposals for phasing the transition to new collections services and further information about bespoke collections.






149. In June 2024 the final decision on funding and level of service will be made by the Kōrau Tōtōpū | Long-term Plan, Finance, and Performance Committee.

150. If the decision to proceed is made, then formal procurement will commence.

151. Implementation of the changes to collections will commence in 2026.

Attachments

Attachment 1.	Zero Waste Programme - Collections and Processing Business Case - September 2023 ↓ 	Page 38
Attachment 2.	T+T Redesigning Rubbish and Recycling Collections Report - August 2023 FINAL ↓ 	Page 130
Attachment 3.	T+T Regional Organics Options Report - August 2023 FINAL ↓	Page 250

Attachment 4.	 Landfill Tonnage and Revenue Forecasts ↓ 	Page 312
Attachment 5.	Kaicycle - current state and strategic direction - August 2023 ↓	Page 318
Attachment 6.	 Cost Benefit Analysis for Collections and Processing - August 2023 ↓ 	Page 322
Attachment 7.	T+T Resource Recovery Business Model Options - August 2023 ↓ 	Page 352

Absolutely Positively
Wellington City Council

Me Heke Ki Pōneke

Collections and Processing Business Case

Zero Waste Programme

7 September 2023



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**Absolutely Positively
Wellington City Council**

Me Heke Ki Pōneke

This is the imprint page

This page contains everything we need to know about who wrote the book, who the publisher is, how we can contact them, copyright information, where the book was printed, ISBN/ISSN, and version control.

This is set in a textbox and can be located anywhere on this page (top or bottom), but ensure that this is left aligned.

Version	Date	Author	Approver
1	05/08/2023	Jennie Condie, Business Cases Writer Stephanie Steadman, Senior Waste Planner	Siobhan Procter, Chief Infrastructure Officer

Executive Summary

The Zero Waste Strategy vision to achieve intergenerational sustainability by achieving a circular economy shows Wellington City Council's commitment to Te Atakura Climate Change Strategy and mana whenua's ngā pae hekenga | priority waypoint of tiakina te taiao | caring for our environment in Tūpiki ora | Māori strategy.

To achieve the targets in the Zero Waste Strategy we need to divert more waste from landfill and reduce the resultant greenhouse gas emissions. To do this, a new organics collection service and processing facility is needed.

To meet the Aotearoa New Zealand's Emissions Reduction Plan targets and in alignment with the recently adopted Te rautaki para I Waste Strategy, the Government has announced that councils will be required to provide a food scrap collection service to all urban households by 2030 at the latest. The supporting legislation is not expected to be introduced to the House before the general election. There is no indication whether this will proceed if there is a change in government.

The waste collection contract for Wellington City Council expires in June 2026 and significant funding is now available from the Ministry for the Environment (MfE) to support the introduction of organics collections. This creates a window of opportunity for a holistic review of Council waste collection services and to make transformational changes where these are justified.

The collection contract has already been extended once and the collection vehicle fleet is at its end of life. These vehicles need to be replaced as part of a new collection contract. The lead time for ordering these specialised vehicles is 18 months and the new contract needs to be awarded by 8 January 2025 at the latest to ensure a new contract providing service can be operational from 1 July 2026. The collection service configuration needs to be agreed prior to procurement as different types of bins and materials require different collection vehicles. These vehicles have a 10-15 asset life so once this contract is agreed WCC will be committed to the chosen collection configuration for at least a decade.

Wellington's topography with many steep, narrow streets and high winds presents significant challenges for waste collection that are not shared by other New Zealand cities. Therefore a hybrid collection service will always be needed to accommodate the difficult terrain. We propose that a standard service is developed for accessible properties (approximately 65% of households) and a bespoke service including a variety of options is delivered to less accessible properties. Delivering a hybrid service means it will be challenging for per household collections costs in Wellington city to match other places that can offer a uniform service.

Designing a waste collection service is complex with multiple interdependencies. Choices made about collections impact on the available processing options as well as the value of the end-products produced. Providing separate organic collections provides greater options for changing the frequency of rubbish collection. Changes to rubbish collections will also influence the participation in recycling and organics collection. Changing one element of the service configuration can affect the success of other elements.

A multi criteria analysis supported by a cost benefit analysis was used to evaluate different options for a standard collection service. The multi criteria analysis considered diversion, accessibility, emissions reduction, cost of service, worker safety, and circularity/value of end products.

Four options are recommended to include in the Long-term Plan Consultation Document, a "do nothing" option and options D, E and F:

Option	Rubbish	Recycling	Organics
D	Fortnightly 120L wheelie bin	Fortnightly 240L wheelie bin excl glass + four-weekly 80L wheelie bin	Weekly 80L food and garden wheelie bin
E	Fortnightly 120L wheelie bin	Fortnightly 240L wheelie bin + fortnightly 45L glass only crate	Weekly 23L food only
F (preferred)	Fortnightly 120L wheelie bin	Fortnightly 140L wheelie bin + fortnightly 45L glass only crate	Weekly 80L food and garden wheelie bin

The “do nothing” option is not recommended even though none of the proposed changes achieved a benefit cost ratio higher than 0.9.

Officers recommend introducing new collections options in July 2026 for several reasons:

- The price of landfilling waste is expected to rise rapidly in the coming years. Organics and recycling collections will become cheaper than the cost to landfill waste. Christchurch City Council is already in this position. The effect of the increasing cost of landfill fees was not able to be included in the cost benefit analysis due to the indicative cost estimates from Tonkin+Taylor being prepared on a per household rather than per tonne basis.
- While all significant costs and disbenefits are measured in the cost benefit analysis, some benefits are difficult to measure and are likely to be significant. The environmental benefit of reducing reliance on synthetic fertiliser and the reduced demand for virgin materials are both examples of significant benefits that were not included in the analysis due to measurement difficulties.
- Once the new collection vehicle fleet has been acquired council will be locked into the chosen collection configuration for at least a decade.
- Central government direction is toward requiring councils to provide organics collection to all urban households. The Ministry for the Environment currently has \$120 million of grant funding available to support new organics collections. This funding will be allocated on a first come, first served basis and it is uncertain whether any additional funding will be available in future.

Option F is preferred despite not having the highest cost benefit ratio due to several other factors:

- A fortnightly glass crate collection will be more flexible if a container return scheme is introduced in future and glass recycling volumes fall.
- A glass crate is manually colour sorted when collected, which means the glass can be recycled into bottles. This is a more circular outcome than glass collected in wheelie bins, which cannot be colour sorted and is used as a sand substitute in roading aggregate.
- Option F performed best in the cost benefit analysis when costs were held steady across options. Officers are uncertain that Option D can actually be delivered for \$50 less than Option F in practice. The procurement process will determine this.

Based on the results of the public consultation and the additional investigation that will be part of the detailed commercial case, the choice of Option F as the preferred option will be revisited in May 2024.

A bespoke service will be varied and could include:

- a) Requiring or providing bin depots or shared bins on private land in apartment buildings, townhouse complexes, or private roads,
- b) Continuing bagged collection of rubbish and recycling where necessary, and
- c) Providing bin depots or shared bins on public land if there is no private land available.

A targeted rate is recommended to fund the new rubbish and organics collection service. This is the funding method used at all other major metro councils. Recycling collections will continue to be funded out of landfill fees. In future recycling collections could be added to the targeted rate if landfill revenues can no longer fully fund recycling services due to falling volumes.

Based on estimated costs and forecast numbers of rateable residential units in 2026/27 the targeted rate could be \$258 per household per year. Under this new service households would no longer pay separately for rubbish collection. This would be a saving of \$182 for a household that puts out one council rubbish bag per week, and of \$395 or more for households using a private wheelie bin service.

A new organics collection service will most likely require a new organics processing facility for the region. While there are existing facilities consented to process food waste in Ohakune, Hawke's Bay and the Waikato, officers are not aware of any existing facilities near the Wellington region.

There are three different processing methods that are possibly practical for a new Wellington processing facility. Each method has advantages and disadvantages and is dependent on the types of organic material being processed. During procurement of a new facility, bids will be invited from any processing method that can meet the requirements – no specific method or technology will be ruled out prior to the tender process. This will allow for any innovative solutions that the market may be able to deliver.

The high end cost estimate from Tonkin+Taylor for a new organics processing facility of the size needed for the Wellington region is \$70M at current prices.

MfE has grant funding available to support organics collections and processing projects. There is a contestable \$120 million fund that is being allocated on a first come, first served basis. It is uncertain whether any additional funding will be available in future. They have said they will favour applications with a regional lens and will provide a higher level of funding for regional projects. Therefore, Council staff are working with Hutt City Council and Porirua City Council to prepare a proposal for a new regional organics processing facility. A regional facility would likely reduce the capital commitment needed from Wellington City Council but comes with associated co-ordination challenges.

Staff intend to submit a funding application to the Ministry for the Environment for 50% of the cost of a new facility. The application will be jointly submitted with Hutt City Council and Porirua City Council.

Staff from WCC agreed with staff from HCC and PCC that the remaining \$35M should be shared by the three councils on a population basis. WCC's share is \$19.5M. Including project delivery costs and inflation adjustment the total capital cost for WCC's share is \$22.8M. Funding available from the Landfill Surplus Fund would reduce the new capital funding required to \$18.0M.

The capital expenditure requirements for an organics processing facility could be lower depending on the outcome of the procurement process (particularly the type and location of proposed facilities and the appetite from waste management companies to partner with council) and that officers will report back with updated cost estimates in May 2024.

The Ministry for the Environment will be kept apprised of the procurement process and a decision on grant funding should be made prior to May 2024. If grant funding is not available then it is unlikely a new joint council facility could proceed. Organics processing would then rely entirely on whatever privately owned facilities are available.

The changes proposed to waste collection and processing services are consistent with mana whenua values of kaitiakitanga. Reusing materials, particularly to restore soil quality, is consistent with improving the mauri of te taiao.

In preparing this business case, our consultants Tonkin and Taylor (T+T) met with several waste management companies and community organisations operating in this space. WCC staff also held meetings with stakeholders operating in organic waste collection and processing.

A detailed commercial plan will be brought back to the Environment and Infrastructure Committee in May 2024 to refine and update the costs included in the Long-term Plan Consultation Document. This will include further detailed analysis of how many households could receive standard service, results of market engagement for a regional organics processing facility, the funding contribution agreed by MfE, and refined cost estimates based on this additional information.

After the detailed decisions are made in May 2024 a procurement process will begin with the goal to have a new collection contract operational from 1 July 2026.

Introduction

Landfill capacity and rising costs

Landfill capacity is becoming an increasingly scarce resource. The current Southern Landfill tip face only has 240,000 cubic metres of capacity left. The Southern Landfill piggyback extension will provide 2.2 million cubic metres of landfill capacity across its four phases. The current Southern Landfill tip face only has 240,000 cubic metres of capacity left.

Based on landfill tonnage forecasts for the next ten years this will provide sufficient capacity until 2043.

It is becoming more difficult to consent landfills, particularly near urban residential areas.

Wellington City Council is in the process of applying for resource consent to extend the Southern Landfill and Council has passed a resolution that this is intended to be the final landfill extension on that site. Porirua City Council recently withdrew their resource consent application for an extension to Spicers landfill while they work to improve the record of odour complaints from nearby residential areas.

The Wellington region has three class 1 landfills: Southern Landfill, Spicers Landfill in Porirua, and Silverstream Landfill in Upper Hutt. It is likely that in future decades these landfills will close due to the challenges in consenting new landfill capacity near residential areas. When this happens Wellington city will need to transport its residual waste further afield.

Currently the closest class 1 landfill (apart from the three in Wellington) is Bonny Glen Landfill in Marton. Kāpiti Coast District Council recently decided to permanently close the landfill near Levin, after it was temporarily closed several years ago due to breaches of its resource consent. Rubbish collected in Kāpiti is now being trucked to Bonny Glen. There is some discussion of developing a new landfill site in Horowhenua, but no proposal has been developed yet.

Waste from New Plymouth is also trucked 180km to Bonny Glen Landfill, after plans to construct a new local landfill were abandoned in 2018.

As landfill capacity becomes rarer and residual waste needs to be transported further for disposal the price per tonne for disposal will rise from the current price of \$225.98 per tonne at Southern Landfill. Even before our local landfills close, prices will begin to rise as the local capacity becomes more valuable. The unknown factor is how soon and how quickly these costs will rise. (The effect of rising landfill costs could not be incorporated into the cost benefit analysis as the indicative costs for new collections provided by Tonkin+Taylor are per household rather than per tonne. The assumptions needed to convert these indicative costs to a per tonne basis would be significant and make the estimates unreliable.)

In Christchurch, rubbish is transported 55km to a regional landfill in Waipara. This gives a current example of what the costs for rubbish disposal could be for Wellington under a similar model in future. Disposal of mixed commercial waste currently costs \$373 per tonne at transfer stations in Christchurch and \$415 per tonne in Banks Peninsula, which is roughly an additional 50km further away from the landfill in Waipara.

The price for Banks Peninsula is a good estimate for the equivalent cost of trucking waste from Wellington to a landfill near Levin. This can be used to estimate the cost of landfill disposal in 2054 could be above \$900 per tonne in Wellington (adjusted for inflation).

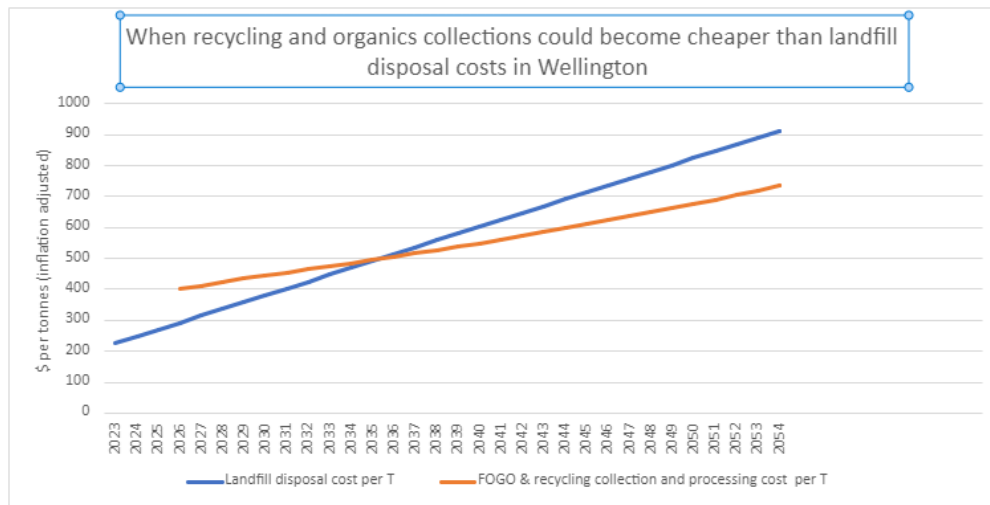
As landfill prices rise recycling and organics collections will become cheaper per tonne than disposing of the same material to landfill. This is already the case at Christchurch City Council based on publicly available information.

Christchurch provides weekly mixed food and garden collections and fortnightly recycling collections. Based on information from their annual report and website, this service was funded by \$29.3 million from targeted rates and diverted approximately 84,000 tonnes of material in 2021/22, for a cost of around \$350 per tonne. This is lower than the \$373 per tonne disposal cost for

rubbish. As such, due to the high cost of disposal to landfill in Christchurch their waste diversion collections are already economically viable without needing to consider any additional environmental, social and cultural benefits these waste diversion collections provide.

Given the unique and significant topography challenges Wellington faces compared to Christchurch it is reasonable to assume that a similar collection service would cost more to deliver here. A cost of \$400¹ per tonne in 2026 would result in costs of \$735 per tonne in 2054 (adjusted for inflation).

These estimates can give us an indication of when these collection services could become economically viable in Wellington regardless of any co-benefits. The graph below shows that recycling and organics collections could become cheaper than landfill disposal costs in the mid 2030s.



Different assumptions would deliver different estimates of when these collections could become economically viable, however this analysis demonstrates that these services will become viable at some point in the future, likely within the 30-year assessment period.

As the waste collection vehicle fleet needs to be replaced from 1 July 2026 this will lock in the chosen collection configuration for ten to fifteen years, which is the estimated asset life for collection vehicles. This means the current opportunity to redesign collection services will not occur again until 2036-2041.

Business case analysis

This business case considers the introduction of an organics collection service and improving the existing recycling service to all urban households in Wellington city. Six proposals for different collection service configurations are short-listed and evaluated using multi criteria analysis and cost benefit analysis.

The analysis presented here will assist councillors in their decision making about when to make improvements to our existing collection services and which service configuration to adopt.

This business case describes the current window of opportunity presented by the need for a new collections contract in July 2026 and the government grant funding currently available.

¹ This is not an indicative cost for the collection services in this business. It is a number chosen for illustrative purposes only. The indicative costs for the collection options in the business case are calculated per household rather than per tonne. A per tonne indicative cost based on those numbers would contain too many assumptions to be meaningful.

It provides indicative costs for the six short-listed collection service configurations based on the publicly available targeted rate information from other council that already deliver these services. It also analyses the economic, environmental, social and cultural benefits that different collections services will provide, some of which are measurable and many of which are intangible but nonetheless important.

Fairly widespread community support for the existing recycling service indicates some willingness to pay for the associated benefits despite the current additional cost compared to disposing of these materials to landfill.

Challenges for Wellington

Wellington is never going to be able to deliver best practice service to everyone because of the varied topography, narrow streets, areas of high density and high levels of wind. To overcome these challenges, any standard service will need to be able to be modified. This need for modified services means the Council will never achieve the same levels of diversion or cost efficiencies that easier to service cities like Hutt City or Christchurch can.

Further work will happen between now and May 2024 to gain greater understanding of how organics, recycling and rubbish collections can happen across the city, particularly where the service needs to be modified. The proposals will be refined before the Long-term Plan is approved in June 2024.

The availability of organics processing capacity is also a key consideration for deciding when to introduce organics collections. Currently the closest available organics processing facilities are in Ohakune, Hawke's Bay and the Waikato. There are at least two proposals from companies wanting to develop new organics processing facilities outside the Wellington region, one in Manawatu and another in Wairarapa. Wellington City Council could contract with new private processing facilities as they become available or could invest in a new facility in partnership with other local councils and/or waste management companies.

However, no new facility could be operational in time for the July 2026 new collection contract. If organics collections are introduced in July 2026, then organic material would need to be transported to appropriate facilities in Ohakune, Hawke's Bay or the Waikato until a new regional facility is operational. This additional transport cost is estimated at \$700,000 per year for two years after collections start in July 2026. While the start of organics collection could be delayed until a new facility is operational this would involve additional implementation and communication costs. Disposing of organic material to landfill until a processing facility is available is not recommended as this would reinforce a prevailing belief that recycled material ends up in landfill. This belief reduces participation rates significantly.

Councillors will need to consider these factors in deciding about when to upgrade the existing collection service and which configuration to implement.

Tonkin +Taylor were engaged by the Council to develop options for residential collections of organic materials, recycling and rubbish (T+T Redesigning Rubbish and Recycling Collections Report). Their report is included as Appendix 2.

Tonkin+Taylor were also engaged by the Council, Hutt City Council and Porirua City Council to investigate options for a regional organics processing facility (T+T Regional Organics Options Report) – see Appendix 3.

Strategic Case

The strategic case will confirm the case for change and the need for investment as set out in the Zero Waste Strategy.

The Zero Waste Strategy identifies four priority waste streams to focus on as waste minimisation activities ramp up. These are:

- sludge,

- organics,
- household items and consumables, and
- construction and demolition.

Wellington City Council is currently constrained in its waste minimisation activities by the 4 to 1 mixing ratio required to bury sewage sludge at the Southern Landfill. Any significant waste reduction could put this mixing ratio in jeopardy, requiring the Council to “import” waste from other councils in the region. The opening of a new Sludge Minimisation Facility at Moa Point will remove this key constraint on waste minimisation activities. The new Sludge Minimisation Facility is expected to be operational by 2026. This is forecast to reduce sludge tonnage to landfill from 15,000 tonnes to less than 2,000 tonnes per annum and enable other waste minimisation projects to accelerate.

This business case considers the residential collections of organics (made up of food scraps and garden waste), recycling and rubbish from urban households and the necessary processing facilities to support a new organics collection. This contributes to reducing the priority waste streams of organics and household items and consumables identified in the Zero Waste Strategy.

The Resource Recovery business case will consider a hub and spoke model for resource recovery. This includes proposals for new resource recovery spokes across the city and an expansion of the resource recovery hub at the Southern Landfill (including the Recycle Centre and the Tip Shop). These projects will contribute to reducing the household items and consumable waste stream.

Strategic Context

On 27 April 2023 the Environment and Infrastructure Committee unanimously approved the Zero Waste Strategy, the goal of which is to achieve intergenerational sustainability by moving to a circular economy. One of the key outcomes of the strategy is to treat landfill capacity as finite. Resources should instead be reused or repurposed so we can regain their value. To do this, the community needs to be equipped to reduce waste, with services that make material capture and waste diversion an easy choice.

The strategy sets the following targets for reducing waste to landfill and biogenic methane gas emissions:

- Reduce total waste to landfill by 50% by 2030.
- Reduce per capita kerbside waste to landfill by 40% by 2030.
- Divert 50-70% of organic waste from landfill by 2030.
- Divert 50% of construction and demolition waste to landfill by 2030, 70% by 2035.
- Reduce biogenic methane emissions by at least 30% by 2035.

The outcomes and objectives of the Zero Waste Strategy are included in the draft objectives for the 2024-34 Long Term Plan which closed to public consultation on 24 May 2023. These included a priority statement that “waste reduction is attractive and accessible with the systems and infrastructure in place to increase resource circularity”.

The disposal of waste to landfill represents the loss of materials with potential economic value. Reuse of these materials is consistent with the principles of the circular economy incorporated within the Zero Waste Strategy 2023 and the Economic Wellbeing Strategy 2022. The revenue generated from the sale of reprocessed materials can off-set the cost of collecting materials, improving affordability of these services at a household level.

Investments in the collection of organic and recyclable materials also contribute to council’s Te Atakura goals to reduce emissions. It is unlikely that the Council will meet its goal to reduce its own emissions by 57% by 2030 without introducing organic collections and other waste diversion projects.

These Council strategies, objectives and targets are consistent with the national waste strategy Te rautaki para | Waste Strategy 2023. This provides strategic direction for New Zealand waste systems from now to 2050 to address our high rates of waste generated per capita.

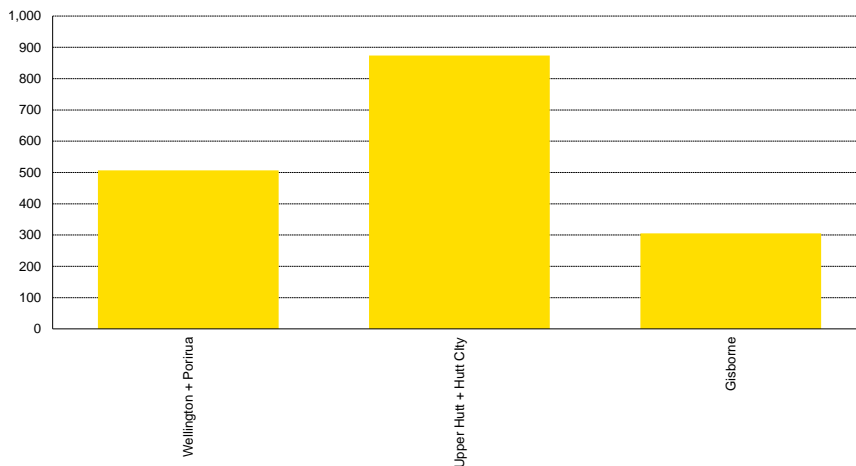
Wellington is Falling Behind

The Zero Waste Strategy outlines how New Zealand is falling behind internationally on waste minimisation efforts. New Zealand has the third highest annual waste to landfill of all of countries in The Organisation for Economic Co-operation and Development (OECD) (OECD at 781kg per capita, measured by municipal landfill data – the highest being 851kg and lowest at 243kg per capita²).

Nationally, Wellington is falling behind the leaders in waste minimisation. Compared to other cities and districts across New Zealand, Wellington (including Porirua) sits in the middle of the pack, at 507kg per capita of waste diverted from landfill, compared with Gisborne at 305kg per capita and Upper Hutt and Hutt City at 874kg per capita (measured per annum)³.

Wellington sits toward the bottom of the pack for annual per capita disposal of collected rubbish at 206kg per capita. Christchurch city had the lowest per capita disposal rate of collected rubbish with 110kg and Rotorua District the highest at 216kg⁴. Waste diverted from landfill by Wellington (including Porirua), compared to highest and lowest cities in New Zealand

Per capita waste diversion by Wellington, compared to highest and lowest cities in New Zealand

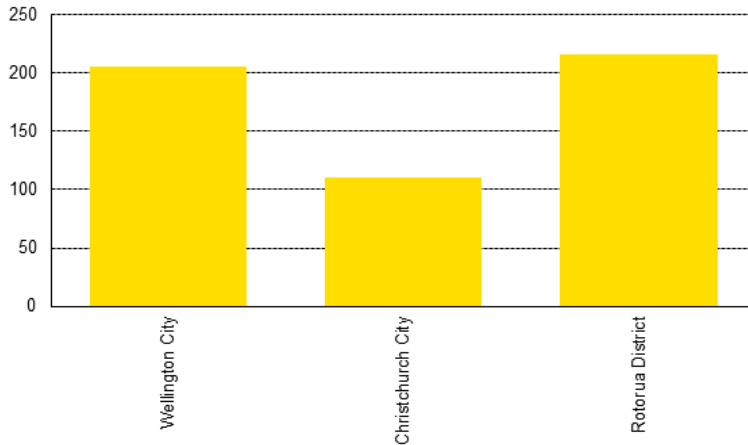


² Zero Waste Strategy – original source: Municipal waste – OECD Data – data.oecd.org/waste/municipal-waste.htm

³ Zero Waste Strategy – original source: Wellington Region Waste Assessment 2016

⁴ Zero Waste Strategy – original source: SWAP full report (wellington.govt.nz) – page 42

Per capita rubbish disposal by Wellington, compared to highest and lowest cities in New Zealand



Continuing these high levels of waste per capita has several negative effects for the Council, including:

- The need for expansion of landfill capacity which is contrary to the objective in the Zero Waste Strategy of treating landfill capacity as a finite resource.
- Increasing biogenic methane emissions from waste, which is contrary to the targets and objectives of the Zero Waste Strategy and Te Atakura.
- Economically valuable materials are lost to a linear waste system which is contrary to the outcome in the Zero Waste Strategy of moving to a circular economy, and
- Rising costs of landfilling as the waste levy and carbon price rise.

Territorial authorities nationwide are increasing their role in collection and processing of materials to increase diversion, improve operational resilience and provide financial sustainability. At least ten councils have already introduced food scraps collections or have agreed to do so, including Auckland, Hamilton, Tauranga, Christchurch and Dunedin.

Window of Opportunity

There is momentum building to redesign waste services following a circular model. This is clearly demonstrated in the 2023 Behavioural Trend Monitoring Survey of Waste Minimisation Practices⁵ which was commissioned by MfE. Some key points are:

- 72% of respondents say they actively try to reduce waste.
- 83% believe it is worth taking the time to get recycling right.
- 79% responded that reducing food waste was an important issue to them.
- 88% of respondents say that wasting food feels wrong to them.
- 63% agreed that that greenhouse gas emissions are an important issue.

There was public support for the new Zero Waste Strategy, which aligns with the new national waste strategy Te rautaki para. The T+T Redesigning Rubbish and Recycling Collections Report

⁵ Behavioural trend monitoring survey 2023 (environment.govt.nz)

also cite the 2022 Kantar Better Futures Report, where three of the top ten concerns for New Zealanders relate to waste management and minimisation.

The current Government is planning to change the legislative framework to support the vision and direction of Te rautaki para | Waste Strategy. On 29 March 2023 the Government announced its intention to introduce legislation that will require councils to provide collection of recycling to “all urban households” by 2027. (It remains unclear whether multi-unit developments will be included within the definition of “all urban households”.) If passed, the proposed legislation will also require collection of food scraps by 2030 - unless the council currently has an organics processing facility within 150km, in which case food scraps collection would also be mandatory in 2027. There is also a clear signal that over the medium-term food scrap collection will become mandatory for commercial and other non-residential properties.

To support these proposed changes, waste levy funds are available to councils to establish waste minimisation infrastructure. MfE has funding available to support the introduction of new kerbside organics collections and necessary processing facilities. Some of this funding will be awarded on a first come, first served basis. It is uncertain how much (if any) additional funding will be provided in future, making it important that the Council is well positioned to apply for this funding in the immediate future.

Any changes to the current service will need to be reflected in the 2024-34 Long Term Plan.

Changing waste collection services and the infrastructure that supports these services requires long lead times. New processing facilities will need several years before they are operational. A new collections contract will take 2-3 years to procure and implement. Procurement for high value, scope and complexity projects such as this may take more than a year. As our current fleet is old and is approaching end of life, new collection vehicles will need to be procured and imported which have wait times of up to 18 months currently due to global supply chain issues. These contracts typically last between 10 and 15 years, meaning the next opportunity for significant changes to collection services will be in 2036 at the earliest.

The current contract for rubbish and recycling collection across suburban areas of Wellington will expire in mid-2026. The previous contract has already been extended and the collection vehicle fleet needs to be replaced. Council needs to decide what services to include under a new contract soon to allow enough time for a procurement process and for the contracted company/companies to order and receive new collection vehicles.

The reissue of this contract presents a critical window of opportunity to review the council's waste services business model from first principles and take a transformational approach where that is justified based on improvements in waste diversion, cost reduction and revenue generation that can provide financial sustainability to support ongoing waste minimisation activities.

Waste services at other councils

The T+T Redesigning Rubbish and Recycling Collections Report provided information about the collection services and funding mechanisms in operation at nine other councils across New Zealand, including all the comparable metro councils of Auckland, Hamilton, Tauranga, Christchurch, and Dunedin. The information gathered is set out in the table below.

Council	Rubbish	Recycling	Glass	Organics	Funding type	2022/23 targeted rate
Hamilton City Council	Fortnightly 120L wheelie bin	Fortnightly 240L wheelie bin	Fortnightly 45L glass only crate	Weekly 23L bin, food only	Targeted rate	\$187

Council	Rubbish	Recycling	Glass	Organics	Funding type	2022/23 targeted rate
New Plymouth District Council	Fortnightly 140L wheelie bin	Fortnightly 240L wheelie bin	Fortnightly 45L glass only crate	Weekly 23L bin, food only	Targeted rate	\$181.74
Christchurch City Council	Fortnightly 140L wheelie bin	Fortnightly 240L wheelie bin (includes glass)	No separate collection	Weekly 80L wheelie bin, food and garden waste	Targeted rate	\$189.50 (excludes rubbish)
Rotorua Lakes Council	Fortnightly 140L wheelie bin	Fortnightly 240L wheelie bin	Fortnightly 40L glass only crate	None	Targeted rate	\$228.56
Tauranga City Council	Fortnightly 140L wheelie bin	Fortnightly 240L wheelie bin	Fortnightly 45L glass only crate	Weekly 23L bin, food only	Targeted rate	\$220
Auckland Council	Fortnightly 120L wheelie bin	Fortnightly 120L wheelie bin (includes glass)	No separate collection	Weekly 23L bin, food only	Targeted rate	\$384.28
Dunedin City Council	Fortnightly 140L wheelie bin	Fortnightly 240L wheelie bin	Fortnightly 45L glass only crate	Weekly 23L bin, food only	Targeted rate	\$270 (cost estimate for new service)
Waimakariri District Council	Fortnightly 140L wheelie bin	Fortnightly 240L wheelie bin (includes glass)	No separate collection	Weekly 140L wheelie bin, food and garden waste	Targeted rate	\$363.55
Selwyn District Council	Weekly 80L wheelie bin	Fortnightly 240L wheelie bin (includes glass)	No separate collection	Fortnightly 240L wheelie bin, food and garden waste	Targeted rate	\$449

Several themes emerge about how these councils have designed their waste collection services:

- 9 out of 9 of these councils use a wheelie bin to collect rubbish.
- 8 out of 9 of these councils collect rubbish fortnightly.
- 8 out of 9 of these councils collect recycling fortnightly using a 240L wheelie bin.
- 5 out of 9 of these councils collect glass separately from other recyclable materials.
- 8 out of 9 of these councils offer food scraps collection.

Decisions on how materials are collected are influenced by the available processing infrastructure and the quality of end products. For example, specific materials processing facilities need to separate glass that is collected with other recyclable materials. These are currently only available in Christchurch and Auckland. Material quality is lower where glass is collected with other

recyclable materials as the glass is not suitable to be recycled into new bottles and instead is incorporated into roading aggregate. Fine glass particles may also reduce the quality and value of paper and cardboard when they are collected together. Fine glass also increases maintenance requirements for the machinery.

Themes also emerge about how these councils fund their waste collection services:

- 100% of these councils use a targeted rate to fund waste collection services
- Annual charges for councils collecting rubbish, recycling and organics range from \$181 - \$449 per household.
- Three of these councils allow residents to change the size of their rubbish bin (larger or smaller) with a related change in their annual charge.

This shows that Wellington City Council is unusual in funding recycling services from landfill gate fees. There is also a trend to move away from user pays for rubbish collection toward a targeted rate system.

Existing Council Services

Current collection services provided by the Council vary across user groups. This review of current Council services will consider the collections services provided to households, businesses, and community facilities as well as processing facilities. The table below summarises the services provided for each group.

Council Services	Rubbish	Recycling	Separated Cardboard	Glass	Organics
Suburban residential	Weekly in 50L council yellow bag	Fortnightly 140L wheelie bin or 70L council clear / green bag	none	Fortnightly 45L crates	none
CBD residential	Daily in 50L council yellow bag	Weekly 70L council clear recycling bag or any clear bag	Weekly bundled	Included in recycling bags	none
CBD commercial	none	none	Weekly bundled	none	none
Suburban commercial	none	none	none	none	none
Community facilities (on request)	Weekly in 50L council yellow bag	Fortnightly 140L wheelie bin or 70L council clear / green bag	none	Fortnightly 45L crates	none

Suburban Household Collections

Wellington City Council provides household collection to roughly 66,000 suburban properties.

The Council currently provides a weekly, kerbside “pay as you throw” rubbish collection service using rubbish bags that are available to purchase for \$3.50 each.

Based on the 2018 report by WasteNot Consulting entitled ‘Composition of Solid Waste at Southern Landfill’ (SWAP), the Council rubbish market share is estimated at 40.6% of the city’s households and by weight, 26%. The Composition of Solid Waste at Southern Landfill ⁶.

The households not using the council rubbish bags can purchase a wheelie bin service for rubbish collection from the private sector. These services can be weekly or fortnightly, and with a variety of bin sizes. Anecdotally it is understood that the choice to use these services comes down to convenience of having a bin rather than a bag, and the fact that bins are not vulnerable to animals getting into them which some households prefer.

Since the Composition of Solid Waste at Southern Landfill analysis was completed, the market share may have increased, with the Tonkin+Taylor report indicating a council market share of 61% for rubbish collection. However, due to the relatively small size of the Tonkin+Taylor survey, for the purposes of this business case we have relied on the Composition of Solid Waste at Southern Landfill data.

Council also provides fortnightly kerbside collections of mixed recycling and glass, which are collected on alternate weeks. These collections are funded via surplus revenue from landfill gate fees. Around 42,000 properties are provided with a 140L wheelie bin for mixed recyclables. Roughly 24,000 properties were deemed unsuitable for a wheelie bin when the service was introduced. Instead, they are provided with fifty-two 70L recycling bags each year. All properties are initially provided with a 45L crate for glass collection upon request. Up to two crates for glass can be put out by each household on a fortnightly basis. The crates can be purchased for \$15.

Collection services are delivered by EnviroNZ under contract to Council. The current contract expires in mid-2026. It has already been extended once. The existing collection fleet is at the end of its useful life. A new contract is required to specify the collection configuration so that appropriate new collection vehicles can be ordered by the contractor.

CBD Household Collections

The Council CBD collections address challenges unique to the CBD such as avoiding collections during business hours and minimising material on footpaths.

There are consistently busy levels of traffic throughout the day in the central city compared to most suburban roads, which means it is easier for waste collection trucks to operate at night. The higher density means higher volumes of waste are produced per kilometre of street, requiring more frequent collection (currently daily in the central city).

Space on the footpath is often in high demand in the central city, meaning there is unlikely to be space for every dwelling to have a bin at the kerb⁷ and therefore the use of bins is impractical compared to bags. Rubbish being left on the street for collection in the central city may also reduce people’s perceptions of safety – a critical issue in our central city being addressed through the Pōneke Promise.

Households in the central city can place Council rubbish bags on the footpath seven evenings a week. Recycling is collected in clear plastics bags on Tuesdays and bags may include glass. There are no separate glass collections offered in the CBD. This recycling needs to be sorted prior to sending to the current materials recovery facility because it includes glass. Wellington City Council offers a free cardboard collection for residents and businesses in the central city every

⁶ SWAP, page 23, SWAP full report (wellington.govt.nz)

⁷ Note there are restrictions on receptacles in public areas set out in Plans, policies and bylaws - Controls for the Solid Waste Management and Minimisation Bylaw 2020 - Wellington City Council

Tuesday night alongside the CBD household recycling collection. The service is delivered on behalf of Council by Eco Maintenance, sub-contracted to Fulton Hogan.

Central city apartment buildings which have internal space for shared waste bins usually contract private companies to collect waste and recyclable materials from their premises. Most services involve collection vehicles entering service lanes or garages where bins are stored off street. As these services are paid for privately we do not currently have good information about these services. It is unknown how many apartment buildings choose not to pay for recycling or organics collections.

Collections from Businesses

The only council provided collection service intended for commercial use is the weekly cardboard collection in the CBD. Anecdotally this service is well used by retailers with significant quantities of cardboard placed out for collection on a typical Tuesday evening. Other waste collection services should be arranged between the business and private sector waste providers.

However there is a significant amount of use of the nightly CBD residential waste collection services by commercial users. This occurs either by businesses purchasing council rubbish and recycling bags, or illegally dumping unlabelled black rubbish bags in the CBD. These bags are removed by council contractors because leaving them on the streets would present a hazard – blocking footpaths and accumulating waste over time. Enforcement of this issue is challenging as it is extremely difficult to identify those who practice illegal dumping. Investigating alternative options for servicing households in this area could mitigate illegal dumping as well as improving capture and diversion.

The commercial use of this service intended for residential use creates several issues:

- Where non council bags are used there is no payment to use the service.
- Council, and therefore ratepayers, are paying the costs of the collection, transport, and disposal of the non-council bag material.
- There is little to no price incentive for waste to be appropriately sorted prior to disposal, reducing the diversion rate.

Suburban Commercial

Council does not provide rubbish or recycling collection for suburban businesses. However, all council rubbish and recycling bags are required to be collected off the street. Many suburban businesses in residential areas may use this collection service although it is not specifically provided for them.

A challenge faced by this group is that private collections are meant to be organised by the business. However, where it is a low-waste producing business, this can be costly and often precludes recycling collections.

Community Facilities

Community facilities and not for profits are able to request a collection service from council. Each request is reviewed and, if approved, they are offered either recycling bags, a recycling wheelie bin and/or a glass crate to suit their specific needs. On occasion, a grant may be provided to the facility to organise private collections when the council provided service is unsuitable.

Private Providers of Collections

Private providers of waste collection services currently fill gaps in council provided services. Waste management companies provide rubbish, recycling and organics collection services to commercial premises, apartment buildings and others who do not receive council collections. They also

provide wheelie bin based rubbish collection for suburban residential properties who prefer that to a bag based collection.

There are two main disadvantages of private collectors for residential properties. The first is that a larger rubbish wheelie bin is often filled with a higher percentage of material that could be diverted compared to council rubbish bags. The SWAP 2018 survey found that 73.7% of waste in a 240L wheelie bin could be diverted on average, compared to 65.3% of waste in a 120L or 140L wheelie bin, and 62% of waste in a council rubbish bag. This is illustrated by the council provided rubbish bags making up approximately 40% of market share in terms of households, but only 26% of collected rubbish by weight.⁸

The second disadvantage of current arrangements is that council cannot influence the capacity of rubbish disposal for each household. People are less motivated to use recycling or organics bins when they have excess capacity in their rubbish bin.

Not-for-profit organisations such as Kaicycle and community gardens provide options for composting organic material in a community setting. Kaicycle deliver a food scraps collection service using bikes and a small electric van with downstream processing at their regenerative and organic urban farm in Newtown.

Any introduction of a universal council collection service would affect the business of existing private sector waste collection providers. Even though new services would likely be provided by some of these companies on behalf of the Council there would be significant change. These effects and possible mitigations are discussed further in the Economic Case.

Landfill and Recycling Processing

Rubbish is disposed of to landfill. There are three landfills near Wellington city: Southern Landfill in Happy Valley, Spicers Landfill in Porirua, and Silverstream Landfill. Private collection operators select which landfill they take their collected waste to.

The Southern Landfill is owned by the Council and operated on behalf of council under contract. The current stage is nearing capacity. A landfill extension has been approved by Council. The Southern Landfill Extension Piggy Back Option is estimated to cost \$36 million and will provide 2.2 million cubic metres of capacity. Based on the ten-year landfill tonnage forecasts (Appendix 4) prepared for this business case, this is forecast to provide capacity until 2043. As discussed in the introduction, the price for disposing waste to landfill is expected to increase significantly in the coming decades due to scarce capacity, longer transport distances, and increases in the waste levy and carbon credit price.

Recyclable material is sent to the Oji materials recovery facility in Seaview. This facility is privately owned and operated. The Council pays for Oji to process the collected material. Oji manage the sale of processed products and provide revenue back to the Council. This facility cannot separate glass that is collected mixed with other recyclable materials. This means that if it is desirable to collect glass mixed in the same bin as co-mingled recycling a new processing facility would be required.

Critical Shifts and Service Gaps

To achieve the objectives and targets in the Zero Waste Strategy in a cost-effective manner, Wellington City Council and the city's residents need to transform our view of waste. In New Zealand, 83% of people agreed that they are worried about the impacts of rubbish on the environment, but only 17% always or very often take a reusable cup when buying tea or coffee at a café, rather than single use⁹. We need to move away from thinking of waste as a problem to dispose of. Instead, where waste cannot be avoided, it should be viewed as valuable material that

⁸ SWAP full report (wellington.govt.nz)

⁹ 2023 Behavioural Trend Monitoring Survey (environment.govt.nz) – slide 13

can be captured and reprocessed. It can also generate revenue to offset some of the costs of collection.

The approach to funding waste services in the future needs to consider strategic as well as financial goals.

The use of user pays rubbish bags to fund collection is consistent with a 'polluter pays' principle, however it has strategic drawbacks. With private operators collecting rubbish from approximately 60% of households, council has no control over almost half of the waste stream. This limits the ability of the Council to influence optimal behaviour change. It also limits the monitoring and compliance of desired behaviours that are needed to achieve zero waste outcomes.

There is a general trend among other councils toward a targeted rate funding model for rubbish and recycling collections. This enables greater council control over the collection experience for residents, which enables greater waste diversion.

Our current service model relies on the availability of processing infrastructure provided by the private sector. The mindset that the Council must match its collection services to the available processing infrastructure may have constrained our options in the past. This business case will take the view that the needs and priorities of residents should drive decisions about collection services, and that processing infrastructure should be provided to meet those needs where it is not available. For example, collecting glass in the same bin as other recycling can deliver cost savings with only one bin to collect. However, new processing facilities would be needed in Wellington to support this collection configuration.

Recycling service gaps

Existing collections for suburban households achieve a diversion rate of 66% of recyclable materials, or 23% of all divertible materials (including organics). However there is an inconsistent level of service to residents across Wellington. Of those surveyed across New Zealand, only 32% of people were confident that the items in their recycling were actually recycled.¹⁰

Recycling collection services are not available to all Wellington households or premises. Recycling collections are not universally provided to multi-unit developments or to those living on private roads. Collection service is only provided to community facilities on request. There is no council recycling collection service specifically for commercial premises.

There are 77km of private roads in Wellington city made up by 504 individual private roads. We do not have accurate data on the number of households living on private roads, but we estimate it is between 3000 and 7000.

Across the city there are 468 multi-unit developments with 10 or more units. We do not have accurate data on the number of households that represents, however at a minimum it is 4680 households. It is not clear how many of these developments are currently receiving recycling collections.

Organics service gaps

Organics (food scraps and garden waste) make up 57.8%¹¹ of collected household waste by weight. Currently the only options for households to remove food scraps from rubbish is through an in-sink waste disposal unit, various home composting methods (including worm farms also known as vermicomposting) or paying for private collection service. Garden waste can be home composted, collected via a private service, or dropped off at Southern and Spicer landfills for a fee.

More attractive and accessible options need to be provided to households if we are to achieve our target of diverting 50-70% of organic waste from landfill by 2030.

¹⁰ 2023 Behavioural Trend Monitoring Survey (environment.govt.nz) – slide 5

¹¹ SWAP 2018 table 3.8

Benefits Profile

The benefits for this project mainly derive from the reduction of waste going to landfill. The Zero Waste Strategy includes the following targets that are relevant to this business case:

- Reduce total waste to landfill by 50% by 2030
- Reduce per capita kerbside waste to landfill by 40% by 2030
- Divert 50-70% of organic waste from landfill by 2030
- Reduce biogenic methane emissions by at least 30% by 2035

The investments considered in this business case will contribute the vast majority of these reductions. The following table sets out the waste diversion necessary each year to achieve these targets.

Target	Diversion needed (in tonnes)
Reduce waste to landfill by 50%	55,088 of waste to landfill
Reduce per capita kerbside waste by 40%	10,213 of kerbside waste
Divert 50% of organic waste	11,697 of organic waste to landfill

Emissions from landfill need to fall by 7,600 tonnes of equivalent CO₂ to meet the emissions reduction target.

There are several benefits that follow a reduction of waste volumes going to landfill. These are a reduction of biogenic methane emissions, a reduction in waste levy charges, and extending the life of the landfill.

Benefit	Recipient	Measurement
Reduction of waste going to landfill	Council and public	Tonnes of material captured and diverted from landfill
Reduction of organic waste going to landfill	Council and public	Tonnes of organic material captured and diverted from landfill
Reduction in biogenic methane gas emissions	Council, ratepayers and public Financial benefit to the Council as a reduction in emissions leads to a reduction of the ETS liability	Reduction in forecast equivalent CO ₂ emissions (compare current forecasts to estimated forecasts based on intervention and track against actual emissions)
Reduction in waste levy charges	Waste producers	Reduction in forecast waste levy charges (compare current forecasts to estimated forecasts based on intervention and track against actual waste levy liability)
Extending the life of the landfill	Council, ratepayers, and public	Tonnes of landfill capacity retained vs current forecasts (measure the cost/value of a tonne of landfill capacity using Southern Landfill Piggy-Back)

Benefit	Recipient	Measurement
		Option Extension cost estimates)
Circularity of end products	Council, ratepayers, and public	This can be measured by the amount of revenue generated by end products.
Disbenefits		
Reduced landfill revenue	Council and ratepayers	Reduction in landfill revenue vs status quo revenue forecasts (future tonnage of landfill waste multiplied by future landfill prices)

There are also intangible benefits associated with a reduction of waste to landfill. These include social, environmental and cultural benefits. While these benefits are difficult to measure, they are real and important. They should be considered when evaluating the proposed investments, in line with local government's legislated role of enhancing the four wellbeings. Some examples of these benefits include:

- Reusing materials, particularly to restore soil quality, is consistent with improving the mauri of te taiao.
- Recycling materials so they can be reused, rather than the linear model of take-make-dispose requires less emissions, less use of virgin materials and less disposal to landfill.
- Social benefits of knowing that we are taking responsibility for our own waste in our own backyard and a greater awareness of the waste that each household is creating.

Reducing waste to landfill also has a financial disbenefit to Wellington City Council in the lost revenue from landfill gate fees associated with lower waste volumes entering landfill. However, while lost revenue is a disbenefit for council's finances it is not automatically a disbenefit to society as a whole. To some extent these lower revenues may be balanced by lower costs of operating the landfill.

Landfill fees also contribute revenue toward recycling collections and waste minimisation. The loss of this revenue would require a change in the funding model in future to continue to fund these existing projects. A change in the funding model for these projects is not necessarily a disbenefit to society. These measurement issues will be discussed further as part of the cost benefit analysis.

As we review collection services there is also an opportunity to seek operational improvements. One key example is potential health and safety improvements for collections staff and Wellington City Council residents. Waste collection has a high rate of injuries to collection staff, including 10 deaths as a direct result of kerbside collections in New Zealand from 2001-2015¹². Choices made during service design have a strong effect on the level of risk faced by collection staff.

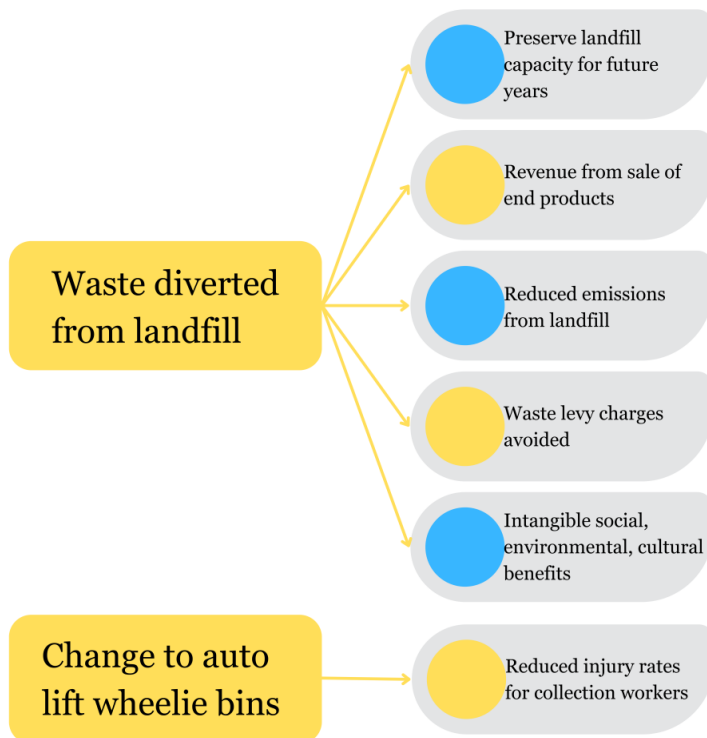
Benefit	Recipient	Measurement
Improved health and safety for waste collection workers	Waste collection workers, waste management companies (as the Person Conducting a Business of Undertaking), the Council (as the Person Conducting a Business of Undertaking)	Reduction in waste collection related injuries as reported by our waste contractors and recorded in the Council's health and safety reporting system

¹² T+T collections report p82 (check page ref in final version)

As a Person Conducting a Business of Undertaking under the Health and Safety at Work Act the Council has a legal responsibility for the health and safety of workers, even when the service is being operated via a contractor. Elected members are Officers under the Act and therefore have a duty to exercise due diligence to ensure the Council complies with its health and safety duties.

The benefit of improved health and safety for Wellington City Council residents is not measurable as we do not have accurate information about the rate of injuries related to putting waste out for collection. However, these benefits are important and will be considered when options are being evaluated in the Economic Case.

The following diagram illustrates the different benefits from this project.



Investment Objectives

There are seven investment objectives for this project, which are summarised in the tables below.

Investment objective 1	Make it attractive and accessible to reduce organic waste to landfill for a variety of different user groups
Zero Waste Strategy Outcomes, Objectives, Targets	Objective: Waste reduction is made attractive and accessible to Wellingtonians Objective: Infrastructure and systems to increase resource circularity are established Target: reduce organic waste to landfill Target: reduce emissions Priority waste stream: organics

Existing arrangements	Garden waste can be dropped off at Southern and Spicer landfills for a fee. No council collection of food scraps or garden waste.
Business needs	Introducing a collection service would improve the accessibility of food scraps and garden waste capture and diversion. International evidence indicates that achieving high participation in food scraps collection depends on making the service easy and convenient for users and minimising the 'yuck' factor associated with odours and the amount of separation and handling that is required by residents.

Investment objective 2	Make it attractive and accessible to reduce recyclable waste to landfill for a variety of different user groups
Zero Waste Strategy Outcomes, Objectives, Targets, Priority Waste Streams	Objective: Waste reduction is made attractive and accessible to Wellingtonians Objective: Infrastructure and systems to increase resource circularity are established Target: reduce kerbside waste to landfill Target: reduce emissions Priority waste stream: household items and consumables
Existing arrangements	Recycling collections are currently available to most urban households, but some households do not receive collections, such as apartments and those on private roads. Recycling drop offs are available at Southern and Spicer landfills.
Business needs	Increasing the number of premises that receive recycling collection will make it more accessible. The attractiveness of separating recycling depends partly on the ease of separation and collection, as well as the cost difference between rubbish and recycling.

Investment objective 3	Provide necessary facilities to process organic material that is collected
Zero Waste Strategy Outcomes, Objectives, Targets	Objective: Infrastructure and systems to increase resource circularity are established Target: reduce organic waste to landfill Target: reduce emissions Priority waste stream: organics
Existing arrangements	The Council processes garden waste dropped off at Southern Landfill using outdoor windrow composting. This is not suitable for large volumes of food scraps or other putrescible waste. There is currently no facility that can process food scraps within 150km of the Council.
Business needs	A facility within 150km that can process organic material into valuable end products such as compost/digestate and electricity will be needed if collections are introduced.

Investment objective 4	Increase the volume of material that remains in circulation
Zero Waste Strategy Outcomes, Objectives, Targets	Outcome: Wellington moves towards a circular economy Outcome: Resources are repurposed and regenerated in Wellington
Existing arrangements	All materials currently collected through recycling and garden waste drop off are circular and most have a domestic market
Business needs	Some potential end products are not circular. For example, unsorted crushed glass can only be made into roading aggregate (a linear use). Prioritise circular end products where practical.

Investment objective 5	Deliver collection and processing services cost effectively
Zero Waste Strategy Outcomes, Objectives, Targets	n/a
Existing arrangements	Rubbish collected weekly, user pays. Recycling collected in two separate bins. The Council processes recycling material via a contract with a private operator in Seaview. This facility cannot process mixed recycling material collected in a single bin. This provides a lower processing cost, higher value end products but increases the costs of collection. End products sales are managed by the private operator and revenue is paid to the Council.
Business needs	Rubbish currently needs to be collected weekly to manage unpleasant odours. If food scrap collection is introduced the remaining rubbish would have less odour and volume, therefore it could be collected less frequently to deliver cost savings. (A few odorous items such as nappies would not be accepted by a food scraps collection.) It may be more cost effective to invest in more expensive processing facilities if that would reduce the cost of collections. End product revenue can help to offset the costs of collection and processing. Prioritise end products with high values.

Investment objective 6	Deliver collection services in line with industry guidance on safety
Zero Waste Strategy Outcomes, Objectives, Targets	Objective: Waste that cannot be avoided, reduced, reused or recycled is managed safely
Existing arrangements	Rubbish bag collection exposes workers to sharps and other hazardous material, manual handling injury from repeated lifting, machinery hazards of operating the truck compactor, and traffic hazards

	<p>Recycling bin collection exposes workers to machinery hazards of operating the truck compactor and traffic hazards, as current trucks cannot automatically lift the wheelie bin without a worker to move it into place</p> <p>Glass collection with manual colour sorting exposes workers to sharps and other hazardous material, manual handling injury from repeated lifting, machinery hazards of operating the truck compactor, and traffic hazards</p>
Business needs	<p>Industry guidance is that automated handling is preferred to manual handling where practical as this eliminates many of the hazards collection workers are exposed to. There is a strong push away from rubbish bags as these are particularly high risk.</p> <p>Bins that require manual handling are higher risk than bins that can be automatically lifted by the truck, so automatic lift should be prioritised where practical.</p>

Investment objective 7	Prepare for potential future changes to government requirements in waste collections
Zero Waste Strategy Outcomes, Objectives, Targets	n/a
Existing arrangements	The Council collects all the types of recyclable materials that will be required by proposed legislation. Most urban households receive recycling collections. No food scraps collection.
Business needs	<p>By 2027 the Council may need to extend recycling collections to all urban households.</p> <p>By 2030 the Council may need to introduce food scraps collection and processing facilities. (If new food scraps processing facilities are built within 150km then the Council may need to introduce food scraps collection to all urban households by 2027.)</p> <p>Options should be flexible to accommodate commercial food scraps if needed, as the Government announcement also stated that "we are looking to get businesses ready to separate food scraps from general waste by 2030."</p> <p>Options should be flexible to accommodate a Container Return Scheme which has been deferred but may be implemented in future.</p>

Risks, Constraints and Dependencies

Key risks, constraints and dependencies for this business case are set out in the table below:

Risks	<p>Regional co-operation may deliver cost efficiencies; however, it also introduces additional complexity and therefore risk.</p> <p>Mitigations</p> <ul style="list-style-type: none"> • A programme-wide focus on maintaining and building positive working relationships regionally. • Membership of the regional organics project Joint Project Agreement. This agreement provides the framework to ensure a joined-up approach to solution development and respective business cases across the councils. This intent has been reflected in the joint applications for MfE funding for both organics and collections.
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	<p>Constrained construction market and significant inflation in this sector may mean estimates of project timelines and costs could be too optimistic.</p> <p>Mitigations</p> <ul style="list-style-type: none"> • Early procurement and adoption of mechanisms that “lock in” prices. • Decision making on a regional organics solution would be taken regionally in alignment with the Joint Project Agreement. <p>Proposed legislation is unlikely to pass prior to the general election in October 2023 therefore a change of government could lead to changes to the newly proposed requirements for councils’ collection services.</p> <p>Mitigations</p> <ul style="list-style-type: none"> • Engagement with MfE has been made a priority. The programme has established contact points at different levels within MfE and will continue a proactive stance in this regard as well as a watching brief on new announcements. • Contingency planning will be in place to ensure that the programme can deliver the best possible outcome within the constraints of any new central government decision making.
<p>Constraints & Dependencies</p>	<ul style="list-style-type: none"> • Any changes to organics processing at Southern Landfill will need to allow for the preparation, transition, and ongoing operation of the Southern Landfill Piggy-Back Option Extension. • The existing resource consent for the Southern Landfill requires a mix ratio of one part sludge to four parts waste. The Sludge Minimisation Facility must be operational prior to any changes being made to collections, otherwise the sludge mixing ratio could be put at risk. • An organics processing facility must be operational prior to introducing a food scraps collection service, otherwise collected material will need to be trucked to the nearest processing facility (examples currently include facilities in Ohakune, Waikato and Hawke’s Bay) or continue to go to landfill. (Note the processing facility could be provided by a third party.) • Specialist vehicles will be required to accommodate the changes to the collection service. This will require a procurement lead-in time of up to 2 years.

Stakeholder Engagement

Stakeholder engagement is crucial for the success of these proposed investments and the ability to fully realise its benefits. Stakeholders need to be involved in the solution design to capture and ensure their needs are addressed. Equally, stakeholders need to be both across and involved in the changes as much as possible, to enable them to adapt.

Insights into various stakeholders’ needs and interests gained from the development of other waste projects have been considered for this project, including:

- Zero Waste Strategy,
- Waste Management and Minimisation Plan,
- Waste Action Plan,
- Section 17a Review,
- Resource Recovery business case, and
- Southern Landfill extension.

Internally this involved discussions with council’s Waste Management Operations, Mataaho Aronui – Māori Strategic Outcomes, and Climate Change Response teams. Externally this includes engagement and consultation with our mana whenua partners from Taranaki Whānui and Ngāti Toa Rangatira, and stakeholders such as Waste Free Welly, multiple residents’ associations and the Council’s Youth Council and Environmental Reference Group.

Engagement specifically for the development of this business case has included discussions with internal and external stakeholders. Options development, evaluation criteria and option analysis has been workshopped with the Zero Waste Programme Reference Group to validate the economic analysis.

Council staff held initial 1:1 conversations and subsequent engagements with existing organics collections and composting businesses and not-for-profit organisations to signal the potential introduction of a city-wide organics collection service by the Council. These companies included Organic Waste Management, Civic Waste, Kaicycle, Garden to Table, Organic Wealth, Waste Management NZ and Enviro NZ.

At a high level there was an acknowledgement that residential food scrap collections are coming, and that private collectors are likely to focus on commercial premises or would hope to get the wider collections contract. Further details of engagement are included in the business case and T+T Redesigning Rubbish and Recycling Collections Report.

With the organisations involved in community composting or localised composting solutions, there were varying views on whether a centralised system was required. Some acknowledged this was necessary due to the challenges of operating at scale, whereas others thought it was a lost opportunity for education of all residents and localised solutions.

There was strong feedback that community composting facilities are not simply about waste management but have wider impacts in terms of food security, soil enrichment, community networks and education. In the main, it was acknowledged that they can co-exist with a wider collection service.

Tonkin+Taylor met with waste operators on a 1:1 basis to gain further insights. Four private waste collection providers and one composting service provider were interviewed regarding existing and potential future waste collection arrangements. Key insights from the interviews include:

- Waste providers recognise the value of a universal Council collection service.
- To attract and retain staff, collections should be configured to deliver a safe and pleasant working environment.
- Waste providers provide bespoke collections to commercial premises and multi-unit dwellings that suit the needs of the individual property.
- Improved opportunities for processing collected materials (recyclables and organic materials) are needed in the region.

These companies have a preference for collections options that reduce the use of rubbish and recycling bags, as well as reducing manual handling. While they accept they will lose their suburban residential collection markets, they signalled a desire to maintain the role of private providers in servicing commercial premises and multi-unit dwellings.

Tonkin+Taylor conducted a survey in May 2023 on the Council's behalf involving building managers and cleaning companies to understand current rubbish and recycling issues faced by residents of multi-unit developments. The survey received 34 responses across 12 suburbs within Wellington. The responses reinforced the variable nature of multi-unit developments with respect to access, types of collections and dedicated waste storage areas.

The results of the survey and meetings have been considered as part of the options and are included in the T+T Redesigning Rubbish and Recycling Collections Report.

Economic Case

The economic case will consider the various options for collection of organics, recycling and rubbish. These options will be analysed using criteria identified as the key considerations for any investment, and preferred options will be identified.

While Wellington's topography and inner city will require bespoke services, the economic case starts by developing options for a standard collection service. Different service configurations for

organics, recycling, and rubbish collection will be considered and analysed using multi criteria analysis. Preferred options will be identified for each waste type, and these will be combined into a short list of collection service packages. These six packages will be evaluated using multi criteria analysis and cost benefit analysis. Based on the results of this analysis, several options will be identified to include in the Long Term Plan consultation for the standard service.

The economic case will then consider the issues and options related to bespoke collections services, where a wheelie bin service for each household is not practical.

Different households need different services

The goal of redesigning collection services is to make waste diversion attractive and accessible, thereby reducing the amount of waste going to landfill. A collection service that is attractive and accessible if you live in an apartment building will be very different to an attractive and accessible service in a low density, flat area in the suburbs. This means that to achieve our objective of giving everyone access to waste diversion services we will need to provide different types of services to different types of dwellings.

The current Council recycling kerbside collections service provides for some of these different contexts by providing some households with recycling wheelie bins and some with recycling bags. However, given the challenging topography of Wellington, the high number of multi-unit developments and the number of private roads, fewer than half of households currently receive a recycling wheelie bin for collections.

The challenges of providing collection services to those households who do not currently receive a wheelie bin recycling collection service in Wellington are significant and varied.

Bespoke Service for Less Accessible Urban Households

Households that currently use a recycling wheelie bin are located outside the central city where there is room on the footpaths for every house to safely put out their own bin.

Households that have a recycling bag and a glass crate service are those properties outside the central city that are less accessible. Their street may be too narrow or one-way which creates challenges for collection trucks to manoeuvre and means there may not be room on the footpath or kerb for bins or other containers to be safely stored.

Alternatively, it may be on an individual level where the street might be serviceable, but the individual house may be less accessible. For example, if there are steps or other obstructions that make it difficult to manoeuvre a wheelie bin from the house to the footpath.

Multi-unit developments in the central city and in the suburbs may use shared bins within their building provided by a waste management company. Some buildings that use a waste management company for rubbish also pay for a recycling service, however this is not universal with the council receiving requests for recycling bins / bag from residents of multi-unit developments. This is supported by the Tonkin+Taylor survey which shows many residents of multi-unit developments use council recycling bags and glass crates.

The waste bylaw updated in 2020 now requires all new multi-unit developments that have 10 or more units to provide adequate space for waste management via a multi-unit development Waste Management and Minimisation Plan. There are now systems in place for staff processing resource consents to ensure this requirement is adhered to. Even with this positive change, the city will be dealing with a legacy of multi-unit developments with poor waste management spaces for many years to come.

Where there is no communal recycling or rubbish collection, households in the central city rely on the weekly bagged recycling collection and the daily rubbish collection. In the suburbs, some large townhouse developments, that generate upwards of 30 bags of rubbish and glass crates / recycling bags per week have no communal storage or collection areas. This results in piles of bags / glass crates being left on the kerb on collection day. This can cause a hazard on footpaths.

It also creates traffic problems as collection trucks may block the lane for many minutes, given the long times needed for the collection workers to load all the bags and the compactors to work.

This report will return to consider options for bespoke collection services after the preferred standard service configuration has been identified.

Developing Options for a Standard Collection Service

The services and investments considered in this business case are complex with significant interdependencies and service design elements.

The three main waste streams are: rubbish, recycling, and organics.

Waste stream				
Rubbish	Non-hazardous residual waste			
Recycling	Plastics 1, 2 & 5	Paper & cardboard	Tins & cans	Glass
Organics	Food scraps	Garden waste		

Designing a collection service involves choices about many different dimensions of the service. Including the type of bins used through to how the material will be processed and what end products will be produced.

The table below shows the service options for a standard collection service across multiple dimensions for each of these three waste streams.

Waste stream	Organics	Recycling	Rubbish
Material type	Food only Mixed food and green Separate food and green Garden only	Mixed recyclables with separate glass Mixed recyclables including glass	Non-hazardous residual waste
# of containers	1 or 2	1 or 2	1
Frequency	Weekly, fortnightly, four weekly	Weekly, fortnightly, four weekly	Weekly, fortnightly, four weekly
Processing	Windrow In-Vessel Composting (IVC) Wet Anaerobic Digestion (Wet AD) Dry Anaerobic Digestion (Dry AD)?	Different processing equipment is needed for recyclable material that has been collected with glass compared to with separated glass.	Landfill
Funding	Surplus landfill fees End product revenue General rate	Surplus landfill fees End product revenue General rate	Landfill fees

Waste stream	Organics	Recycling	Rubbish
	Targeted rate	Targeted rate	
Operator	WCC Regional partners Private	WCC Regional partners Private	WCC owned Private operator
End products	Compost Digestate Energy - biogas	Multiple such as paper fibre, glass bottles, roading aggregate, recycled plastics	Energy - biogas

The business case will consider options for funding and operating each service as part of the Commercial and Financial Cases. This will follow the development of a preferred option for the collection of each waste stream in the economic case. This has been done because these decisions do not vary significantly across different collection and processing options.

Setting aside funding and operating arrangements for the moment the number of possible configurations of services across these dimensions is literally in the millions.

To tackle this complexity in a logical way the business case will address each waste stream separately. This choice was made because the interdependencies between collection and processing of a waste stream are stronger than the interdependencies between different waste streams. The way a material is collected directly affects what types of processing options are possible which is a strong interdependency. How often one material type is collected may influence the collection frequency for the other materials, but generally does not rule out options.

First the business case will consider the organics waste stream as this would be an entirely new service. Once a preferred option for the organics waste stream is identified the business case will go on to consider recycling and rubbish. The rubbish waste stream is considered last because it is most dependent on decisions made about the other two waste streams.

The following questions have framed the development of a long list of options for organics, recycling and rubbish collection for a standard service.

- Configuration: Which materials will be collected and which will be collected together in the same bin (e.g. separate glass, food only).
- Frequency: How frequently will materials be collected?
- Container: What container will be used?

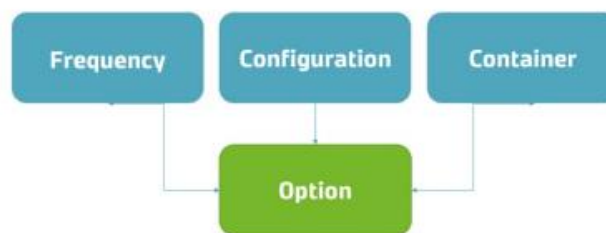


Figure 1 - Process to develop standard service T+T Redesigning Rubbish and Recycling Collections Report (page 21)

The options development and evaluation process is shown in the list below.

- Long list of organics collection options
 - Evaluate and select options for short list

- Long list of recycling collection options
 - Evaluate and select options for short list
- Long list of rubbish collection options
 - Evaluate and select options for short list
- All possible combinations of the short-listed organics, recycling and rubbish collection options are used to develop a short list of standard collection service options
 - Evaluate and select preferred and alternative options

The necessary processing facilities needed for each option will be considered after the preferred and alternative options are selected.

Key Considerations for a standard collection service

Each option for organics, recycling and rubbish collection will be assessed against the key considerations as part of a multi criteria analysis.

There is no option that scores best on all criteria, every option will involve some trade-offs.

The key considerations were chosen based on the Zero Waste Strategy and feedback from private waste management companies. They are set out in the following table.

Category	Definition
Diversion	The amount of new diversion of material from landfill disposal.
Circular Economy/Markets	The level of confidence in markets for the output(s) from the solution.
Accessibility	"Attractive and accessible" to users.
Emissions Reduction	The anticipated net greenhouse gas emissions associated with the solution include transport emissions, process emissions, offsets (e.g. biogas use) and embodied emissions in equipment. Calculated on a relative basis.
Cost to User	Affordability of the solution based on capital and ongoing operational costs reflected in user charges or other funding arrangements.
Safety	Level of automation vs manual handling and associated H&S risk regarding trucks, runners and the general public.

Each consideration is discussed briefly below.

Diversion

The main objective of redesigning collection services is to meet the targets in the Zero Waste Strategy for diverting waste away from landfill. At a service design level the focus is on the capture of material in a way that enables downstream processing that may include sorting, cleaning and various forms of remanufacturing.

For evaluation purposes, we have estimated diversion based on the current volumes of materials going to landfill and an assumption regarding the proportion of that material that will likely be captured. Current volumes of materials have been estimated based on waste household composition surveys and materials currently captured through council recycling collections.

A capture rate is calculated considering both the participation rate (the percentage of households that regularly put their bin out) and the recognition rate (the percentage of eligible material that is put in the bin). The estimated capture rates prepared by Tonkin+Taylor for each collection type are shown in the table below.

Collection Type	Participation	Recognition	Capture
Comingle recycling	85%	85%*	75%
Comingle recycling excluding glass*****	79%**	85%*	75%
Glass only wheelie bin	85%	95%*	85%
Glass only crate*****	90%	95%*	85%
Manually collected food only container	42%***	60%	25%
Food and green wheelie bin	58%****	60%	35%

Figure 2 - Table 6-11: New capture rates for material from proposed service elements, T+T Redesigning Rubbish and Recycling Collections Report (page 81)

The effectiveness of each household’s use of a recycling or organic materials collection will vary significantly. Some households will carefully place only target materials out for collection. Some households will not put materials out if they are unsure i.e. not place all potentially recyclable or recoverable materials out for collection. Some households may put out material that is not suitable for collection, for example all plastics rather than only types 1, 2 and 5. This will result in contamination in the recycling stream.

There are several factors that have been shown to increase the proportion of material captured by organics and recycling collections. Controlling the frequency and volume of rubbish collection is one factor, and providing information explaining the changes and supporting education is critical, both during implementation and as part of ongoing service delivery. These will be considered later in the Economic Case.

Circular Economy / Markets

The circular economy consideration is focused on the ability of a particular collection approach to enable the target material to be captured and reused or processed, ideally for a similar (high value) purpose. There are three elements to this consideration: the quality of the end product, access to markets for end products, and revenue generated from end products.

Different elements of service design can affect the quality of the end product produced. Contamination is a critical issue as contaminated material leads to lower quality end products, higher processing costs, and may need to be landfilled. Several service design factors can lead to an increase in contamination. For example, unclear labelling or providing capacity significantly in excess of what is likely to be required is likely to result in some contamination through people putting non-target materials into containers.

Collecting some materials in the same container can also have an impact on material quality. For example, when paper and glass are collected together fine particles of glass contaminates the paper fibre and lowers the quality of the end product.

Some materials attract higher prices than others. For example, aluminium cans have a high value as a tradable commodity while cardboard is relatively low value. Higher quality materials generally attract higher prices and generate more revenue. Different quality cardboard attracts different prices, in some cases that price is close to zero.

Access to markets is an additional consideration from the revenue potential. Many types of plastics are not collected for recycling because there is no market to reprocess these. Clear PET (plastic grade 1), polypropylene (plastic grade 5), colour sorted glass, paper and cardboard all have an active domestic market for recovered materials. Aluminium and steel cans are of higher value and are sent overseas to be reprocessed¹³.

Where end markets are only available overseas or the prices for materials are already very low this introduces greater risk of sudden changes in the market. Transporting materials overseas for processing is also challenging because the material is low value and can be odorous, meaning shipping companies prefer not to carry it.

Accessibility

A key focus for council in delivering collection services is accessibility of the service for all households and residents. This means that the ideal system will be suitable for as wide a range of property types as possible and will take into consideration physical limitations that can be experienced by people who are older or have disabilities.

Ideally containers should be easy to handle when full for all residents, including those with limited mobility. This means that containers that will be heavy when full (larger containers) and containers that require lifting or carrying to place for collection are less preferred.

Emissions Reduction

Waste produces greenhouse gas emissions primarily from decomposition in landfill. Transport emissions are also generated with collecting materials, taking them to processing, and delivering end products to market.

Food scraps, paper, and garden waste produce the largest amount of emissions per tonnes of material when they are sent to landfill.

Emissions are still created when organic material is captured for processing, but the emissions per tonne are much lower.

Transport emissions have not been estimated at this stage as the location of processing facilities remains undetermined.

Cost to User

The cost of waste collection is made up of two components: the cost of collection and the cost of processing or disposal. The cost of collection depends on the number of bins that need collecting, the frequent of collection, the amount of manual handling required and the transport distance to the processing or disposal facility. Generally, costs of collection will be lower with fewer separate bins, less frequent collection, trucks that are able to automatically lift and empty bins removing the need for manual handling, and shorter transport distances to processing facilities.

The cost of processing depends on the tonnage of waste collected and the type of processing. Different types of processing have different costs per tonne. Disposal to Southern Landfill currently

¹³ Sorting and preparing your rubbish and recycling - Where your recycling goes - Wellington City Council

costs \$225.98 per tonne. Processing of recycling materials costs slightly over \$200 per tonne (with different rates for different materials). The processing cost for organic waste ranges from \$50 to \$100 per tonne depending on the processing method¹⁴.

The costs of collection and processing are interdependent. For example, collecting glass and other recyclables together in one bin will lower the cost of collection, but the specialised machinery needed to separate glass from other materials raises the cost of processing. The cheaper organics processing methods generally require a significant amount of land per tonne of material, meaning they would need to be located significant distances from Wellington City. This saving in processing cost may be outweighed by the higher transport costs.

For each option Tonkin+Taylor have reviewed costs to users across New Zealand for comparable services to provide a basis for a cost range for the various options. Because of the way that this information is available data on individual target materials (refuse, recycling, organic materials) is less comprehensive than data on combined collection systems. These costs represent the full cost of the service to the user and include collection costs, processing costs, and any offsetting revenue from end product sales.

The pricing estimates provided by Tonkin+Taylor are intended to provide an indicator of the likely cost range that service options will sit within (on a per service property basis) drawing on similar services across New Zealand and in particular those that have recently been contracted. These prices are relevant for 2022/23 i.e. will escalate through to 2026. The upper end of these cost ranges are appropriate for the long term plan budget purposes but Council may choose to add an additional contingency reflecting that costs are subject to detailed service specification and procurement process.

Safety and Handling

The waste and resource recovery sector have been working hard to improve the health and safety of staff involved with the collection of rubbish, recycling and organic materials. The WasteMINZ Health and Safety Sector have taken a lead at a sector level with active support from local authorities, waste collection companies and WorkSafe NZ.

The following table shows the injury rates for collection workers using different collection methods.¹⁵

Collection Method	Injury Rate
Bagged lift	381 per 1,000,000 hrs.
Manual bin lift	251 per 1,000,000 hrs.
Automated bin lift	41 per 1,000,000 hrs.

Switching from bagged collections to automatic lift of wheelie bins reduces the injury rate for collection workers by 900%.

The work has been informed by research on safety statistics across the sector, best practice in New Zealand and internationally, and by balancing practical considerations with safety. The implications for rubbish, recycling and organic materials collections include:

- Approaches that avoid manual handling are preferred.
- Collections that involve staff moving around vehicles are less safe than those where containers can be handled remotely.

As a Person Conducting a Business of Undertaking under the Health and Safety at Work Act the Council has a legal responsibility for the health and safety of workers, even when the service is

¹⁴ T+T Business Opportunities report

¹⁵ T+T Collections report

being operated via a contractor. Elected members are Officers under the Act and therefore have a duty to exercise due diligence to ensure the Council complies with its health and safety duties.

Evaluation of key considerations

There is no option that will perform best across every criteria. Some trade-offs will always need to be made. One example of this is that manual handling of collected materials offers the chance to sort materials and remove contamination, both of which improves the quality of the end products. However manual handling increases the safety hazards for collection workers in comparison to an automated lift, where the truck automatically lifts the bin. In recognition of these inherent trade-offs this case retains alternatives that perform well on different criteria throughout the analysis. This is important to ensure that a viable alternative is not excluded at an early stage of analysis.

Each option was evaluated against the key considerations. For each consideration a range of evidence was used by Tonkin+Taylor to evaluate the options. In some cases semi-quantitative assessment was possible, in others they drew on evidence to provide commentary.

The criteria were not weighted in the analysis. This is to acknowledge that different people will hold different priorities across these considerations. It is easier for decision makers to evaluate options according to their own preferences if the baseline analysis is unweighted.

Organics collection service needed

In the recently approved Zero Waste Strategy one of the targets is to reduce organic waste going to landfill by 50-70% by 2030. Currently 23,000 tonnes of organic waste go to the Southern Landfill every year¹⁶. A further 5,000 tonnes is already diverted from landfill via garden waste drop offs at the Southern Landfill and is composted on site by Capital Compost. An additional 11,500 tonnes of organic waste will need to be diverted from landfill by 2030 to meet the 50% target, and another 4,500 to meet the 70% target.

Organic material is made up of garden waste and food scraps. Garden waste makes up only 5% of rubbish in council bags, but over 30% in privately collected wheelie bins¹⁷. Garden waste can be composted at home or dropped off at Southern or Spicers landfills for a fee.

Food scraps currently make up 25-40% of household rubbish¹⁸. Even for those who home compost, have a worm farm, or use a food collection service, some food scraps such as meat and dairy do not compost well and still end up in the rubbish.

There are several approaches to increasing the diversion of organic waste from landfill. These include supporting home composting (for example by providing compost bins to all households), supporting households to install in sink garbage disposal units, scaling up existing private collection services, and introducing a new municipal organics collection service. (Removing the charge for dropping garden waste at landfill to encourage diversion will be considered in the Resource Recovery business case. This alone would not meet the Zero Waste Strategy targets or the proposed policy direction requiring organics collection, and as such would need to be considered as an additional measure.)

Home Composting

The Para Kai food scraps trial in Miramar ran from September 2020 to March 2022 to understand how much food scraps could be diverted from landfill through kerbside collections and different types of home composting. Five hundred households trialled a weekly kerbside food scraps collection service, while another 450 households were composting their food scraps in either a compost bin, worm farm, or bokashi system.

¹⁶ SWAP 2018

¹⁷ SWAP 2018, percentage of rubbish by weight

¹⁸ SWAP 2018

The results of the trial showed that the collection service reduced food scraps going to landfill by 38.8% on average per household, compared to 16.4% for households with home composting.

A follow up survey found that at least four in five respondents across both trial groups would continue to use the system they had if it was available. Key concerns for across both trial groups were around smell and attracting rodents, animals, or bugs.

Home composting is not an option for the many people living in apartments and townhouses in our city. The number of people living in multi-unit developments is expected to grow significantly in the coming years. A collection service will be essential to support these households to divert organic waste from landfill.

MfE has given the waste sector a strong policy indication that food scrap collections need to be made available to households in all urban areas by 2030 (or before if processing facilities are available)¹⁹. This is a key component of meeting the national Emissions Reduction Plan 2022²⁰.

Given that home composting is not an option for many residents, delivers less diversion than collections and will not meet the regulatory requirements this option is not recommended.

Sink garbage disposal units

This option was not included in the Para Kai food scraps trial. These units are relatively expensive, and the implementation challenges involved with installing one in every household would be significant.

Garbage disposal units also require large amounts of water to function. At a city-wide level this would put significant pressure on the supply of drinking water and the peak flow volumes of the wastewater network. Given the existing challenges with this pipe network and the water shortages now occurring during summer months, any option that puts additional pressure on the water network is not recommended.

This option would also not meet any legislative requirement to provide a food scraps collection service.

Community collections and composting

Social enterprises such as Kaicycle and Garden to Table have been providing strong leadership for community composting and food resilience practices.

Kaicycle provide some residents and businesses in Wellington with a food scrap collection service. They provide a sealable 20L bucket and it is collected from an agreed location and replaced with a clean bucket. Buckets are collected using e-bikes.

The advantages of large-scale collection services are demonstrated in the cost of collection. Kaicycle currently charge \$34.50 per month for households and \$80.50 for businesses to collect up to 20L of food scraps weekly. For a household that works out to \$1,794 annually. In comparison Auckland Council charge \$71.28 annually per household for a municipal food scraps collection.

Providing a city-wide residential collection service is a much larger scale and complexity than an organisation such as Kaicycle could provide. Tonkin+Taylor are not aware of a similar model operating on a city-wide scale anywhere in the world. Therefore, a community-scale scale collection service is not recommended.

Community scale enterprises provide social and community benefits that a centralised collection system does not. They provide for soil remediation, social and community wellbeing, education opportunities, food resilience and improved equity outcomes. Officers are working with smaller community operators to make sure that urban farms and community gardens have a place within

¹⁹ Improving-household-recycling-and-food-scraps-collections.pdf (environment.govt.nz)

²⁰ Aotearoa New Zealand's first emissions reduction plan (environment.govt.nz)

any new collection and processing approach. These groups will continue to receive grant funding and other support from council.

Through discussions with Kaicycle, they have indicated that they do not see themselves as wanting to be the sole organics diversion provider in Wellington. However, they do see localised composting as complementary to a city-wide collections system. They have shared with us their strategic direction (Appendix 5) which includes focusing on high-density businesses with a move away from less cost-efficient residential collections. They will be able to do this due to a new medium scale in-vessel composting facility in Rongotai which is anticipated to be operational by the end of 2023.

A review of grant funding is taking place as part of the action plan for the Draft Community Facilities Plan. As part of this review, council should consider how the grant funding model acknowledges and supports the social outcomes provided by these organisations.

The Commercial Case will consider approaches to the procurement of collection services. The tender for an organics collection contract could be structured to allow bids by region within the city. This would enable smaller operators such as Kaicycle or Garden to Table to bid for part of the organics collection contract if they wanted to or to ensure they have continued access to collected food scraps to allow localised composting to occur.

Organics Collection Options

When designing an organics collection service, the critical decision is whether to collect only food scraps, only garden waste, both in the same container (known as FOGO which stands for Food Organics and Garden Organics), or both food and garden in separate containers. This is a key factor that influences the number, type and size of containers. These in turn are key factors influencing both cost of collection and whether a service is attractive and accessible. The combination of materials collected also determines the different options available to process the material.

In New Zealand where organic collections have been introduced, there is no consensus on whether FOGO or food scrap only collections are best. However, to a degree the density of housing dictates which type of service is more appropriate. Areas with lower density generally have more garden waste whereas high density areas where there are a number of multi-unit developments or apartments generally do not have gardens so a food scraps only collection is more appropriate.

Food only	Mixed food and garden
Auckland	Christchurch
Hamilton	Waimakariri
New Plymouth	Selwyn
Tauranga	Timaru
South Taranaki	

Other matters that need to be considered when designing an organics collection service are the frequency of collection and the type and size of container used. Because food scraps create unpleasant odour and a public health hazard as they breakdown, any collection that includes food scraps must be collected at least weekly. If only garden waste is collected, then lower frequency collections such as fortnightly and monthly are possible.

Different container types are possible for organic collections. Generally, either a small 23 litre bin or a wheelie bin are used. Wheelie bins must be at least 80 litres for the trucks to be able to use an automated lift. Smaller bins would be damaged often, increasing costs.

The table below shows the six options on the longlist based on these four dimensions – material type, collection frequency, container type, and container size. While other combinations are theoretically possible, expert advice from Tonkin+Taylor is that these six options are the only practicable configurations.

	Container		Frequency	Material
O1	Bin ¹¹	23L	Weekly	Food only
O2	Bin	80L	Weekly	Food only
O3	Bin	80L	Weekly	Food and garden
O4	Bin	120L	Weekly	Food and garden
O5	Bin	120L	Fortnightly	Garden only
O6	Crate	240L	Four weeks	Garden only

Figure 3 – Table 5-2 Organic material collection options, T+T Redesigning Rubbish and Recycling Collections Report (page 29)

These options were evaluated against the key considerations.

The scores for each criterion are as follows:

- Best – 5
- Better than status quo – 4
- Similar to status quo – 3
- Worse than status quo – 2
- Worst – 1

The following table shows the scores for each option as evaluated by Tonkin+Taylor. The maximum score is 30 and the status quo would score 18.

	Cost	Circular	Access	Health & Safety	Diversion	Emissions	Total
Food weekly 23L	3	4	4	3	4	3	21
Food weekly 80L	3	4	2	4	4	4	21
FOGO weekly 80L	3	4	4	4	4	4	23
FOGO weekly 120L	3	3	3	4	4	4	21

	Cost	Circular	Access	Health & Safety	Diversion	Emissions	Total
Green fortnightly 120L	3	3	3	4	4	2	20
Green four weekly 240L	3	3	2	4	4	2	19

Neither garden waste only option will be carried forward for further analysis. The waste captured from a garden waste only collection will not be sufficient to achieve the Zero Waste Strategy targets. A garden waste only collection would divert less than 3,000 tonnes and the target to reduce organic material to landfill by 50% requires increased diversion of at least 11,500 tonnes. In addition, given the direction from the Ministry for Environment to make food scrap collections compulsory for all urban areas by 2030, this option is not future proof.

For the food only and FOGO options, we wanted to take forward one of each option for further analysis, rather than narrowing the options to only one collection type at this early stage.

Of the two options for food only collection the manual collection option is preferred.

The 80L wheelie bin for food only is not recommended because a larger container will provide significantly more capacity than required for a weekly food scraps collection. When bins are mostly empty when collected, people will often put other materials in them for disposal. This creates significant problems with contamination of the organic material. Contaminated material cannot be processed and needs to be disposed of at landfill. This reduces the amount of material that can be diverted from landfill and the amount of compost that is produced. It can also increase costs.

Of the two options for FOGO collection, the 80L wheelie bin option is preferred.

A larger 120L bin is likely to “induce” garden waste into the system. This means material that is currently composted at home or dropped off at landfill will instead be placed in the collection bin. As this material is not currently going to landfill, it does not increase diversion. The larger size is also more likely to attract contamination.

The following two options are carried forward for further consideration:

O1	Bin	23L	Weekly	Food only
O3	Bin	80L	Fortnightly	Food and garden

All of these options will require specialist organics processing facilities that are not currently available in the Wellington region. There are consented facilities in Ohakune, the Waikato and Hawke’s Bay. Several companies are developing proposals for appropriate facilities closer to Wellington including in Fielding, Levin, and the Wairarapa. Wellington City Council could partner with other councils and/or waste management companies to build a facility in or near the Wellington region. These options are considered in the later section on Organics Processing.

Recycling Options

As with organics, one of the main decisions to make about a recycling collection service is how many bins the materials will be collected in. Currently the Council collects plastics 1, 2 and 5, paper, cardboard and cans in a wheelie bin (or bag) and glass in a plastic crate. The glass is collected manually and sorted by colour as it is loaded into the collection truck.

Many cities in New Zealand collect glass separately, primarily due to the higher value end-product that can be produced when these collections are separated. However, both Christchurch and Auckland collect glass in the same bin as other recyclables. The primary advantage of this collection model is the cost saving that comes from only collecting a single bin and the significant

improvements in health and safety when the need for manual handling is removed. However, specific materials processing facilities are needed to process a materials stream that includes glass. These are available in Auckland and Christchurch but are not currently available in Wellington. Therefore, these options would require new facilities to be constructed in the Wellington region.

Due to low odour and public health risks associated with recyclables a weekly, fortnightly and even four weekly collection frequency is possible. However, four weekly collections are not practical for materials that require high capacity, as larger bins become difficult to manoeuvre.

Dry recyclable materials including cardboard, paper, plastic and cans are generally collected together in the same bin, known as 'comingled (excl glass)' recycling. This is the status quo in Wellington and at all the nine councils reviewed earlier.

Glass can be collected separately from other recycling, as per status quo, or glass can be collected in the same recycling wheelie bin, known as 'comingled (incl glass)'. This would remove the need for a separate glass collection and deliver collections cost savings.

The current processing facilities in Wellington cannot take materials that have been collected together with glass. Providing a single recycling bin including glass for collection would require new processing facilities in the region. Savings in collection costs may justify this new investment. A new materials processing facility will be considered in a later section alongside organics processing facilities.

There are three options for a separate glass collection. Currently glass is collected fortnightly in a 45L crate. A four-weekly collection in an 80L wheelie bin is also a viable option due to the smaller volumes of glass.

Some cities use multiple crates for collection. One of the long list options is a weekly collection of 3 separate 40L crates, one each for paper, plastic and cans, and glass.

The table below sets out these options. Note that options RE1 and RE2 are standalone options, whereas options RE3, RE4 and RE5 would need to be combined with one of options RE6, RE7, RE8, or RE9.

	Container	Capacity	Frequency	Material
RE1	Bin	120L	Weekly	Paper, plastic, cans, glass
RE2	Bin	240L	Fortnightly	Paper, plastic, cans, glass
RE3	Bag	60L	Fortnightly	Paper, plastic, cans
RE4	Bin	140L	Weekly	Paper, plastic, cans
RE5	Bin	240L	Fortnightly	Paper, plastic, cans
RE6	Crate	120L	Weekly	Crates for Paper, plastic & cans, glass.
RE7	Crate	45L	Weekly	Mixed glass
RE8	Crate	45L	Fortnightly	Mixed glass
RE9	Bin	80L	Four-week	Mixed glass

Figure 4 - Table 5-4: Recycling collection options, T+T Redesigning Rubbish and Recycling Collections Report (page 31)

These options were evaluated against the key considerations.

The scores for each criterion are as follows:

- Best – 5
- Better than status quo – 4
- Similar to status quo – 3
- Worse than status quo – 2

- Worst – 1

The following table shows the scores for each option as evaluated by Tonkin+Taylor. The maximum score is 30 and the status quo would score 18.

	Cost	Circular	Access	Health & Safety	Diversion	Emissions	Total
120L weekly glass in	2	2	4	4	3	3	18
240L fortnightly glass in	4	2	2	4	3	4	19
Bag fortnightly glass out	3	3	3	3	3	3	18
120L weekly glass out	2	3	3	4	4	2	18
240L fortnightly glass out	3	3	3	4	4	4	21
Multiple crates weekly	2	4	2	2	4	2	16
Glass crate weekly	2	3	3	3	3	2	16
Glass crate fortnightly	3	3	3	3	3	3	18
Glass bin 80L four weekly	4	2	3	4	4	4	21

To retain variation within the packages at least one option for comingled (excl. glass) and one option for comingled (incl glass) will be taken forward for further analysis.

Bagged recycling collections are not recommended for the standard service due to the additional safety risks to collection workers compared to wheelie bins. The role of bags in a bespoke service will be discussed in a later section.

Weekly collection of multiple 40L crates for paper, plastic and cans, and glass is not recommended. This would take up a lot of room on the footpath each week. These would each require manual lift without much additional benefit. Ensuring they would close securely in the Wellington wind would also be an issue.

Whether recycling is collected with glass mixed or separated, a fortnightly collection of a 240L recycling wheelie bin is recommended.

Fortnightly collections are more cost effective than weekly collections and there is no odour or public health reason to require more frequent collection. There is some evidence that greater diversion is achieved with a 240L recycling wheelie bin compared to a 140L bin based on diversion rates in other New Zealand cities. The current sized bin does not provide enough capacity for some households, with many bins put out overfull and with material compacted (which is not

recommended as it creates problems when processing the material.) This is made worse if a household misses a collection. If glass will be added to the same bin this additional capacity becomes even more critical.

A 240L bin is larger to store and more difficult manoeuvre than a 140L. If a 240L wheelie bin is selected for the standard service it is recommended that an option is investigated for households to request a smaller bin if needed due to accessibility issues.

Two options with a separate glass collection will be taken forward for analysis, one with a fortnightly 45L glass crate collection and the other with a four-weekly collection of an 80L glass wheelie bin.

A fortnightly 45L glass crate collection is already working well as shown by the current high capture rates for glass of more than 80%. The main disadvantage of this collection method is the additional health and safety risk for collection workers due to manual handling.

A four weekly 80L wheelie bin would provide similar capacity. The main benefit of this collection method is the improvement in health and safety for collection workers as the bins could be automatically emptied by a new truck fleet. The downside is that as the glass is not colour sorted the material has significantly lower value and will generally be used for roading material. It cannot be remanufactured into bottles / jars.

The following options are carried forward for further consideration:

RE2	Bin	240L	Fortnightly	Paper, plastic, cans, glass
RE5	Bin	240L	Fortnightly	Paper, plastic, cans
RE8	Crate	45L	Fortnightly	Mixed glass
RE9	Bin	80L	Four-weekly	Mixed glass

Container Return Scheme

The proposal to introduce a container return scheme in New Zealand has been paused with no clear timeline for finalising the scheme design. Any decision about future collection services should take into account the flexibility to respond to the potential introduction of a Container Return Scheme.

Under the paused proposal each targeted container would pay a deposit. The deposit would be reclaimed at a return depot or reverse vending machine. The introduction of the scheme would see a reduction in the volume of material available for recycling collection. The scheme is likely to target higher value material streams like number 1 plastic (PET), aluminium cans, and glass. Based on the paused proposal for a Container Return Scheme, ²¹ of glass containers would be included in the scheme.

NSW introduced a container return scheme in 2017. They have reported a 50% drop in eligible containers, equating to around a 30% drop in total volume of kerbside containers. This includes both glass and plastic containers.

The table below shows the anticipated tonnages of glass available for recycling if a Container Return Scheme were implemented in future, at different estimated capture rates.

2026	Available glass with no Container Return Scheme	Available glass if Container Return Scheme captures 50% of eligible containers	Available glass if Container Return Scheme captures 80% of eligible containers	Available glass if Container Return Scheme captures 100% of eligible containers

²¹ Rethinking-rubbish-and-recycling.pdf (environment.govt.nz)

Glass Tonnes	6135	3558	2012	982
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If New Zealand experienced a similar capture rate of 50% of eligible containers by a Container Return Scheme, then glass available for recycling collection could fall by 40%.

It is important that any chosen option for standard service can be adjusted if these reduced volumes of glass eventuate in future.

Flexibility for Container Return Scheme:

- Do not collect glass separately in case a Container Return Scheme is implemented
- Collect glass fortnightly in a 45L crate until a Container Return Scheme is implemented, reduce to three weekly or four weekly collection frequency depending on the fall in tonnages
- Collect glass four weekly in an 80L wheelie bin, reduce to six or eight weekly collection frequency depending on the fall in tonnages

Collecting glass mixed with recycling is a more expensive option and delivers lower quality end products. If a Container Return Scheme is not implemented this would be a sub-optimal solution.

Collecting glass in an 80L wheelie bin could lead to very infrequent collections if tonnage drop. This would likely reduce participation significantly.

Collecting glass in a 45L crate offers the best flexibility in the face of uncertainty surrounding a Container Return Scheme. This option will perform well if a Container Return Scheme is not implemented. If a Container Return Scheme is implemented the collection frequency could be reduced but would not become so infrequent as to reduce participation too much.

Rubbish Collection Options

The main priorities for a rubbish collection service are to deliver cost effective collection services that minimise safety hazards. Options for rubbish collection have some influence on achieving diversion targets. Offering less frequent rubbish collection has been shown to increase participation in recycling and organics collection. Offering smaller rubbish bins may also encourage people to divert more material.

The graph below from the Household Food Waste Collections Guide²² shows a consistently higher capture rate for organic waste when rubbish is collected fortnightly instead of weekly.

²² HH food waste guide section 3 2021 final.pdf (wrap.org.uk)

Figure 3.4 Trends in food waste yields (per household served) achieved during the WRAP supported trials – comparison of trials with fortnightly and weekly collections

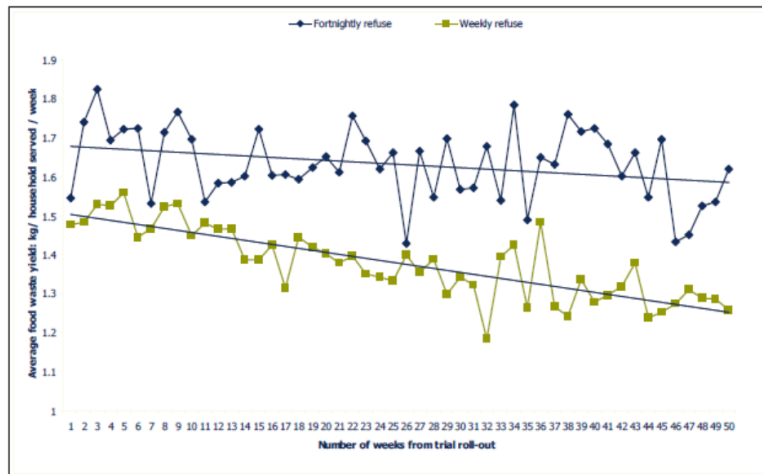


Figure 5 – Trends in food waste yields, HH food waste guide section 3

The Council rubbish collection is provided via a 50L rubbish bag. As discussed above there are significant safety concerns with a bag based collection service, including strain injuries from manual handling, exposure to traffic, as well as the risk of exposure to sharps and other hazardous materials. As such, many councils across the country are moving away from a bag based service for rubbish.

The size of the container, the amount of manual handling, and the frequency of collection are the main elements of service design that can affect the cost of rubbish collections.

Moving from a bag based collection to a wheelie bin which can be automatically emptied by the truck can deliver cost savings. The reduction in manual handling decreases the cycle time needed to empty each bin, potentially reducing costs.

Less frequent rubbish collection delivers significant cost savings. The main driver of a weekly collection frequency for rubbish is public health and odour management. Organic materials are the cause of both of these issues. By removing organic material from rubbish a longer collection frequency becomes viable. At least eight cities in New Zealand now have fortnightly rubbish collection. Several Australian cities now have four weekly rubbish collections.

	Container		Frequency
R1	Bags	50L	Weekly
R2	Bin	80L	Weekly
R3	Bin	120L	Fortnightly
R4	Bin	240L	Four weekly

Figure 6 - Table 5-6: Rubbish collection options, T+T Redesigning Rubbish and Recycling Collections Report (page 33)

These options were evaluated against the key considerations.

The scores for each criterion are as follows:

- Best – 5
- Better than status quo – 4
- Similar to status quo – 3
- Worse than status quo – 2
- Worst – 1

The following table shows the scores for each option as evaluated by Tonkin+Taylor.

There are no end markets or circularity for residual waste to landfill, so this item is not evaluated for rubbish. The maximum score is therefore 25 and the status quo would score 15.

	Cost	Circular	Access	HS	Diversion	Emissions	Total
50L bag weekly	3	x	3	3	3	3	15
80L bin weekly	3	x	4	4	3	3	17
120L bin fortnightly	4	x	3	4	4	4	19
240L bin four weekly	2	x	2	3	4	4	15

Bagged rubbish collections are not recommended for the standard service due to the safety risks to collection workers compared to wheelie bins. Bags are also more likely to present health hazards due to attracting pest animals such as rats and risks of spillage. The willingness of residents to pay more for a private wheelie bin rubbish service rather than a council rubbish bag also indicates some user preference for wheelie bins over bags. The role of bags in a bespoke service will be discussed in a later section.

A four weekly collection frequency is not recommended. Even though this is becoming more common in Australia, those cities moved to a fortnightly collection first. Moving straight from a weekly to a four weekly collection would be too sudden a step change for residents.

A weekly rubbish collection will no longer be required once a food scraps collection service is in place. Therefore, due to the additional cost of a weekly service this option is not recommended.

Only one option for rubbish collection will be taken forward for further analysis: a fortnightly collection of a 120L wheelie bin.

A 120L bin fortnightly provides 20L more capacity overall for households that currently put out a 50L bag once a week for collection.

However, an estimated 60% of households currently receive rubbish collection from a private provider. The most common collection option seems to be a weekly collection of a 120L bin. Switching to a 120L fortnightly collection would be a decrease in capacity for those receiving private collections. This would encourage residents to make use of the additional disposal capacity provided by a larger recycling bin and new organics collection.

These private collection services are significantly more expensive than the current council service. Given the economies of scale that are offered by a single city-wide rubbish collection, costs for these households are expected to decrease significantly.

In this way, moving away from a user pays system can actually encourage greater diversion activity by limiting the capacity of rubbish collection.

The following options are carried forward for further consideration:

R3	Bin	120L	Fortnightly	Rubbish
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Several cities in New Zealand offer residents the option to request a smaller 80L bin or larger 240L bin. If the waste service is funding via a targeted rate then that charge can be altered up or down to reflect the change in the volume of rubbish being collected. This option will be considered in the Detailed Commercial Case in 2024. While it increases complexity of providing service the benefits may be worthwhile, particularly for residents who currently only use one council bag a week (or fewer).

Packages of Organics, Recycling and Rubbish options

The analysis of options for organics, recycling and rubbish collection has generated the following list of options for the standard service:

- Organics collection:
 - Weekly food only 23L bin
 - Weekly food and garden 80L wheelie bin
- Recycling collection:
 - Fortnightly comingled recycling including glass in a 240L wheelie bin
 - Fortnightly comingled recycling with a separate fortnightly glass collection in a 45L crate
 - Fortnightly comingled recycling with a separate four weekly glass collection in an 80L wheelie bin
- Rubbish collection
 - Fortnightly rubbish in a 120L wheelie bin

The following table shows the status quo collection and the six options for a new standard collection service.

Option	Rubbish	Recycling	Organics
	Weekly bag (pay as you throw)	Fortnightly 140L wheelie bin + fortnightly 45L glass only crate	No collection
A	Fortnightly 120L wheelie bin	Fortnightly 240L wheelie bin <i>incl</i> glass	Weekly 23L food only
B	Fortnightly 120L wheelie bin	Fortnightly 240L wheelie bin <i>excl</i> glass + four-weekly 80L wheelie bin	Weekly 23L food only
C	Fortnightly 120L wheelie bin	Fortnightly 240L wheelie bin <i>incl</i> glass	Weekly 80L food and garden wheelie bin
D	Fortnightly 120L wheelie bin	Fortnightly 240L wheelie bin <i>excl</i> glass + four-weekly 80L wheelie bin	Weekly 80L food and garden wheelie bin
E	Fortnightly 120L wheelie bin	Fortnightly 140L wheelie bin + fortnightly 45L glass only crate	Weekly 23L bin food only
F	Fortnightly 120L wheelie bin	Fortnightly 140L wheelie bin + fortnightly 45L glass only crate	Weekly 80L food and garden wheelie bin

Figure 5 - Table 5-8 Shortlisted Options, T+T Redesigning Rubbish and Recycling Collections Report (page 36)

Throughout the rest of the business case these options will be referred to as follows:

- Option A = Food/no separate glass
- Option B = Food/glass wheelie bin
- Option C = FOGO/no separate glass
- Option D = FOGO/glass wheelie bin
- Option E = Food/glass crate
- Option F = FOGO/glass crate



Figure 8 - Bins required for each option

Package evaluation

Each collection package was evaluated using a multi criteria analysis with the same criteria used for the long lists above (contained in the T+T Regional Organics Options Report - Appendix 3) and a cost benefit analysis (Appendix 6).

The following table shows the indicative cost range of each option and the data points used to develop these costs. The data points are taken from publicly available data from the targeted rates set by other councils for their waste collection services. Nine other councils were used as reference to develop these indicative costs.

Shortlisted option	Service	Data points	Adopted range per household
A	120 L rubbish + 240L recycle + 23 L food only	Auckland 384 (rubbish is high)	\$300 - \$350
B	120L rubbish + 240L recycle + 80L glass + 23 L food only	Timaru/Auckland = 85+88+70 = \$240 - 250	\$250 - \$300
C	120L rubbish + 240L recycle + 80 L food and garden	Christchurch 190 + rubbish, Waimakariri 363, Selwyn (weekly rubbish, 240L FOGO) 449 Timaru 85 + AKL 127 + Timaru 70 = \$285	\$250 - \$350
D	120L rubbish + 240L recycle + 80L glass + 80L food and garden	Timaru 176 (own MRF and composting)	\$200 - \$250
E	120L rubbish + 240L recycle + 45L glass + 23 L food only	Hamilton 187, New Plymouth 182, Dunedin 270 (2024) Tauranga 220), WBOP 250 i.e. 190 - 270	\$200 - \$270
F	120L rubbish + 240L recycle + 45L glass + 80 L food and garden	Timaru 85 + Tauranga 90 + Timaru 70 = \$245 i.e. Timaru + Tauranga + Waimak = 292	\$250 - \$300

Figure 9 - Table 6-7: 2022/23 Kerbside collection cost estimates, T+T Redesigning Rubbish and Recycling Collections Report (page 71)

Auckland Council provide an identical service to option A. Its cost per household is \$384 per year. This cost was adjusted downwards for a Wellington estimate based on Tonkin+Taylor experience that Auckland rubbish collection costs are unusually high.

No other council provides an identical service to option B. The cost range was estimated using Timaru and Auckland council as reference points. Timaru costs are low in comparison to other councils for two reasons: it owns its own processing facilities and overhead costs are not included in its targeted rate. This is taken into account when using Timaru as a data point.

Christchurch City Council provide an identical service to option C. Its targeted rate of \$190 per household only covers organics and recycling collections – rubbish collections are funded from general rates and therefore had to be estimated by Tonkin+Taylor. Selwyn District Council was used as a data point to estimate the cost range for option C, taking into account that Selwyn offers a weekly rubbish collection and larger 240L FOGO bin and therefore higher costs.

Timaru District Council provide an identical service to option D. As stated above its costs are low in comparison to other councils and this was taken into account when estimating the costs for this option.

Several councils provide an identical service to option E, including Hamilton, New Plymouth, and Tauranga. Hamilton and New Plymouth have older contracts and Tonkin+Taylor advise that similar prices could not be achieved in the current market. Dunedin City Council is also implementing this service design option in 2024 where they have allowed \$270 per household.

No other council provides an identical service to option F. The cost range was estimated using Timaru, Tauranga and Waimakariri as data points.

These package options were evaluated against the key considerations.

The scores for each criterion are as follows:

- Best – 5
- Better than status quo – 4
- Similar to status quo – 3
- Worse than status quo – 2
- Worst – 1

The following table shows the scores for each option as evaluated by Tonkin+Taylor. The maximum score is 30 and the status quo would score 18.

	Cost to user	Markets	Accessibility	Safety	Diversion	Emissions	Multi Criteria Analysis score out of 30
Status Quo	Similar 3	Similar 3	Similar 3	Similar 3	Similar 3	Similar 3	18
A food, no glass	Worse 2	Worst 1	Worse 2	Similar 3	Better 4	Better 4	16
B food, 80L glass	Worse 2	Worse 2	Worse 2	Similar 3	Better 4	Better 4	17
C FOGO, no glass	Worse 2	Worst 1	Worse 1	Better 4	Best 5	Best 5	18
D FOGO, 80L glass	Worse 2	Worse 2	Worse 2	Best 5	Best 5	Best 5	21
E food, 45L glass	Worse 2	Better 4	Worse 2	Worst 1	Better 4	Better 4	17
F FOGO, 45L glass	Worse 2	Better 4	Similar 3	Similar 3	Best 5	Best 5	22

This analysis shows that options D and F score highest on an multi criteria analysis, both have food and garden collection as well as a separate glass collection.

Options with mixed food and garden organics collection generally score better than options with food only collection. The mixed food and garden collection has significantly more material capture than food only. It also has safety benefits of having a wheelie bin that can be automatically emptied by a truck, rather than requiring manual collection.

The options with separate glass collection generally score higher than those without. The additional cost of processing recyclables and glass together appears to outweigh the cost savings in collections. The lower quality end products for paper and glass collected in this way also reduce their circularity.

Collecting glass in a 45L crate with a manual colour sort delivers the highest value end product for glass, although this collection method has additional safety risk. In comparison a four weekly 80L wheelie bin glass collection has a better safety score due to the automated collection, but scores lower on circularity as the glass cannot be remanufactured into glass bottles but instead is used in roading aggregate.

A cost benefit analysis was also prepared to compare the six options. The cost benefit analysis report is included as Appendix 6.

The cost benefit analysis is prepared by comparing costs and benefits of the status quo with the costs, benefits and disbenefits of each option. Because the indicative costs are per household costs it is not possible to compare these to the rising costs of landfill fees, which are calculated per tonne. Analysis in the introduction showed that for Christchurch City Council organics and recycling collections are already more affordable than landfill fees. Landfill fees in Wellington will follow a similar trajectory to Christchurch in the upcoming decades as landfills near the city reach capacity and rubbish will need to be transported further away. It is likely that in within the 30-year evaluation period that organics and recycling collections will become more affordable than landfill fees in Wellington.

The cost benefit analysis needs to be considered within this wider context as it is not a matter of if, but rather when, these collection services will become a better investment than sending waste to landfill.

It is also important to note that existing Council recycling services likely deliver a benefit cost ratio of less than 1. Recycling services cost \$7.4 million in 2022/23 and captured 9,100 tonnes of material, for a cost per tonne of \$813. The landfill fee for 2023/24 is \$225 per tonne at Southern Landfill. However, recycling services have widespread support, which may indicate a high willingness to pay for these services and therefore residents associate significant intangible benefits with these services. Although it is possible that recycling services only experience such high support because they are funded via landfill fees at present.

The following costs, benefits and disbenefits are included in the cost benefit analysis:

- **Costs**
 - The cost of collections and processing for each option is estimated based on the cost range provided by Tonkin+Taylor and an estimated number of households
 - Implementation and communication costs are also included, however these are minor in comparison to collection and processing costs
- **Benefits**
 - The value of emissions reductions
 - The value of landfill capacity retained for future years
 - Additional end product revenue
 - The value of waste levy charges avoided
- **Disbenefits**
 - The loss of landfill revenue as volumes decline (excluding waste levy)
 - The loss of existing end product revenue for options that produce a lower value end product

The cost benefit analysis considers these costs, benefits and disbenefits over a period of 30 years, using a nominal discount rate of 7.1% and local government inflation forecasts provided by Business and Economic Research (BERL).

	Option A	Option B	Option C	Option D	Option E	Option F
Costs	\$259,794,431	\$187,662,272	\$236,994,621	\$115,530,114	\$135,263,053	\$187,662,272
Disbenefit	\$19,654,512	\$18,964,525	\$28,604,389	\$27,914,403	\$12,436,570	\$21,386,448
Total Costs and Disbenefits	\$279,448,943	\$206,626,797	\$265,599,010	\$143,444,516	\$147,699,623	\$209,048,720
Benefits	\$24,478,458	\$30,951,676	\$37,726,640	\$40,732,555	\$31,108,976	\$40,889,855
Net Benefits	-\$254,970,485	-\$175,675,122	-\$227,872,369	-\$102,711,961	-\$116,590,648	-\$168,158,865
Benefit-cost ratio (BCR)	0.088	0.150	0.142	0.284	0.211	0.196

None of the options have a benefit cost ratio above 1. However, this should not necessarily be taken as evidence that none of the options are worthwhile investments given the significant price rises in landfill costs expected in future decades and the public support for existing recycling services.

When considering the cost benefit ratio, it is important to remember that the majority of costs are measurable and included in the analysis, whereas there are many benefits that cannot be measured and therefore are not included. These benefits were also calculated using Tonkin+Taylor estimated capture rates for organics which are moderately conservative.

Sensitivity analysis shows that benefit cost ratios are much higher when the estimates of welfare and safety benefits are included in the analysis, and lost landfill revenue is excluded. Welfare and

safety benefits were not included in the baseline analysis because there are significant assumptions involved in preparing them. However, they can be considered a proxy for other intangible and unmeasured benefits. It is also questionable whether lost landfill revenue should be included as a disbenefit, as while it represents a disbenefit to Wellington City Council's revenue forecasts that is not the same as a disbenefit to society.

The following table shows the results of this scenario:

Most benefits	Option A	Option B	Option C	Option D	Option E	Option F
Costs	\$259,794,431	\$187,662,272	\$236,994,621	\$115,530,114	\$135,263,053	\$187,662,272
Disbenefit	\$8,863,975	\$6,527,955	\$8,863,975	\$6,527,955	\$0	\$0
Total Costs and Disbenefits	\$268,658,406	\$194,190,227	\$245,858,596	\$122,058,068	\$135,263,053	\$187,662,272
Benefits	\$24,478,458	\$30,951,676	\$37,726,640	\$40,732,555	\$31,108,976	\$40,889,855
Net Benefits	-\$244,179,948	-\$163,238,551	-\$208,131,955	-\$81,325,514	-\$104,154,077	-\$146,772,417
Welfare Benefits	\$45,030,147	\$45,030,147	\$45,030,147	\$45,030,147	\$45,030,147	\$45,030,147
Safety Benefits	\$19,046,396	\$16,339,353	\$25,440,736	\$25,017,175	\$11,576,881	\$20,254,704
Total Benefits	\$88,555,000	\$92,321,175	\$108,197,523	\$110,779,877	\$87,716,004	\$106,174,706
Net Benefits	-\$180,103,405	-\$101,869,052	-\$137,661,073	-\$11,278,192	-\$47,547,049	-\$81,487,567
Benefit-cost ratio (BCR)	0.330	0.475	0.440	0.908	0.648	0.566

The results of the cost benefit analysis are useful in highlighting which options perform better than others based on the measurable benefits included in the analysis. Options with food and garden collections have higher benefits than those with food only collections. Food and garden collections deliver greater diversion which drives most of the benefits.

To more clearly show the differences in benefits and disbenefits between options the cost benefit analysis was also calculated setting the cost for each option at \$300 per household.

Same cost	Option A	Option B	Option C	Option D	Option E	Option F
Costs	\$210,462,082	\$210,462,082	\$210,462,082	\$210,462,082	\$210,462,082	\$210,462,082
Disbenefit	\$19,654,512	\$18,964,525	\$28,604,389	\$27,914,403	\$12,436,570	\$21,386,448
Total Costs and Disbenefits	\$230,116,594	\$229,426,607	\$239,066,471	\$238,376,485	\$222,898,652	\$231,848,530
Benefits	\$24,478,458	\$30,951,676	\$37,726,640	\$40,732,555	\$31,108,976	\$40,889,855
Net Benefits	-\$205,638,136	-\$198,474,932	-\$201,339,831	-\$197,643,930	-\$191,789,677	-\$190,958,675
Benefit-cost ratio (BCR)	0.106	0.135	0.158	0.171	0.140	0.176

This shows that option F has the highest overall benefits, in line with the findings of the multi criteria analysis.

Recommended options

The recommended options are based on the results of the multi criteria analysis and cost benefit analysis. They also take into account the Wellington wind and consider the reliability of the cost estimates for different options.

Based on this analysis, options A and C to collect glass mixed with other recycling are not recommended. Any cost savings associated with collections appears to be outweighed by significantly higher processing costs. It also provides lower quality end products than the status quo. These options would also require new materials processing facilities, which could only be

justified if the options performed significantly better than the alternatives. (Additional discussion about the high cost of processing recyclable materials mixed with glass and the potential capital cost of a new materials processing facility can be found in T+T's Resource Recovery Business Model Options report in Appendix 7).

Food and garden collection is recommended over food only collection. This reflects the higher diversion rates and tonnages delivered by food and garden collection. It also acknowledges that an 80L wheelie bin will cope better in Wellington conditions compared to a 23L bin which is likely to blow around on windy days and experiences higher rates of damage than a wheelie bin.

Options D and F are both recommended. These two options have the highest benefits of all the options.

Option D consistently had the best benefit cost ratio, driven by its lower cost range compared to option F.

The service configuration in Option D is provided by Timaru District Council for \$238 per household. However, the recycling bin included in Timaru's standard service is 120L compared to the recommended 240L in option D. Including a larger recycling bin would increase costs slightly, to around \$245 per household (based on an analysis of Timaru district Council's costs for additional bins). It is likely that a similar service in Wellington would cost more due to higher living costs and greater service complexity.

No councils currently provide the same service configuration as option F so these costs are the least reliable as they are estimated based on combining cost estimates for each service element, for which there are very few data points. It is reasonable to expect the cost for this option would be higher than for option D as it includes manual handling for glass collection.

On balance, officers continue to recommend option F as the preferred option due to the higher circularity that a 45L glass crate collection offers. The glass crate also offers the greatest flexibility if a container return scheme is introduced.

Option D is a close second and is also recommended. It delivers the same tonnage of waste diversion and emissions reduction as option F. It also delivers the greatest reduction in safety risk to collection workers as there is no manual collection involved. However, it delivers lower circularity as glass is not colour sorted.

Officers can continue to investigate both options as part of the detailed commercial case for May 2024. The difference between them is restricted to the method of glass collection and therefore continuing to evaluate both options will not add unreasonable complexity.

While option E is not a recommended option. However, it should be included in public consultation to provide the public with a food only collection option to consider.

Communication and Education

Effective communication and education for residents is essential to ensure good levels of participation and reduce contamination rates. Research shows that not only is a significant investment in communication important when new services are introduced, but ongoing spending on communication is needed to maintain participation.

There is evidence that simple, low-cost interventions such as putting stickers on bins to show what can go in them leads to improved participation and reduced contamination.

Communication also needs to focus on building trust and confidence that recycled and organic materials end up with beneficial end uses. Recent survey found that only 24% of people agreed that they know what happens to the recycling they put out on the kerbside, and 32% confident that

what they put out actually gets recycled²³. Helping people to understand what happens to these materials after they are collected will increase people's willingness to make the effort to separate materials.

Three different levels of spending on communication and education are set out below along with the estimated benefits that an increase in waste diversion could deliver.

MfE is offering grant funding of \$7.50 per household to provide communication and education in support of new organics collection services. The Council have already applied to MfE for this grant funding for a total of \$600,000. This level of spending may not be sufficient to achieve the capture rates estimated by Tonkin+Taylor (or to support a smooth transition between old and new collection services).

For a food only collection poor participation is below 35%, average participation is between 35% and 55% and good participation is above 55%²⁴:

Participation is only one element that contributes to capture rates. Tonkin+Taylor capture rates estimates a 42% participation rate for food collection and a 58% participation rate for food and garden and a 60% recognition rate for both, resulting in estimated capture rates of 25% and 35% respectively.

The following table shows an estimated capture rate for different levels of participation and recognition (participation rate x recognition rate = capture rate). A 25% capture rate for food is representative of the middle of the range for average participation in food collections.

	Mid average	High average	Good
Food only	42% x 60% = 25%	55% x 65% = 36%	60% x 70% = 42%
Food and garden	58% x 60% = 35%	70% x 65% = 46%	75% x 70% = 53%

When submitting the grant application to support implementation of organics collections to MfE, officers estimated spending \$1.2 million on communication and engagement.

This level of investment could deliver capture rates of 36% for food only and 46% for food and garden collection.

For food and garden collection that would be almost 2,000 tonnes of additional material diverted with associated present value benefits of \$6.4 million.

Increasing the communication and education budget by a further \$1 million would enable greater behaviour change interventions, including bin checks and other hands on education activities. Advice from Hutt City Council after their recent roll out of new collections services was to invest earlier in bin checks and other activities that reduce contamination before the behaviour becomes established and therefore harder to change.

Increasing capture rates to 42% for food and 53% food and garden would result in an additional 1,000 tonnes of additional waste diverted with a food and garden collection (for a total of 3,000 tonnes of additional material above baseline). This would have an associated present value benefit of \$4 million (for an additional benefit of \$10.4 million above baseline).

Officers recommend that the highest level of investment is put into communications and engagement to support participation in new collection services. The additional benefits from greater participation and diversion justify this relatively small increase in the overall project costs.

²³ 2023 Behavioural Trend Monitoring Survey (environment.govt.nz) – slide 23

²⁴ HH food waste guide section 3 2021 final.pdf (wrap.org.uk)

Bespoke Collections

There are three groups of households under the status quo collection service:

- Households that receive a recycling service – roughly 66,000
- Households that have a recycling wheelie bin – roughly 42,000
- Households that have a recycling bag – roughly 24,000
- Households that use CBD recycling collections or do not receive council recycling services – roughly 10,000

It is anticipated that the group that already have a wheelie bin can be switched straight onto whatever the new standard service will be. All of the households in the other two groups will need to be reviewed and an appropriate bespoke service provided.

Officers have started a workstream to improve our understanding of the bespoke services that may be required as part of preparing the draft commercial plan for May 2024. This workstream includes:

- Consolidating and cross checking existing data sources regarding the collection services currently being provided to each household and on the number of units on private roads or in multi-unit developments
- Review the existing operational constraints that limit where wheelie bin collections can be provided under a new standard service
- Refine the estimates of how many households will require bespoke services and what type of bespoke services may be appropriate using surveys and site visits

Effects on waste management companies

Many apartment buildings, community facilities and businesses use private waste collection services provided by waste management companies. When evaluating options for bespoke service it is important to consider the effects each option may have on these companies. Introducing a council rubbish collection service will already have an effect on their business, choices around bespoke services could diminish their market further.

Four private waste collection providers and one composting service provider were interviewed regarding existing and potential future waste collection arrangements. One key insight from the interviews included the important role of these companies in providing bespoke collections to commercial premises and multi-unit dwellings that suit the needs of the individual property.

Bespoke Options

Container	Advantage	Disadvantage	Storage/access
Bags	User pays, easy to move, no container left on street	Manual handling, sharps, tearing, animal scavenging (leading to litter)	Stored on property
Bins	Linked to property, wheeled, automated handling	Difficult on stairs/steep streets, container left on street	Stored on property
Crates	Materials visible, kerbside sort (quality)	Manual handling, heavy when full, container left on street after collection	Stored on property
Larger bins/ bin depots	Multiple households, controlled access (limited to residents only and may include swipe card restrictions), suitable to service steep/ constrained areas, automated handling	Semi manual handling, heavy to shift, container left on street, distance from household, shared use increases risk of poor compliance, use of public/private space e.g. road reserve or shared space in MuD	Access, bins at point of servicing

Figure 10 – Table 4-2, *Bespoke Options, T+T Redesigning Rubbish and Recycling Collections Report (page 20)*

The current operating guidelines set out where a wheelie bin collection service is not safe to provide.

Criteria for assessment of recycling wheelie bins includes the following, and if any apply, a wheelie bin will not be permitted:

- Vehicles parked parallel to footpath which will impede wheelie bin access from the trucks.

- Extreme wind exposure.
- Corner properties which will be unsafe for traffic to pass and cause unnecessary traffic to build up.
- One way streets as our collections are from the left-hand side. The driver is not allowed to crisscross the road.
- Steep streets with more than 14 percent gradient that will not allow bins to be left safely before and after collections.
- There is no access from the road, or yellow lines would prevent trucks to stop in the area to collect.
- There is no kerbside (footpath), or footpath is too narrow and not enough space for the safe placement of a wheelie bin.
- There is high volumes of traffic flow which creates safety and traffic issues for stopping trucks.
- Multi-unit complexes/dwellings – this applies to apartment buildings.
- High and low level footpaths which are not accessible by the truck.
- Difficult truck access due to road camber, width, growth or corners. There is not enough space at the end of the street/road for the truck to safely make a turn.
- All private roads, and shared driveways that are not safe and accessible by trucks.
- Narrow roads – ie our current farm run where smaller trucks or utes are used.
- Businesses and anywhere in the CBD.

Some of these criteria would no longer apply with the operation of new collection trucks that can automatically lift and empty the wheelie bin without the driver exiting the vehicle. This significantly shortens the time taken to collect each bin, reducing the effect on traffic flows. This could make it possible to collect wheelie bins from streets with broken yellow lines or high traffic volumes.

New collection trucks could also enable wheelie bins to be collected where there are parallel parked cars, as the mechanical lifting arm can reach over parked cars to empty bins.

In some cases it may be safe for residents on a one way street to cross the street and place their bins on the left hand side to enable collection.

All residential units will need to be reviewed, with the first principle being that if a standard wheelie bin service can be made safe it should be provided.

Where it is unsafe for a wheelie bin collection service there are three broad alternatives:

- Having a bin depot or larger 660L shared bins stored on private property;
- Having a bin depot or larger 660L shared bins stored on public property, only where there is no private option available; or
- Continuing a bagged collection service, with a glass crate and/or 23L food bin where possible.

A bin depot is an area where all nearby households can bring their wheelie bins for safe collection. A shared bin is where all nearby households empty their waste materials into a large bin they all use, such as a 660L bin or a skip bin.

A bag based service is not viable for organics collection, due to the risk of spillage and attracting insects or pest animals.

Shared bins on private land

Implementing bin depots or shared bins where possible will reduce the need for bagged collections thereby improving safety of collection workers.

Council collection services are not currently provided to private roads or multi-unit developments because of council's potential liability for damage caused while collecting waste on private land.

These legal risks would need to be resolved before the Council could begin to provide waste collection services on private land such as multi-unit developments or private roads.

An alternative to council providing waste collection services on private land would be for council to regulate and require that land owners provide recycling and organics collection services to the residential units on their property. This would require changes to the current waste collection licensing system provided by the Council and an extension of the requirement for multi-unit development waste plans beyond just new developments. Kapiti Coast District Council are considering this regulation approach to providing organics collection to multi-unit developments.

It is unresolved whether MfE would consider that using regulation to require organics collection would meet the proposed requirements that councils provide organics collection to all urban households. Initial, informal indications from the MfE is that this arrangement would meet the proposed new requirements, however this is subject to change.

The additional diversion achieved through either providing or requiring recycling collection services on private land may be fairly low. Many private roads and multi-unit developments have arrangements for rubbish and recycling collections from waste management companies. Any increase in diversion would come from areas where there is currently space for a shared collection service on private land but the owners have chosen not to provide recycling shared bins. There is no reliable data on how many dwellings might fall into this group.

Any council recycling collection service would crowd out existing private collection services.

Very few residential complexes currently have any food scrap collection, so providing or requiring an organics collection would deliver diversion benefits for most multi-unit developments and private roads.

Requiring multi unit developments to purchase recycling and organics bins from a private provider, instead of offering a council collection service reduces operational complexity for council, although administrative complexity would be similar. Requiring bins avoids crowding out existing private provision and could potentially deliver similar capture and diversion. There are unresolved questions with proposed legislative changes around how diversion targets expected of council's will be calculated where there are private collectors operating.

Replacing a private service with a council service may lead to economies of scale cost savings, but given the complexity of this service the realisation of cost savings is uncertain. lead to any change in costs to households that already use a private service.

Buildings would need to provide a minimum level of service if a regulatory approach is taken. However, allowing buildings to arrange their own private service would allow them to choose a higher level of service (eg larger bins, more frequent collection) than what is required by council if they are willing to pay for it.

A key issue relating to bespoke service is the equity between the service provided to residential households. Currently the suburban and CBD recycling collections are funded from a component of landfill fees. Those households that need to arrange private collection services must pay for a service that other residents receive at no charge at the point of service. If council decided to require rather than provide this service then this inequality would continue, unless specific arrangements are made to use landfill fees to fund recycling rebates to dwellings with private provisions or changes are made to how recycling collections are funded.

A decision between requiring or providing these collection services should be deferred until May 2024 when additional information will be available via the detailed commercial plan.

The indicative costs of each option includes the cost of a council provided service for these multi unit developments. Including these costs allows for either approach to be chosen in May 2024.

Shared bins on public land

Where it is not possible to provide the standard service or a shared bin on private property the options are to continue a bagged service or to implement shared bins on public land.

The City of Zurich provides drop-off locations for rubbish, cans, glass and textiles on public land.

The key advantage of providing shared bins on public land is that you could end bagged collection of rubbish and recycling, which significantly improves safety for collection workers. As noted previously, some waste management companies are refusing to provide bagged rubbish collection due to the safety risks and worker retention.

The challenges of providing shared bins on public land should not be underestimated. There is limited public land available in the CBD and on narrow streets where it most likely to be needed. In some places there may be small areas of road reserve available, in others the only public space available may be a car park that could be used as a bin depot on collection day.

The risk of illegal dumping and contamination of diverted material is significant. Illegal dumping is already an issue for the CBD collection services. Bin depots or shared bins could become a magnet for illegal dumping. When public recycling bins were trialled alongside council rubbish bins on footpaths in the CBD they were eventually removed because the contamination rates were too high. Shared bins could be set up with swipe card access or other technology to restrict their use, to mitigate the contamination risk.

Finally, it is not clear how far people would be willing to walk to access a bin depot or shared bin on public land. This would be a significant change for residents.

Given these challenges and uncertainty staff recommend a trial of shared bins on public land takes place at several places across the city. Results of the trials can inform a decision on shared bins on public land for the 2027-37 Long Term Plan. This would not result in any significant delay to the implementation of new collection services, as the rollout will need to be phased, and will begin in July 2026.

For the 2024-34 Long Term Plan, staff recommend including the standard cost per household for collection services to these dwellings and an allocation for the trials of bin depots or shared bins on public land. More details of a possible trial will be included in the detailed commercial case in May 2024. It is anticipated that this can be funded from waste levy funding. Costs and funding will be confirmed in May 2024. For comparison, the recycling in public places trial in the CBD cost \$465,000 and the Pare Kai Miramar food scraps trial cost \$320,589.

Costs of bespoke services

The Tonkin+Taylor report assumes that while it will be more expensive to provide bespoke service to some households it will be cheaper for others. The report assumes that overall these variations will wash out and therefore the standard and bespoke services can be delivered within the cost ranges per household.

The cost benefit analysis assumed a slightly higher cost per household to provide bespoke service compared to standard service.

Hutt City Council recently reviewed its service provision to multi-unit developments. HCC had 149 sites with 10 or more units. 40 of those sites needed an alternative collection service, meaning 27% of multi-unit developments needed an alternative service. They found the cost of providing this alternative collection significantly higher than standard. While their specific service configuration and costs were not comparable to the proposed WCC service, this data indicates a risk that bespoke services can be more expensive. To mitigate this risk Tonkin+Taylor advise that appropriate structuring of the bespoke collection contract will be needed to manage the cost of bespoke services to avoid the significant cost differentials being experienced by HCC. Potentially requiring multi-unit developments to acquire a private service rather than providing a council service would remove the risk of cost differentials and cost escalation if multi-unit developments are more expensive to service.

The cost benefit analysis modelled a similar scenario during sensitivity analysis. In this scenario it was assumed that 27% of all units in a multi-unit dwelling would cost twice as much to service. This increased 30 year present value costs by \$18.5 - \$22 million for options D and F.

While the costs of providing bins for the standard service can be estimated, the cost of providing bins for bespoke service is unknown at this time. Further work needs to be completed about the types of bins needed for bespoke services and percentages of households that might receive different bin types. The financial case includes a cost estimate for households receiving bespoke services for new bins at the same cost per household as for the standard service.

Extending Collection Services to non-residential properties

Most non-residential properties such as businesses and community facilities currently have to pay for rubbish and recycling collection, making it less likely that they will participate in recycling.

Standard kerbside collection services are unlikely to meet the needs of these properties. However, adapted services such as those proposed for apartment buildings and private roads may be more appropriate.

Community facilities such as schools, marae, clubs etc.

When Hutt City Council rolled out new collections, they included community facilities as part of bespoke services and determined their needs in the same way as multi-unit dwellings.

This would create additional complexity for implementing new collection services, however including community facilities will deliver a public benefit through the reduction of waste going to landfill as well as providing an educational benefit by encouraging all those who use these facilities to participate in diversion of organics and recyclables.

The standard collection service will meet the needs of some community facilities. For other facilities a larger bin service may be needed. Schools in particular generate too much waste to use a standard service, and many do not pay for separate recycling collections.

Officers will investigate providing bespoke collection services to community facilities for the detailed commercial case in May 2024.

Commercial premises

Commercial premises have even more diverse needs than community facilities which would add significantly to the complexity of the implementation of any new service. It would also encroach on other providers such as Kaicycle and Organic Waste Management who provide these services.

We recommend that the commercial properties are not included in the current service redesign.

This could be revisited once the redesigned service has been fully implemented for all urban households and community facilities or if MfE rules change prior to this.

Organics Processing Options

The nearest processing facilities for that can deal with organic waste on a city-wide scale are:

- A vermicomposting facility in Ohakune
- An anaerobic digestion facility in Reparoa
- An in vessel composting facility in Hampton Downs

Different processing methods are appropriate for different types of organic material and different scale of operations. The following table from the T+T Organics Options report shows which organic materials different methods can process. More information about different processing options is available in T+T Regional Organics Options Report (Appendix 3) and T+T Resource Recovery Business Model Options August 2023 (Appendix 7).

Processing options	Food waste	Green waste	Food and green	Other materials	Comment
Food rescue	✓	✗	✗	✗	Protecting food quality is important.
Stock feed	✓	✗	✗	✗	
Community composting	✓	✓	✓	✗	Limited scale and careful management of food waste component would be required.
Vermicomposting	✓	'Soft' green waste	'Soft' green waste	✓	Some green waste can be processed. Pre-processing is important.
Aerated static pile composting	✓	✓	✓	May be suitable	Getting the mix right and pre-processing are critical to producing a quality product.
Windrow composting	✗	✓	Subject to location	✗	
In-vessel composting	✓	✓	✓	May be suitable	Getting the mix right and pre-processing are important. Post processing maturation required.
Wet anaerobic digestion	✓	May be suitable for 'soft' green waste	May be suitable for 'soft' green waste	May be suitable	Getting the mix right and pre-processing is important. Digestate may require dewatering or other processing.
Dry anaerobic digestion	✓	May be suitable for 'soft' green waste	✓	May be suitable	Getting the mix right and pre-processing are important. Post processing maturation of digestate required.

Note: soft – green waste which excludes branches/ twigs.

Figure 11 - Table 6.2: Processing options and suitable feedstocks, T+T Regional Organics Options Report (page 33)

More processing methods are suitable for food only collections than for food and garden waste. This is because the small pieces of wood material in garden waste such as branches and twigs are harder to break down than food scraps or soft/green garden waste like grass and leaves.

Covered aerated static pile, in-vessel composting, and dry anaerobic digestion are most suitable for processing mixed food and garden waste. However, all options require appropriate buffer distances to residential areas to manage odour.

Dry anaerobic digestion can process mixed food and garden waste, but this is an emerging technology. There are no dry anaerobic digestion sites operating at a city-wide scale in Australasia at present.

EcoGas who operate the anaerobic digestion facility in Reporoa claim that pre-sorting of mixed food and garden waste combined with “tweaking” the digestion process means that new anaerobic digestion facilities could accept mixed food and garden waste. It is unclear how effective or costly these adaptations to anaerobic digestion may prove to be. EcoGas have said they are interested in tendering for the new Christchurch organics processing facility which is for an existing mixed food and garden waste collection²⁵.

Regardless of processing method these facilities generally require sufficient scale to operate cost effectively, which means they will likely continue to operate at a regional level. It is also advantageous for them to be located rurally as this puts them close to the main customers of their end products – agriculture and horticulture. It also allows for buffer distances to minimise the effects of odour.

²⁵ Councils are transporting food scraps hundreds of kilometres as NZ tries to avoid dumping 350,000 tonnes of food waste into landfills each year | Stuff.co.nz

Transport distances for the processing of organic material have received recent media coverage. When considering appropriate transport distances, the full lifecycle of the organic material should be considered, from collection to the end customer. Given that the main customers are in rural areas a facility located anywhere along the route from Wellington city to the Horowhenua or the Wairarapa would minimise travel distances. However, the further the facility is from Wellington the more of the transport costs will fall on the council, rather than the facility operator or end customer.

Wellington City Council has been working with Hutt City Council and Porirua City Council to consider our joint needs for a regional organics processing facility near Wellington.

We are aware of several private companies developing proposals for organics processing facilities in Manawatu, Horowhenua, and Wairarapa.

There are several options available for the future processing of organic material collected in Wellington:

- A fully enclosed in vessel composting or anaerobic digestion facility at the Southern Landfill²⁶
- Partnering with local councils and/or waste management companies to develop a new facility to serve the Wellington region
- Contracting with existing facilities to transport organic material to them for processing

Key considerations for the location of any organics processing facility include enough available land for a facility of appropriate scale, with necessary buffer distances, located near end customers and main roads to minimise transport distances.

Developing a facility at the Southern Landfill is not recommended. The site is not well located for a facility of this type: it is close to residential areas and distant from the rest of the region and from end customers. The traffic effects through the CBD and Brooklyn would be undesirable.

Partnering with local councils and/or organics processing companies to develop a new facility to serve the Wellington region is recommended. A procurement process for a regional facility would allow for companies with different processing methods and potential locations to tender to provide the new facility. Investment and ownership arrangements could be negotiated as part of the procurement process. Companies with existing proposals could bid through the procurement process.

Rather than choosing a site and requesting tenders to build a facility there, we recommend that the procurement process seeks bids that provide the complete end-to-end solution, including land. This takes into account the differing amount of land and buffer distances needed for different processing methods.

These proposals for new facilities could be assessed against the option to transport organic material to existing facilities.

The following table shows the indicative costs for processing organic material at existing facilities in the Waikato²⁷, compared to possible costs for facilities in Fielding or Levin. The following table assumes that anaerobic digestion facilities are only appropriate for food scraps and therefore consider a lower total tonnage of material.

Method	Location	Material	T	Gate Rate	Processing Cost	Distance	\$/km/T	Transport Cost	Total Cost	S/T
Anaerobic Digestion	Reporoa	Food only	3,000.00	\$150	\$450,000	400	\$0.20	\$240,000	\$690,000	\$230.00
In Vessel	Hampton Downs	Food and garden	6,000.00	\$180	\$1,080,000	575	\$0.20	\$690,000	\$1,770,000	\$295.00

²⁶ These are the only proven processing methods that could provide the capacity required on the amount of available land on site

²⁷ Officers are aware of other potentially suitable facilities in Ohakune and Hawke's Bay, however estimated gate rate information from Tonkin+Taylor was only available for the processing type offered at the Waikato facilities. Any procurement process would consider all potential facilities.

AD	Fielding	Food only	3,000.00	\$150	\$450,000	155	\$0.20	\$93,000	\$543,000	\$181.00
IVC	Fielding	Food and garden	6,000.00	\$180	\$1,080,000	155	\$0.20	\$186,000	\$1,266,000	\$211.00
AD	Levin	Food only	3,000.00	\$150	\$450,000	95	\$0.20	\$57,000	\$507,000	\$169.00
IVC	Levin	Food and garden	6,000.00	\$180	\$1,080,000	95	\$0.20	\$114,000	\$1,194,000	\$199.00

The indicative gate rates included in the table were provided via email by Tonkin+Taylor, and are the rates used in the cost estimates for the Regional Organics report.

There are several data points used to estimate transport costs. A transport cost estimate of \$0.85 per km per tonne was used for the Sludge Minimisation Facility business case²⁸. This rate is too high for this business case as transporting sludge requires specialty vehicles compared to transporting organic waste.

Using the price difference for rubbish between Christchurch city and Banks Peninsula allows an estimate of the additional transport cost associated with the greater distance. Assuming the full cost difference is solely transport related costs gives an estimated cost of \$0.78 per km per tonne. This rate is also too high for this business case as Christchurch uses specialty trucks with compaction to transport rubbish.

For transport costs this analysis uses \$0.20 per km per tonne. This is based on the estimated cost of a standard truck and trailer from Wellington to Taupo, and on information provided to officers by EcoGas regarding their transport costs for organic waste.

Garden waste takes up significantly more space per tonne than food waste and as such makes it less efficient to transport. Industry practice is usually to process garden waste before transporting, chipping the material to create a mulch-like product that has a density closer to food waste. This pre-processing would slightly increase the cost of transporting garden waste.

Trucking food and garden waste for processing at Reporoa or Hampton Downs is estimated to cost between \$50-\$100 per tonne more than if it were processed in Fielding or Levin. This is not recommended as a long-term solution.

Potential facilities in Manawatu or Horowhenua deliver much lower costs per tonne of material processed than existing facilities that are further away. The table shows that transport costs are a key consideration in evaluating different options.

Recommended option: joint regional procurement process for a new organics processing facility.

A joint procurement process will be open to different processing technologies and locations. It will also be able to consider different ownership models, if bids are received from companies wanting to provide processing at their existing facilities, at privately owned facilities they intend to build, or if a company wanted to jointly own a facility with councils. Any arrangement that reduces council ownership of the facility will reduce the council's capital investment required.

No new facility could be operational in time for the July 2026 new collection contract. If organics collections are introduced in July 2026, then organic material would need to be transported to appropriate facilities in Ohakune, Hawke's Bay or the Waikato until a new regional facility is operational. This additional transport cost is estimated at \$700,000 per year for two years after collections start in July 2026.

There are two alternatives to transporting organic material out of region while waiting for a new processing facility to be constructed:

²⁸ The business case calculated the cost of transporting sludge to a landfill in the Manawatu as one of the options that was assessed. This cost per kilometre per tonne was estimated by the working group for that business case.

- Delay organics collection until July 2028 when a new facility could feasibly be operational, or
- Dispose of organic material to landfill until a new facility is operational.

Neither of these options is recommended.

Delaying organics collection would require two changes to waste collection within two years, causing confusion and disruption to residents. Rubbish collections would need to be weekly until organics collections were introduced increasing costs. It would also involve higher implementation and communication costs.

Disposing of organic material to landfill until a processing facility is available would reinforce a prevailing belief that recycled material ends up in landfill. This misconception was validated by 32% of respondents in MfE's Behavioural Trend Monitoring Survey 2023. This belief is a barrier to participation rates and reinforcing it would have lasting negative effects. Councils that have disposed of recyclable or organic material to landfill for even a short period of several weeks have experienced significant declines in participation, and increases in contamination, that persist long after normal processing has resumed.

Financial Case

The Financial Case will consider the overall operating and capital expenditure profile for the preferred options. As part of developing these profiles external funding options for capital investment will be considered, as the Council's share of expenditure could be less than 100%. For the funding of the Council's share of operating expenditure the financial case will consider user pays, surplus landfill fees, targeted rates, and general rates.

Cost profiles of preferred options

This section will set out the operating and capital spending profile for preferred option F – FOGO/glass crate for the next ten years. These figures have been inflation adjusted using the waste activity cost adjuster from the latest BERL local government cost adjusters report. The cost benefit analysis was prepared using the previous BERL report and so these figures will not exactly match those in the cost benefit analysis report. These figures are likely to change slightly during the preparation of the 2024-34 Long-term Plan Consultation Document budget, as an updated report from BERL may be received during that time.

Operating costs

The operating costs related to option F – FOGO/glass only are set out in the table below. Standard service costs are estimated using the mid point of the cost range provided by Tonkin+Taylor and bespoke service costs are estimated using the high end of the cost range. This is the same method used in the baseline scenario in the cost benefit analysis report.

\$ million	2023/ 24	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Collections and Processing costs Standard Service (Option F) total, not additional	\$-	\$-	\$-	\$15.0	\$15.4	\$15.9	\$16.3	\$16.8	\$17.3	\$17.8	\$18.2	\$132.7
Collections and Processing costs Bespoke Service (Option F) total not additional	\$-	\$-	\$-	\$9.5	\$9.8	\$10.1	\$10.4	\$10.7	\$11.0	\$11.3	\$11.6	\$84.2
Comms and SBS	\$-	\$-	\$0.7	\$1.2	\$0.3	\$0.3	\$0.1	\$0.1	\$0.1	\$0.1	\$0.1	\$2.9
Project Delivery	\$0.6	\$0.9	\$0.9	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$2.2	\$4.6
Trucking out of region	\$-	\$-	\$-	\$0.8	\$0.8	\$-	\$-	\$-	\$-	\$-	\$-	\$1.5
Total Collections opex	\$0.6	\$0.9	\$1.6	\$26.5	\$26.3	\$26.3	\$26.8	\$27.5	\$28.3	\$29.1	\$32.1	\$225.9

Communication costs included are from the recommended option of \$2.2M total spending. This differs from the costs included in the baseline cost benefit analysis. Project delivery costs are the same as those included in the baseline scenario.

The estimated cost for transporting organic material to existing facilities out of region were not included in the cost benefit analysis. These costs estimates were detailed in the Organics Processing section above.

Capital costs

The capital costs associated with option F – FOGO/glass crate are for the cost of new bins and the new organics processing facility.

Tonkin+Taylor advise that the annualised costs for these capital items are included in the targeted rates of other councils. Therefore, it is assumed that depreciation and interest costs are already included in the per household cost range provided by T+T. These are included in the collections operating cost table above and no additional provision needs to be made for these.

The current bins are not suitable for many of the new service options and would need to be replaced. The manufacturer of the bins states their useful lives as ten years and most of the current bin fleet will be fifteen years old in 2026, when the new service would roll out. (Old bins will be reused or recycled.)

The cost of new bins was estimated based on current quotes from a supplier. These estimated costs include the cost of a bin clip for all wheelie bins. For option F the cost of a new 120L rubbish wheelie bin, 240L recycling wheelie bin, 80L organics wheelie bin and 45L glass crate was included.

It is unknown what the costs of bins for households receiving bespoke service might be. In the absence of better data, it is assumed that the same cost will apply to bespoke households.

Adjusted for inflation this is estimated to cost \$14.1 million in 2025/26. This can be fully funded from a \$4 million grant from MfE and \$10.1 million from the Landfill Surplus Fund, which will be discussed below.

A new organics processing facility will likely be needed in or near the Wellington region to support new organics collections. WCC staff are working jointly with PCC and HCC on a joint regional processing facility.

Tonkin+Taylor have estimated the cost of different types of organics processing facilities to support the regional grant application for MfE. The high end cost estimate for a regional facility is \$70 million at current prices.

The following table shows the funding split that has been agreed between WCC, PCC and HCC staff. The agreed shares are based on receiving a 50% contribution from MfE and the council shares are based on population.

Entity	2018 population	% contribution	\$ contribution
MfE		50%	\$35 million
Local share			\$35 million
WCC	202,737	56%	\$19.5 million
HCC	104,532	29%	\$10.1 million
PCC	56,559	16%	\$5.4 million

The staff of the three councils agreed to request their share of the funding in the table above through their Long-term Plan processes.

The main risk to cost escalation for WCC is from the Ministry providing less than 50% of the funding or one of the other councils withdrawing from the joint application.

For example, if the cost of the facility was \$55 million but MfE only agreed to fund \$15 million of the cost then WCC's share would actually rise to \$22.3 million using the same percentage split between partner councils. This demonstrates that the viability of a new facility is heavily dependent on receiving MfE funding.

Including project delivery costs and adjusting for inflation, the capital costs for the organics processing facility are as follows:

\$ million	2023/24	2024/25	2025/26	2026/27	2027/28	Total
WCC share of organics processing facility	\$0.0	\$0.0	\$2.1	\$9.6	\$9.8	\$21.5
Project delivery costs	\$0.4	\$0.4	\$0.3	\$0.1	\$0.1	\$1.3
Total Organic Processing Facility capex	\$0.4	\$0.4	\$2.4	\$9.7	\$9.9	\$22.8

Sources of capital funding

MfE currently has grant funding of \$120 million specifically to support the introduction of new organics collection services that will fund up to 75% of new bins and other implementation costs. The fund will reimburse a set amount per organics bin after seeing evidence of the purchase, \$7.50 per household for communications, and \$50,000 toward project management costs provided all of those jointly less than 75% of the full implementation cost.

Wellington City Council applied for \$4.7 million as part of a joint application with Hutt City Council and Porirua City Council, with \$4.0 million of that specifically for new bins.

The net cost of new bins is \$10.1M and it is recommended that this is funded from the Landfill Surplus Fund.

The Landfill Surplus Fund is used to smooth out any operating deficits at the Southern Landfill. When there is an operating surplus it gets paid into the fund which can then be used to fund any future operating deficit without increasing rates. In the past seven years there has only been a deficit in 2018/19 of \$1.1 million. Surpluses have been run in every other year and the Landfill Surplus Fund is provisionally \$20.7M at 30 June 2023.

Officers recommend that \$2M is retained in the Landfill Surplus Fund to manage the risk of landfill operating deficits. Significant landfill operating surpluses are unlikely in the next 3 years as the remaining capacity in stage 3 of the Southern Landfill declines. To ensure the remaining capacity lasts until the landfill extension is operational contaminated soil tonnage (a significant source of revenue in recent years) may need to be turned away.

Officers recommend that \$3.7M is retained in the Landfill Surplus Fund to fund the proposed expansion of the Tip Shop and related resource recovery projects in the Resource Recovery business case that is being considered at the same committee meeting.

Any new processing facility will have a construction cost. However, the Council need not be the only party contributing to those costs.

The Ministry of the Environment also has grant funding available to support waste minimisation projects. They would fund up to a maximum of 50% for a new organics processing facility if the grant application is approved. The Ministry have said they will give greater priority to grant applications with a regional focus. Wellington City Council staff have been working closely with staff from Porirua City Council and Hutt City Council to develop a joint application for a regional organics processing facility. Other councils in the region may join the joint application in future.

Several organics processing facilities around New Zealand are wholly or partly owned by waste management companies. MyNoke owns several vermicomposting facilities in the North Island. EcoGas own the anaerobic digestion facility in Reporoa. Envirowaste own the in vessel composting facility in Hampton Downs.

As shown by these facilities, there is potential for a commercial partner to join the project for a new organics processing facility in the Wellington region. This could further reduce the Council's share of the capital cost. If a company proposed to wholly own the facility themselves then the capital cost to the Council could be zero.

There is also \$4.8 million available in the Landfill Surplus Fund to contribute to the costs of an organics processing facility. This reduces the required capital funding from the 2024-34 Long-term Plan as follows.

\$ million	2023/24	2024/25	2025/26	2026/27	2027/28	Total
Total Organic Processing Facility capex	\$0.4	\$0.4	\$2.4	\$9.7	\$9.9	\$22.8
Less \$4.8M Landfill Surplus Funds	\$0.4	\$0.4	\$2.4	\$1.6	\$0.0	\$4.8
Capital Funding requirement	\$0.0	\$0.0	\$0.0	\$8.1	\$9.9	\$18.0

Sources of operational funding

Currently rubbish and recycling collection services are funded from different sources. Rubbish collections are funded from the \$3.50 price of a council rubbish bag. Recycling collections are funded from an additional charge per tonne of waste going to Southern Landfill. A new funding source would be needed for a new organics collection service.

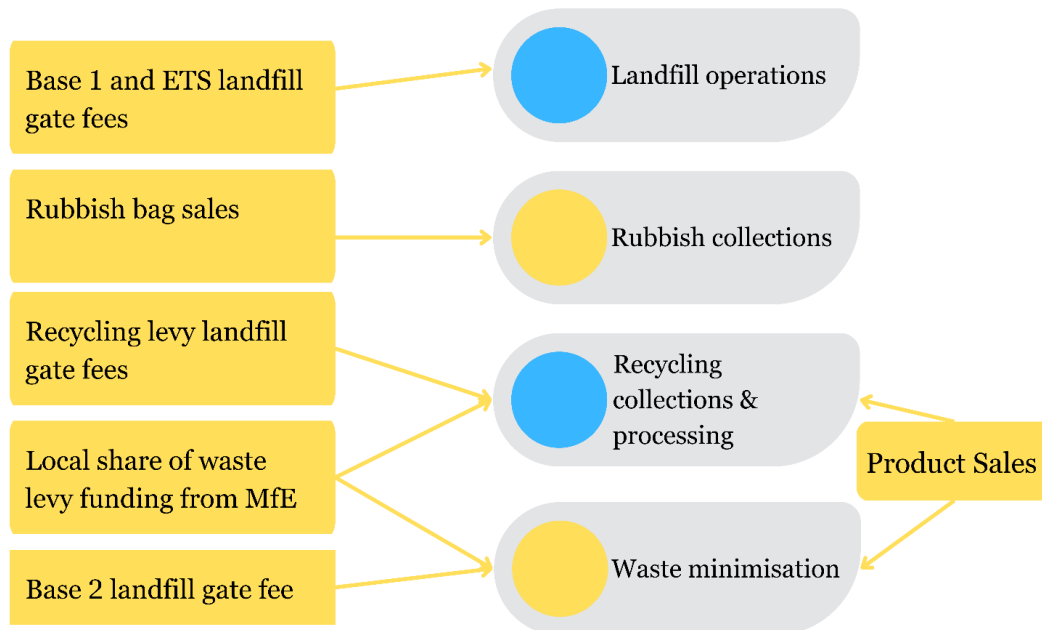


Figure 12 – existing operational funding sources

User pays rubbish bags

The economic case details the many benefits of moving from a rubbish collection service using bags to one using wheelie bins. These include greater control over the rubbish disposal capacity provided to households and the significant safety benefits for collection workers.

It is very difficult to implement a user pays service when using wheelie bins. The equivalent of a bag fee would be a fee paid every time the wheelie bin is emptied. The technology for measuring wheelie bin “lifts” when it is emptied is unreliable and experience at other councils is that the administration costs of dealing with people challenging their fees is not worth any benefit from user pays. Only one council out of nine reviewed for the economic case used a per lift fee for rubbish, while all of them use a wheelie bin rubbish collection. Staff strongly recommend against a per lift fee for wheelie bin rubbish collection.

Funding rubbish collection via targeted or general rates is recommended. The development of a targeted rate is discussed in more detail below.

Targeted rate for waste collections

All nine councils reviewed for the economic case use some form of targeted rate to fund their waste collection services. This includes the other major metro councils of Auckland, Tauranga, Hamilton, Christchurch and Dunedin.

Targeted rates pay for specific services or projects and can be set generally across all ratepayers (so all ratepayers pay that rate) or to specific ratepayers in certain areas (for example if that group will particularly benefit from that project or service). Targeted rates are typically a fixed charge but may be set based on each property’s value.

There are several advantages to using a targeted rate for waste collections rather than funding it from the general rate.

First is that these waste collection services are provided to residential households and not commercial premises. If they were funded from the general rate these services would receive significant funding from commercial properties that do not receive this service.

Second is that using a targeted waste provides transparency to residents about the cost of these collection services. Almost all residents using a private wheelie bin service for rubbish collection are expected to be better off under a new council service. They will be able to compare the new cost of a targeted rate to the previous cost of their private service.

A targeted rate for waste could be set to cover the net cost of rubbish and organics collection (including processing costs and revenue from end products). This targeted rate could be a fixed charge across all residential properties or based on the capital value of all residential properties.

Councils generally set their targeted rate as a fixed charge per household. The rationale for this is that each property receives the same bins (or an equivalent service) regardless of the property value.

If Council decides not to provide collection services for multi-unit developments but instead requires they provide a private recycling and organics collection service, then these properties would need to be excluded from the targeted rate.

Three councils allow residents to opt to change the size of their rubbish bin with a related increase or reduction in their targeted rate. This could be implemented by the Council to retain some user pays pressure on reducing the size of rubbish bins. A related reduction in the targeted rate could accompany this.

When the Council commissioned a survey in 2020 to investigate the potential for a half size rubbish bag one of the findings was that people expected a half size bag should be half the cost. This doesn’t consider the cost of collection, which is related to the number of bins collected rather than the size of the container. Collection costs are roughly the same no matter the size of the container, only processing costs reduce with a smaller bin. This indicates that effective

communication will be needed with residents to explain how any reduction or increase in the targeted rate is calculated when you opt for a different sized bin.

Landfill fees funding recycling

Council waste services are currently fully funded out of a recycling levy applied to the landfill fee for several different types of waste. Appendix 4: Landfill Tonnage Forecast sets out the fee structure and future revenue forecasts in detail.

As waste minimisation activity increases and more waste is diverted away from landfill this revenue stream will begin to decline.

The following table shows the forecast recycling levy for the next ten years. This has been adjusted for the expected change in tonnages but assumes that the current recycling levy rate will stay the same.

\$ million	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Recycling levy forecast	\$7.5	\$7.5	\$6.1	\$5.6	\$5.6	\$5.6	\$5.6	\$5.7	\$5.7	\$5.7	\$60.6

The cost of providing recycling services in 2022/23 was \$7.3 million. This shows that the recycling levy may not fully fund recycling collection services after 2025/26.

There are several options for managing this:

- Increase the recycling levy
- Fund recycling collections from general rates when needed
- Introduce a recycling component to the targeted rate when needed
- Include a recycling component in the targeted rate when it is introduced in 2026/27 and convert the recycling levy portion of the current landfill fee into a waste minimisation levy to fund resource recovery activities.

Increase the recycling levy

It is important that landfill fees stay in step with fees for neighbouring landfills Spicers and Silverstream as most waste is collected by private companies who are willing to drive further for a better landfill price.

Once the sludge minimisation facility is operating and the mixing ratio constraint is removed there may be more flexibility to increase landfill fees, as the key risk related to waste flight will have been removed.

However, if we want Wellington's waste to be managed in our rohe then there is an upper limit to the price per tonne. We could require the provider of Council rubbish collections to bring the waste to Southern Landfill, but other waste would end up going to other landfills.

Fund recycling collection from general rates

This is not recommended for the same reasons discussed above regarding the benefits of a targeted rate for funding rubbish and organics collection.

Introduce a recycling component to the targeted rate when needed

When the recycling levy is no longer sufficient to fund recycling collections a recycling component could be added to the targeted rate for rubbish and organics collection.

A key issue for introducing a targeted rate for recycling would be to ensure that the Council is not collecting funding twice for the same activity, through both the landfill fee and the targeted rate.

The recycling component of the targeted rate could phase in over time, essentially “topping up” the shortfall in revenue from the recycling levy.

Include recycling cost in the targeted rate in 2026/27

The cost of recycling collections (net any end revenue) could be fully included when a targeted rate for waste collections is introduced in 2026/27. This would require removing the recycling levy component from the landfill gate fees.

To ensure that landfill fees do not fall, (which would create a perverse incentive contrary to the goals of the Zero Waste Strategy) the recycling levy component of the landfill fees could be repurposed to fund resource recovery activities. This would increase revenue available for resource recovery and waste minimisation by about \$5.6 million in 2026/27.

This approach is not recommended as it would effectively increase the cost to ratepayers by \$5.6 million.

A combination of increasing the recycling levy and extending the targeted rate to “top-up” the recycling levy as necessary is recommended.

The following diagram illustrates the proposed operational funding for waste services.

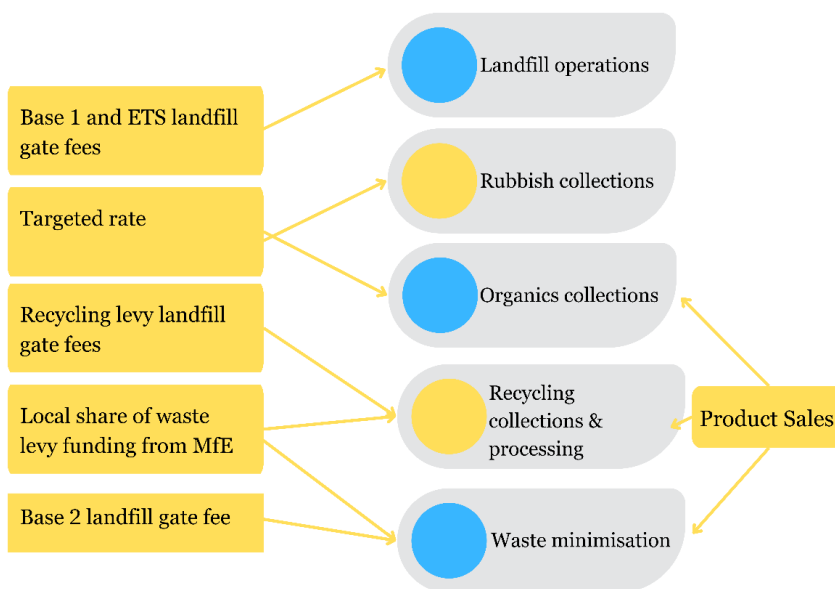


Figure 13 – proposed operational funding sources

Affordability for households

Only 40% of households are estimated to use the council rubbish bag service with 60% using a private wheelie bin service. A household putting out one rubbish bag per week would have an annual cost of \$182. Private wheelie bin collections vary in price. One company offers a 140L wheelie bin weekly rubbish collection for \$395. Larger sized bins are more expensive.

The following table gives an indication of the current costs of collection services paid by residents and what a future targeted rate could be.

	Current	Targeted rate
Rubbish	\$182 (one bag/week) \$395 140L private weekly	\$140-\$180
Recycling + glass	Landfill fee	Landfill fee
Organics	none	\$70-\$100
Total	\$182-\$395	\$210-\$280

It is very likely that every household currently using a private rubbish collection service will be better off, even when the additional cost of an organics collection is included. For the 40% of households that use bags the new rubbish collection service should be comparable in price, with an additional charge for the organics collection.

Financial information for the Long Term Plan Consultation Document

Based on the estimated costs and recommended funding sources it is recommended that the following changes are made to the budget for the 2024-34 Long-term Plan Consultation Document.

Forecast recycling levy revenue

\$ million	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	Total
Recycling levy forecast	\$7.5	\$7.5	\$6.1	\$5.6	\$5.6	\$5.6	\$5.6	\$5.7	\$5.7	\$5.7	\$60.6

Estimated collections operating costs

\$ million	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	Total
Total Opex	\$0.6	\$0.9	\$1.6	\$26.4	\$26.3	\$26.3	\$26.8	\$27.5	\$28.3	\$29.1	\$32.1	\$225.8

Estimated targeted rate

\$ million	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	Total
Total Collections opex	\$0.6	\$0.9	\$1.6	\$26.5	\$26.3	\$26.3	\$26.8	\$27.5	\$28.3	\$29.1	\$32.1	\$225.9
Recycling levy (uninflated, adj for tonnage forecast)	\$0.0	\$7.5	\$7.5	\$6.1	\$5.6	\$5.6	\$5.6	\$5.6	\$5.7	\$5.7	\$5.7	\$60.6
Opex net recycling levy				\$20.4	\$20.8	\$20.7	\$21.1	\$21.9	\$22.6	\$23.4	\$26.4	\$165.3

Additional capital funding

\$ million	2023/24	2024/25	2025/26	2026/27	2027/28	Total
Capital Funding requirement	\$0.0	\$0.0	\$0.0	\$8.1	\$9.9	\$18.0

Commercial Case

The Commercial case will consider phasing options and other implementation issues, the operating model for both collections and processing, and the procurement approach to these projects. The information presented here is preliminary. A detailed commercial plan will be prepared once a preferred option has been chosen. This will be brought back to elected members prior to finalising the Long-term Plan 2024-34.

The funding application to MfE for collections was submitted in July 2023 and it is planned to submit the funding application for processing in September. Council staff are in close contact with officials from MfE regarding both applications. MfE have offered their support in any procurement process for a regional organics processing facility. The report back to councillors in May 2024 will include an update on the status of these grant applications.

Phasing options for implementation

The potential scale and complexity of change from some of the options, and in particular the need for bespoke services, is likely to be better suited to a staged roll-out process.

The first task will involve identifying all properties suitable for a standard service. This will include properties that currently have Council recycling bins, some properties that are serviced using recycling bags and some private roads/accessways and smaller multi-unit developments.

There is potential to stage the roll-out of standard service by region or materials stream. Due to the large number of households in Auckland they decided to stage the roll-out of their new organics collection services geographically by region.

Timing may be influenced by the availability of processing facilities for the collected materials. Collections that do not require new processing facilities could be rolled out in 2026, with the remaining collection changes introduced in later years.

Regardless of the approach, consideration will need to be given to the timeframes and required lead in time (e.g. for contractor mobilisation or manufacturing of any necessary bin assets), the impact on resources and need for temporary resourcing (both for council and contractors), and alignment with other council initiatives or changes across the region.

Bespoke Service Implementation

A bespoke service will need to be designed for each area that is unsuitable for the standard service. This will include private road/ accessways, multi-unit developments and public roads with difficult access.

It is anticipated that council will establish a range of potential solutions that can be combined to address the requirements of each area, road or development..

Considerable engagement will be needed with those provided with a bespoke service. Building in sufficient time to undertake this work into the roll-out process is critical for both procurement and implementation. Detailed requirements will ensure bidders make comparable and competitive proposals and there is joint clarity in what is included in the scope and level of service. Further financial modelling is required to consider the impact/approach for a targeted rate if the service is staggered over several years.

Officers have started this work.

Operating models for collections and processing

For collections services it is recommended that council continues to contract with private waste management operators to deliver collections. For council to do this service it would require capital

investment in a new collection fleet. As discussed in the strategic and economic cases, waste collection services are an industry with significant health and safety risk. Existing waste management companies have the operational experience to manage the issues, which would take council significant time to build up, although council will still have the full obligations of a Person Conducting a Business or Undertaking either way.

To develop a new regional organics processing facility the Council will need to work closely with the other partner councils in the region to negotiate ownership and operating arrangements that are acceptable to all partner councils.

The ownership and operation of any new processing facilities will largely depend on the availability and willingness of partners. Both organics processing and materials processing facilities are currently provided by private companies in the Wellington region, showing that these can be commercially viable investments. The option to partner with a company is an option that would be left open during procurement.

Given that materials processing facilities involve specialised equipment it makes sense for councils to procure a specialised operator, as is done for sludge treatment facilities.

Commercial and Procurement approach

The commercial approach for a regional organics processing facility will need to be agreed amongst all partner councils. the Council's preferred commercial approach is set out here and will be further detailed in a Procurement Plan in partnership with the Commercial Partnerships team and in alignment with the Council Procurement Policy.

Additional work on specific requirements for standard collection services, bespoke collection services, and organics processing facilities will be required before procurement can begin. The commercial approach will be adjusted as implementation details are refined. An updated approach will be included in the detailed commercial plan.

Whichever commercial method is deemed most suitable, it will consider Broader Outcomes, in particular those Council can achieve with our mana whenua partners. This could include opportunities for rangatahi employment or utilising Māori owned businesses, for example.

The commercial approach will follow the Council's procurement policy and processes.

Stages of procurement

This section will provide an overview of the different commercial methodologies that may be undertaken for projects of this scale, value and complexity. This will inform the recommended approach for collections and organics processing that are set out in the following sections.

The potential stages of a procurement process are as follows:

1. Soft Market Engagement – approximate time needed six weeks.

This is an informal process separate from any formal process. This may include publicly issuing a Future Procurement Opportunity via the Government Electronic Tender Service and target particular market sectors to inform them of the upcoming procurement. Benefits of this approach can include:

- Promotes interest and pre-planning from suppliers in the market, so they are aware of the intention council has to tender for this service(s). This also can allow more time to resource-up and be ready for any formal tender phase, for example if land needs to be secured or machinery ordered.
- Identify barriers the market may see to participating in the opportunity so that these may be mitigated where possible. The market can provide informal feedback on our approach.

- This approach has been successfully used elsewhere in New Zealand for procurements of similar scale and value. This includes Auckland Council and Christchurch City Council.

2. Request for Information to the open market – approximate time needed 6 weeks.

A formal Request for Information from market participants, which requests the market provide high-level or brief information to council against our requirements. Benefits to this approach can include:

- It can reduce the amount of work that is later required by the market due to upfront conversations and clarity about Council requirements. This can then further reduce their risk/resource to tender and encouraging higher participation at this stage.
- This enables conversations with participants to ensure they are “on the right track” for meeting the council’s requirements and that it is worthwhile for them to proceed with the next stage.
- Can allow and encourage innovation that best meets council’s requirements and outcomes. It can also help further refine later stages of an RFX process, cannot be used to short-list or segment the market for closed tendering, noting that an Request for Information is for research purposes only.

3. Expression of Interest – approximate time needed 8 weeks.

A more detailed proposal from participants. This provides the opportunity to connect potential suppliers together such as a supplier of technology with a landowner. Benefits to this approach can include:

- Enables a select number of quality registrations/expressions to be taken forward to a following stage (likely to be Request for Proposal, Request for Tender or presentations).
- Can minimize time and resources wasted of prospective suppliers who put forward a further proposal and for council undertaking the evaluations.

4. Request for Proposals (to Expression of Interest short-listed suppliers, or to open market) – approximate time needed 16 weeks.

This is a detailed proposal for a full solution (site, technology, operator and end market). These are then evaluated by a nominated Evaluation Panel to score and rank the most value for money proposal(s) according to the evaluation criteria detailed in the procurement plan.

During, or as an alternative proposal format, to a Request for Proposal, the Evaluation Panel may also run a series of interactive sessions with prospective suppliers via presentations. This is an opportunity for Council to understand what is being proposed relative to what is required and provide clarity. This approach can benefit both prospective suppliers and council, resulting in higher quality proposals being submitted.

Awarding the contract to the best offer is an operational decision, endorsed by the Evaluation Panel, the nominated Executive Leadership Team member, and approved by the Chief Executive as per the Delegations Policy. For these projects, councillors will receive an update on the procurement process prior to finalising the Long-term Plan, which will happen before a decision is made by the Chief Executive to award the contract.

Procurement approach for collections contracts

The current provider of suburban waste collections is EnviroNZ. The current provider of CBD waste collections is Fulton Hogan who have sub-contracted delivery of this. It is estimated that there are approximately ten private waste management operators in the Wellington region. This

provides assurance that there is an active market for these contracts and multiple bids will likely be received.

The collection contract could be split by area, by waste stream, or both. Given that the fleet and equipment needed to collect the three waste streams differ, it makes sense to award contracts for each type of waste stream (organics, recycling, rubbish). These contracts could then be further split by area if that is justified.

Commercial options to procure this service could be: Direct Award to a single (or selection) of supplier(s); a Closed Tender to select suppliers, or an Open Tender. Each comes with risks and benefits for what Council is trying to achieve.

Potential procurement options include:

- **Option 1:** Closed tender to a few select suppliers. This may be appropriate when there are only a few or limited number of suppliers who can provide what is required and all are invited to tender, noting that this carries risk where a potential supplier is overlooked and challenges the process.
- **Option 2:** Open tender via Government Electronic Tender Service. This is appropriate when there is the possibility of many (>6) players in the market

The preferred option for procuring a new Collections contract/s is via open tender (Option 2) Request for Proposal, combined with pre-procurement Soft Market Engagement.

The following table shows the estimated time for each phase of the procurement process for the collections contract.

Procurement stage	Preferred option	Alternate option (no soft market engagement)	Alternate option (no soft market engagement or Request for Information)
Soft market engagement (and assessment)	8 weeks		
Request for Information process	9 weeks	9 weeks	
Request for Proposal process	6 weeks	6 weeks	12 weeks
Evaluation of responses	8 weeks	8 weeks	8 weeks
Total	31 weeks	14 weeks	20 weeks

The preferred option is option 2 which includes the pre-procurement Soft Market Engagement. It will ensure council maximises the opportunity to cast a wide net to secure interest by potential suppliers, including small, local businesses.

Due to the 18 month lead times needed to acquire the necessary fleet and equipment, the last date at which we can award the contract in order to meet the go live date is 8 January 2025. Option 2 can be completed prior to this date.

Alternative options for procurement would be to reduce the number of steps prior to a full Request for Proposal. Using fewer steps would reduce the time needed for the procurement process, however this may reduce participation by prospective suppliers (particularly small, local suppliers), resulting in a reduced range of options. This could ultimately result in a lower quality outcome that does not fully align with council's requirements, and which may not deliver the best value for money.

Procurement approach for organics processing facility

In developing a preferred procurement option there are four key elements that collectively provide the complete organics processing facility solution. The four key elements are:

1. Suitable site within appropriate zoning and resource consents in place for a period of 20 years+. This could be on privately or council owned land. It would need to be located in a zone that provides for organics processing and related activities and have or be able to secure the required resource consents. There would also need to be sufficient odour buffer distance to the nearest boundary and neighbours.
2. Selection of an appropriate organics processing technology that meets council’s requirements such as fully enclosed with full odour capture and treatment, scalable and modular and able to process other commercial organic materials.
3. The preferred operator will be suitably experienced in processing organic materials including meeting all compliance and quality assurance requirements.
4. Secure markets for end products. End-markets are developed and secured to ensure beneficial use for all products, for example compost and electricity.

To achieve the best outcome requires a procurement process that brings all these factors together noting that this may require more than one party to come together and form an arrangement to deliver this. An example of this would be a global technology supplier that has not land or site and a landowner with a suitable site not having a suitable technology. Implementing a procurement process that brings these factors together reduces the risk of ending up with a narrow range of tenderers and compromising on council’s requirements.

Potential procurement options include:

- **Option 1:** Closed tender to a few select suppliers. This may be appropriate when there are only a few or limited number of suppliers who can provide what is required and all are invited to tender, noting that this carries risk where a potential supplier is overlooked and challenges the process.
- **Option 2:** Open tender via Government Electronic Tender Service. This is appropriate when there is the possibility of many (>6) players in the market

The preferred option for procuring a new organics processing facility is Option 2. This opens the opportunity up to a number of prospective suppliers to maximise the range of offerings for the Council to choose from and, given the competitive nature of this, ensure value for money.

The following table shows the estimated time for each phase of the procurement process for the organic processing facility.

Procurement stage	Preferred option	Alternate option (no soft market engagement)	Alternate option (no soft market engagement or Request for Information)
Soft market	6 weeks		
Request for Information	6 weeks	6 weeks	
Expression of Interest	8 weeks	8 weeks	8 weeks
Request for Proposal	16 weeks	16 weeks	16 weeks
Evaluation of responses	14 weeks	11 weeks	8 weeks

Total	50 weeks	41 weeks	32 weeks
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The preferred option, Option 2, includes the pre-procurement Soft Market Engagement. This builds on the experience of similar organics processing procurements. It will ensure Council has maximised the opportunity to cast a wide net to secure interest by potential suppliers and maximise time to prepare for the procurement process ahead (Request for Information, Expression of Interest, Request for Proposal) including suppliers resourcing up for this. This includes securing land options and making connections with other organisations who may form part of the proposal offering.

Alternative options for procurement would be to reduce the number of steps prior to a full Request for Proposal. Using fewer steps would reduce the time needed for the procurement process, however this may reduce participation by prospective suppliers, particularly from global players, resulting in a reduced range of options. This could ultimately result in a lower quality outcome that does not fully align with council's requirements, and which may not deliver the best value for money.

Market analysis

The organics processing facility technology and equipment is expected to largely be sourced from overseas suppliers, owing to the limited market and manufacturing in New Zealand and specialist technical nature of the technology. Through the soft-market-engagement stage, council will engage with a range of technology suppliers to promote and understand their interest in this project. It will also consider the suitability of their technology with council requirements and identify potential barriers to engagement within the procurement process.

Council requires an organics processing solution that ensures and delivers the safe and beneficial use of organic materials. Organic materials include collected materials and other non-council supplied material such as commercial organics. To this end Council's requirements include the following:

Land

- Ownership or lease of the site for a period not less than 20 years
- Located in a zone that provides for organics processing and related activities
- Has or able to secure required resource consents
- Adequate area of land to support all on-site activities
- Adequate road access
- Access to utilities
- Sufficient odour buffer distance to nearest boundary

Processing Technology

- Fully enclosed with full containment, capture and treatment of odour.
- Proven technology for processing organics including any seasonal variations and future changes in material composition
- Proven technology for processing other commercial organic materials including putrescible wastes.
- All vehicle entry/exit doors to be high-speed.
- Air-curtain placed around each door to contain odours when doors are opened.
- Building operates under negative air pressure with not less than three air-changes per hour.
- The biofilter or air-treatment system should have sufficient operational redundancy built into this to enable all maintenance to be undertaken including biofilter media replacement.
- The building should be sufficiently sized to store input organic materials for up to 48 hours as a contingency.

- Minimum retention period for processing of organic material to align with best international practice.
- All product screening and loading out to occur within fully enclosed building.
- The solution must include a 5% w/w (average) sliding scale contamination contingency and the required technology to separate and remove this to ensure compliance with appropriate standards (see below); and
- Manual pickers and handling to remove contamination will not be accepted by Council.
- A processing solution that is modular and scalable to respond to increases in volumes due to population growth and increased diversion of other organic materials from landfill such as commercial organic materials and other putrescible (decayable) wastes.
- A facility or facilities that can manage a peak load turnaround times of delivery vehicles with a wait time not exceeding 15-minutes per delivery vehicle.
- Accept both compostable and non-compostable bags from collections. Technology required to separate and remove organic material contents from bags for processing.
- All product(s) shall be sufficiently treated and free of contaminants to enable composting and comply with the requirements of the New Zealand Compost Standard NZ4454 and/or other appropriate standards e.g. New Zealand Biosolids -Guidelines, PAS UK 110, end-market industry-specific standards.
- Products (including energy) from alternative waste treatment processes shall comply with the appropriate New Zealand recognised standard(s).
- A system to track, monitor and record all aspects of the treatment process and that complies with appropriate quality standards, third party verification and audits such as ISO 9000, 14000 and/or similar; and
- Utilisation of technology and innovations

Plant Operator

- The preferred operator will have no less than five years' experience processing organic materials into marketable products.

End Markets

- Products from the organics processing plant comply with required standards including NZ4454:2005 (or similar) and be fit for purpose to meet market demand.

Risk allocation

The table below sets out Council's expectation on risk allocation, based on which party is best position to manage and benefit from mitigating the risk.

Risk Category	Council	Contractor	Shared
Secure resource consent		100%	
Facility Financing (Council Land)	100%		
Facility Financing (Private Land)		100%	
Construction and Development		100%	
Facility Commissioning		100%	
Facility Performance Risk		100%	
Revenue risk (product sales)		100%	
Resource consent compliance		100%	

Input material contamination at point of collection	100% if FOGO	100% if Food Only	
Output product quality compliance		100%	
Legislative risk	100%		

Contractual Arrangements

1. New Organics Processing Facility

If the organics processing facility is on council-owned-land, then this would typically support a Design, Build and Operate (DBO) or a Design, Build, Own, Operate and Transfer (DBOOT) contractual arrangement.

If the organics processing facility is on non-council-owned-land, then this would typically support either a DBO, DBOOT or a Design, Build, Own and Operate (DBOO) contractual arrangement.

2. Existing Organics Processing Facility

Should the procurement result in awarding to an operator with an existing organic processing facility, council would enter a supply agreement (Agreement for the Provision of Services), in keeping with similar contractual arrangements that Council has in place.

Irrespective of which of the above options is landed on, key elements of the contract, based on similar arrangements in New Zealand for this type of facility would include:

- Performance Bond
- Key Performance Indicators
- Relationship Management
- Service Specification
- Performance Management and Measurements
- Prices and Payment

Management Case

Working with Tā kai Here partners

Tūpiki ora has tiakina te taiao (caring for our environment) as a ngā pae hekenga (priority waypoint). This includes investing to ensure there is a considered approach to addressing major environmental challenges that will restore the mauri ora to our taiao.

The changes recommended in this business case will support human behavioural changes and actions that will create a more sustainable future and provide a reduction in emissions, which are both long-term actions in Tūpiki ora.

The Council will continue to work with mana whenua on areas of interest to them. We are working on ways to include mana whenua at a strategic and regional level in waste minimisation. This may include new mana whenua representation on the Zero Waste Programme Steering Group.

The procurement approach will consider the Broader Outcomes Strategy, in particular those council can achieve with our mana whenua partners. This could include opportunities for rangatahi employment or utilising Māori owned businesses.

Stakeholder Management

A Communications and Engagement Plan was developed and used for the development of the business case. Following committee decisions on this business case, this plan will be updated and tailored to reflect the preferred and alternative options for Long Term Plan consultation.

Consultation on these projects will be incorporated into the 2024-34 Long Term Plan consultation in the first quarter of 2024. The waste collection and processing projects will likely make up one or more of the key issues the Consultation Document will focus on. That is why this business case recommends selecting a preferred option and two alternatives – to match the structure of the Long Term Plan Consultation Document.

Changes to waste collection services attract high public interest whenever they are proposed. Effective coordination between the Zero Waste Programme team and the Long Term Plan consultation team will be essential to the effectiveness of this consultation.

There are many specific stakeholder groups that will have high interest in these projects, including:

- Local communities affected by operations at the Southern Landfill.
- Local community groups providing organic waste collection and processing.
- Non-governmental organisations working toward zero waste goals.
- Waste management companies.
- Households that require a bespoke collection service.
- Other councils in the region.
- MfE.

Where practical, we intend to stand up a working group, consisting of mixed stakeholder representatives, to test and validate ideas and share information. This approach has been applied by the Southern Landfill extension project and has benefitted the project and stakeholders greatly. The communications approach is to provide honest, timely and transparent information to stakeholders and get their feedback to inform project decisions and outcomes.

Trials and pilots of new services will be used where appropriate. Lessons from these will help inform implementation and maximise participation in new services.

Insights from discussions with our mana whenua partners and engagement with stakeholders and any trials of solutions will help to determine the phasing and roll-out of the selected solution/s.

Change Management

Changes to waste collections will affect almost every resident in Wellington. Effective communication to prepare people for the changes will be essential to support a smooth transition.

A significant lever to increase participation in recycling and organics collections is providing additional communication to encourage and support residents to use the new services. As noted by Tonkin+Taylor, simple nudge interventions including stickers have been proven to improve participation, namely for food scrap collections. Studies estimate that a cost of \$0.75 per household for communications can result in an increase in participation of between 16-20%. The cost benefit analysis considered the additional benefits that could be realised if spending on communication was increased.

PROSCI is a research-based, best practice methodology for change in business, government and the community. These five objectives of the ADKAR model must be achieved, according to the PROSCI change methodology, for change to be implemented and sustained successfully:

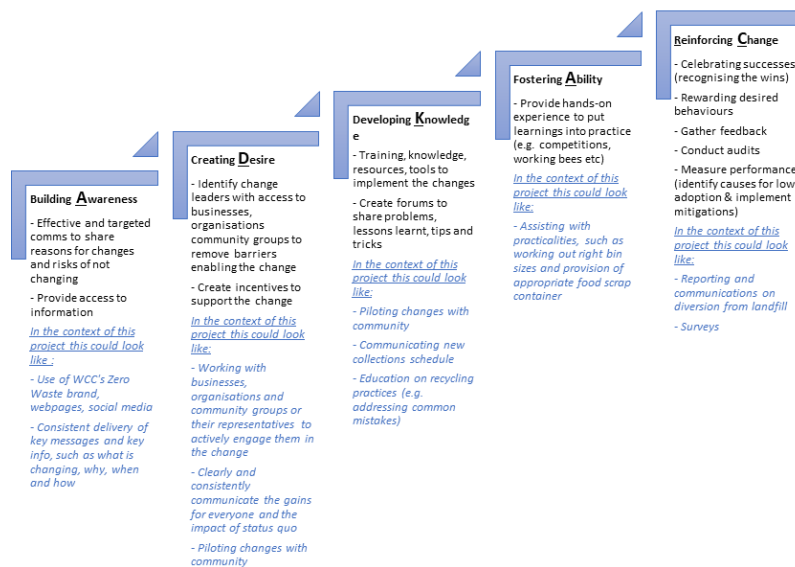


Figure 14 - PROSCI change methodology ADKAR model

In the context of these projects, we may run a campaign which encompass some or all of the ADKAR objectives and social marketing to address the shifts in behaviour that we need to achieve.

Effective communication to encourage and support the uptake of new waste diversion services will ensure that we achieve the full benefits of these investments. The community-based social marketing framework is used as the basis for thousands of environmental, health, and safety programmes worldwide. It comprises of five important steps to fostering sustainable behaviour, which include:

- How to select which environmental or health behaviours to target, in this case uptake of new waste diversion services,
- How to identify the barriers to the adoption of these behaviours,
- How to develop strategies based on behavioural science knowledge,
- How to conduct and evaluate a pilot; and
- How to move from a pilot to broadscale implementation.



Figure 15 - Community-based social marketing five step framework

Staff within the Waste Operations team are trained in this methodology to address behaviour change that is required as part of this project and other zero waste projects. The Zero Waste Programme also has access to Behaviour Change Advisors who are part of the Climate Change Response team.

Project Management

The approach to project management for both projects will be in keeping with the requirements of the Investment Delivery Framework, the Project Management Office guidance and the Zero Waste Programme governance framework and agreed assurance plan. This includes:

- fortnightly meetings being held to bring the project team together,
- key decisions and actions are recorded in meeting minutes,
- all project documents, including risk register, technical reports and meeting minutes, are stored on SharePoint, for all project and programme team members to access,
- internal reporting occurs on a weekly basis and,
- project risks and issues recorded on the project risk register and Paiaka (Project 365 tool).

The projects will continue to work closely with each other, and all key decisions, issues, risks, communications and dependencies will be collaboratively managed together, along with key Zero Waste Programme personnel.

Project Governance

To oversee these projects, council has established a Zero Waste Programme structure led by a steering group that consists of a mix of external and internal members with a balance of skills, experience and industry knowledge. The Zero Waste Programme is also reported through the priority investment report to Council. The steering group will be chaired by the council’s Waste, Water and Resilience Manager. The Collections and Processing project teams comprise a mixture of external and internal technical resources. The council will maintain overall project control and direction through the Zero Waste Programme management team and steering group. Refer to the figure below for further details. Provision has been made in project budgets for additional resources required to deliver the project.

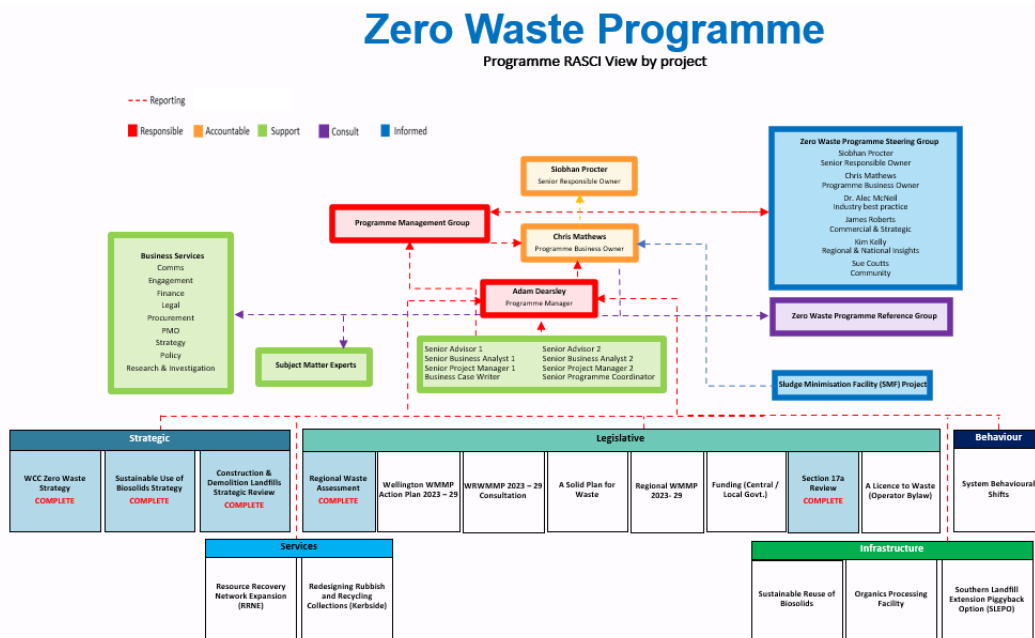


Figure 16 - Zero Waste Programme RASCI

Table 19: Programme governance

Body	Membership	Purpose
Environment & Infrastructure Committee	<ul style="list-style-type: none"> Elected members 	Governance (6-weekly)
Senior Responsible Owner Briefing	<ul style="list-style-type: none"> Programme Business Owner Programme Manager 	Governance (6-weekly)
Zero Waste Programme Steering Group	<ul style="list-style-type: none"> Chair - Chief Infrastructure Officer (CIO) Commercial Strategic Community Industry best practice Regional and National Insights 	Strategic guidance (3 monthly)
Zero Waste Programme – Programme Management Group	<ul style="list-style-type: none"> Chair – Programme Business Owner Project Business Owners Chief Advisor to CIO Programme Manager 	Governance (fortnightly)
Zero Waste Programme Team meeting	<ul style="list-style-type: none"> Chair - Zero Waste Programme Manager Programme team members SMEs, PMO, Comms & Engagement 	Management (weekly)
Redesigning Collections project team meeting	<ul style="list-style-type: none"> Senior Project Manager Project team members 	Management (weekly)

The Zero Waste Programme Steering Group provides strategic oversight. The terms of reference of the Zero Waste Programme Steering Group includes providing:

- advice and support on all aspects of the programme’s delivery,
- advice on risks and mitigation strategies, risk appetites and tolerances outside of the Council,
- oversight and direction on identified programme dependencies and wider organisational or community impacts.

The Zero Waste Programme Reference Group includes managers from key areas across council. This enables the Programme to capitalise on combined thought leadership and experience within the Council and test thinking to raise the quality of delivery.

Risk and issues management

The table below presents risk management for shared and project specific risk. Risks are ordered by section, top to bottom, from highest to least on the overall residual rating.

#	Risk Description	Initial Rating			Residual Rating			Treatment & risk management strategies
		Likelihood	Impact	Overall	Likelihood	Impact	Overall	
	SHARED RISK							
1	Capability and Cost risk	Likely	Moderate	Medium	Possible	Moderate	Medium	<ul style="list-style-type: none"> Contingency planning will be

#	Risk Description	Initial Rating			Residual Rating			Treatment & risk management strategies
		Likelihood	Impact	Overall	Likelihood	Impact	Overall	
	If there is a constrained construction market and significant inflation in this sector THEN project timeline and cost estimates may be insufficient RESULTING in impacts to time, cost and quality.							<ul style="list-style-type: none"> developed and tested. Early procurement and adoption of mechanisms that “lock in” prices. Decision making on a regional organics solution will be taken regionally in alignment with the Joint Project Agreement.
2	<p>Organics Processing go live delayed</p> <p>If the organics processing facility is not ready when organics collection is planned to start THEN Council provided organics collection may be delayed for Wellington residents RESULTING in continuation of status quo, and a delay in realising Zero Waste outcomes.</p>	Possible	Major	Medium	Unlikely	Minor	Low	<ul style="list-style-type: none"> A range of processing options being considered. Keep options to maximise what will be possible. Complete thorough investigation of options incl. soft market engagement before presenting for decision (May 2024) Identify contingency options, e.g., delay, progress an interim solution such as alternate site.
3	<p>Long Term Plan Consultation</p> <p>IF the consultation does not adequately provide for the high public interest and complexity of these projects THEN public response may be confused / unsupportive of outcomes</p>	Possible	Major	Medium	Unlikely	Moderate	Low	<ul style="list-style-type: none"> Joined up, comprehensive comms & engagement planning with Long Term Plan team and comms & engagement team Joined up, regional lens on consultation messaging / what and how options

#	Risk Description	Initial Rating			Residual Rating			Treatment & risk management strategies
		Likelihood	Impact	Overall	Likelihood	Impact	Overall	
	RESULTING in impact to Long Term Plan decision making, delay of projects etc.							<ul style="list-style-type: none"> are presented to the public Learning from public consultations by other councils
	COLLECTIONS							
4	Roll out Logistics If inadequate consideration is given to the logistics of the roll-out such as IT systems, rates, bin tracking, specialist fleet requirements etc THEN there will be avoidable teething problems during roll-out RESULTING in high contamination rates / dumping, reputational damage and unnecessary stress to staff and ratepayers.	Major	Almost Certain	Critical	Major	Likely	High	<ul style="list-style-type: none"> Ensure logistics of roll-out are considered early in the design phase - not left until after business case is completed. Being considered in the bespoke workstream.
5	Private Waste Sector Concerns If there is significant concern from the private waste sector, rate payers or politicians around potential changes THEN the Business Case might not get approved RESULTING in significant delays and re-design.	Major	Likely	High	Moderate	Possible	Medium	<ul style="list-style-type: none"> Ensure robust comms and engagement strategy as well as ensure politicians are comfortable with process being followed. T+T and Council having discussions with contractors. Project talking to contractors and community providers.

#	Risk Description	Initial Rating			Residual Rating			Treatment & risk management strategies
		Likelihood	Impact	Overall	Likelihood	Impact	Overall	
6	<p>Cross Programme Dependencies If the project dependencies (i.e., go live for organics processing facility, Sludge Minimisation Facility) are not delivered within required timeframes THEN the project may not be able to deliver on time RESULTING in schedule and cost overruns.</p>	Major	Likely	High	Moderate	Possible	Medium	<ul style="list-style-type: none"> Monitor dependencies Regular communication between projects re: milestone progress, emerging significant risk / issues Contingency planning for organics processing as per risk #1.
7	<p>Service Delivery Approach If the service delivery approach does not take into account the complexity of what is required for successful uptake of services, THEN the services provided may not be fit for purpose RESULTING in greater cost, reputational damage and extended timeframes.</p>	Moderate	Almost Certain	High	Moderate	Possible	Medium	<ul style="list-style-type: none"> Ensure we learn from other Territorial Authorities on their transitional projects in order to optimise our service delivery, adjusting for Wellington's unique elements of topography and wind etc. Covered under Bespoke Workstream. Ensure there is an Impact Assessment, Implementation Plan, Support model and early life support, Business Analyst recruited
8	<p>Central Government Legislative Changes IF central government strategy, regulations or legislation changes THEN changes may be required to scope</p>	Moderate	Possible	Medium	Minor	Likely	Low	<ul style="list-style-type: none"> Ensure awareness of what is in pipeline, make submissions and meet with MfE. Have confirmed with MfE that no changes will take place until after the General Election 14 Oct 2023.

#	Risk Description	Initial Rating			Residual Rating			Treatment & risk management strategies
		Likelihood	Impact	Overall	Likelihood	Impact	Overall	
	RESULTING in redesign of the project and its business case.							
	PROCESSING							
9	Regional Collaboration IF the regional organics processing solution does not work for all councils THEN each council will need to develop their own solution RESULTING in a higher cost to Council.	Possible	Major	Medium	Unlikely	Moderate	Low	<ul style="list-style-type: none"> Development of the solution is founded on a Joint Project Agreement. Maintaining flexibility re: additional councils joining this work Intent of Joint Project Agreement members to ensure solution caters for individual differences on what will be processed and how.
10	Funding Risk IF the funding amount approved is less than requested (Long Term Plan and MfE) THEN a decision will be needed on what can be delivered within existing funds RESULTING in potential scope change and reduction to proposed level of service improvements.	Possible	Major	Medium	Unlikely	Moderate	Low	<p>Long Term Plan</p> <ul style="list-style-type: none"> Work closely with Long Term Plan team on Long Term Plan 2024 preparation Traceability of costs/calculations for the Long Term Plan 2024 audit <p>MfE</p> <ul style="list-style-type: none"> Engaging closely with MfE and regional partners on funding applications and regional organics project joint approach.

Management of risks will follow the Investment Delivery Framework guidelines. The approach to all project risks and issues consists of:

- Identifying risks and issues at any time during the management and delivery of the project
- Assessing the probability of each risk or issue and the impact this may have on the project and outcome

- Determining current controls in place to manage the risk or issue and mitigation required to address this
- Implementing the steps required to mitigate the risks.

Risk and Issues are identified and recorded as follows:

- Project risk and issues register are kept in Paiaka, the Council's project management system,
- Key project risks and issues are identified and communicated to the Zero Waste Programme manager,
- Risks are allocated to the appropriate manager, and
- Red, Amber, Green status and mitigations are regularly reviewed.

Benefits management

To ensure the benefits are realised for Collections and Processing, periodic reviews will be undertaken and reported via the 6-weekly Senior Responsible Owner briefing, the monthly Executive Leadership Team report and reporting provided to the Zero Waste Programme Steering Group.

Dependency management

The diagram below illustrates the interdependent relationships these projects have with each other and the wider Zero Waste Programme projects. Dependencies are managed via regular project meetings and monthly reporting.

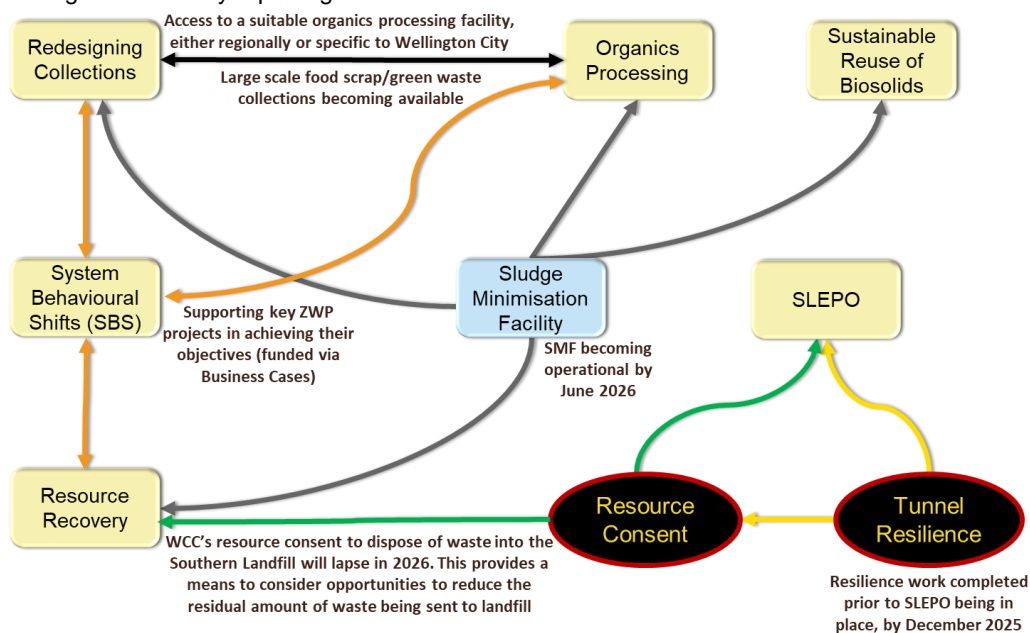


Figure 17 - Dependencies are managed via regular project meetings and monthly reporting

Reporting and assurance

The projects will report in accordance with the Investment Delivery Framework guidelines set out by the council's Project Management Office. This includes a suite of reports covering the breadth of traditional project reporting. Reporting cycles will align with monthly Executive Leadership Team meetings and Project Management Office reporting timelines.

The project teams and Zero Waste Programme team will continue to work closely with the Project Management Office in line with agreement from the Zero Waste Programme business owner and senior responsible owner. There is a Zero Waste Programme Assurance Plan already in place.

For the detailed design, procurement and construction phases, the council will appoint an independent expert to the contract to represent its interests and provide assurance project delivery is in accordance with scope, specifications, quality, budget and timelines, including any contract variations.

Project milestones

Redesigning Collections preliminary milestones

Project milestones	Duration	Start Date
Soft Market approaches	6 weeks	4-Mar-24
Assess soft market responses	2 weeks	15-Apr-24
Issue Request for Information	6 weeks	29-Apr-24
Assess Request for Information responses	3 weeks	10-Jun-24
Issue Request for Proposal	6 weeks	1-Jul-24
Assess Request for Proposal responses	8 weeks	12-Aug-24
Advise successful bidder/s	1 week	7-Oct-24
Contract negotiations	26 weeks	14-Oct-25
Sign contract	1 week	14-Apr-25
New contract starts	63 weeks (15 months)	1-Jul-26

Organics Processing Facility preliminary milestones . N.B. Final milestones and timings are expected to reflect progress in the regional collaboration.

Project milestones	2023	2024	2025	2026	2027
Agree ownership arrangements with partner councils and agree procurement approach					
Development and approval of procurement documents and draft contract					
Soft market engagement					
Assess soft market responses					
Issue Request for Information					
Assess Request for Information responses					
Issue Expression of Interest					
Assess Expression of Interest responses					
Issue Request for Proposal					
Assess Request for Proposal responses					
Contract negotiations					
Ready to award / Sign Contract					
Resource consent					

Project milestones	2023	2024	2025	2026	2027
Detailed Design					
Construction start					
Commissioning and ready to operate					

These schedules will be regularly reviewed and reported on, and further refined during the design, procurement and construction phases. Updated schedules will be provided as part of the detailed commercial case.



Wellington City Council

Redesigning Rubbish and Recycling Collections

Prepared for: Wellington City Council
Prepared by: Tonkin + Taylor

Document Control

Title: Redesigning Rubbish and Recycling Collections					
Date	Version	Description	Prepared by:	Reviewed by:	Authorised by:
27 June 2023	1.0	Redesigning Rubbish and Recycling Collections Draft for client review	Soph Brockbank, Zoë Yandell	Chris Purchas	Hugh Cherrill
13 July 2023	2.4	Redesigning Rubbish and Recycling Collections Draft 2.0 for Issue	Soph Brockbank, Zoë Yandell	Chris Purchas	Hugh Cherrill
August 2023	3.0	Redesigning Rubbish and Recycling Collections V3.0		Chris Purchas	Chris Purchas
September 2023	3.1	Redesigning Rubbish and Recycling Collections V3.1		Chris Purchas	Chris Purchas

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

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	Compliance monitoring and enforcement	51		Industry engagement	2	7.	Applicability	25
	Bespoke service development approach	52		Peer engagement	2			
	Multi-unit developments	52		3. Survey of multi-unit developments and commercial premises	2			
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	Summary of kerbside collection charges	64		Building access	4			
	Variations to standard kerbside collection charges	67		Current waste collection practices	5			
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Executive Summary

Background

Wellington City Council (Council) has a goal to optimise kerbside collections to reduce the amount of residual waste collected from households by 40%, by 2030. The existing kerbside collection service achieves a kerbside diversion rate of just 23% and provides an inconsistent level of service to residents across Wellington City. With the current contract expiring in mid-2026 Council needs to confirm the services to be delivered under a new contract from that time. Any changes from the current service will need to be reflected in the 2024 Long Term Plan that will be finalised in draft form in early 2024.

The focus of this report is to identify a preferred option to optimise rubbish and recycling collections. The objectives of this report, and its supporting work, is well aligned to Council's Zero Waste Strategy. These include:

- Waste reduction is made attractive and accessible to Wellingtonians.
- Infrastructure and systems to increase resource circularity are established.
- Waste that cannot be avoided, reduced, reused, or recycled is managed safely.

Developing options

The report sets out a range of options for the collection of organic materials, recyclable materials and rubbish from households across Wellington City.

The initial focus is on developing options for a 'standard' service, suitable for standalone homes with straightforward access. Many homes in Wellington are not suitable for a standard service, for example multi-unit developments and areas with difficult access. For these areas bespoke service options have been identified that deliver similar services, but in a different way.

The 'standard' service options included:

- Bins for organic materials (food only or combined food and green waste) collected weekly.
- Bins for mixed recyclable materials, bins or crates for glass collected fortnightly.
- Bins for rubbish collected weekly or fortnightly.

Bespoke services included bins and bags for various materials as well as shared bins and adjustments to collection frequency.

Options for organic materials, recycling and rubbish collections were evaluated against six criteria (cost, diversion, circular economy, accessibility, health and safety, green house gas emissions). Options producing good outcomes against these criteria were combined to create six packages of kerbside

collection options. The short list of options for a 'standard' organic materials, recycling and rubbish collection was agreed based on a 'standard service' that can be adapted to provide bespoke services where the standard service may not be appropriate. Examples where this may apply are likely to include multi-unit dwellings, households on private accessways, suburban areas with difficult access, and commercial premises.

Standard service

The preferred option for a 'standard service' comprises:

- Fortnightly collection of rubbish in a 120L wheelie bin.
- Fortnightly collection of paper/cardboard, plastics and cans in a wheelie bin.
- Fortnightly collection of glass using a 45L crate with kerbside colour sorting of glass.
- Weekly collection of food and garden waste in an 80L wheelie bin.

Alternative options that could be presented in the Long Term Plan were also identified. These are:

- Changing the organic materials collection to a weekly food only collection in a 23L bin.
- Changing the glass collection to a four weekly collection using an 80L wheelie bin.

Bespoke services

There may be households that are not suitable for a standard service. Examples include areas with difficult access or high density developments with insufficient space for individual household containers. For these areas a bespoke service will need to be offered, providing an equivalent level of services delivered in a different way.

Examples of a bespoke approach include the use of large, shared containers, increased provision for 'back door' services for those with limited mobility, local bin depots (storage where there is difficult access to homes).

The options for bespoke services will be developed as part of the detailed specification for new services procurement. It is likely that service providers will also be encouraged to offer innovative solutions where the 'standard' service is not appropriate.

This approach is consistent with the way that waste and recycling services are currently designed and delivered for multi-unit developments by the private sector across Wellington City. Council could extend services to multi-unit developments in suburban areas and the Central Business District.

This report will inform a Business Case that is being drafted by Wellington City Council officers. Council will use this Business Case, and the underlying analysis in this report, to develop proposals for the 2024 Long Term Plan. Detailed costs and implementation considerations will become clear through procurement with indicative ranges provided in this report and the business case. It is intended that the Business Case will provide a preliminary view on the preferred solution to inform the LTP.

1. Project purpose

This report

Tonkin + Taylor has been engaged by Wellington City Council (WCC) to develop options to optimise kerbside organic materials, recycling, and rubbish collections. Any changes should support council's goal to reduce the amount of residual waste collected from households by 40%, by 2030.

This report will provide analysis of possibilities and a preliminary view on a preferred option. This will reflect analysis of a range of key considerations drawing on a range of supporting analysis and evidence.

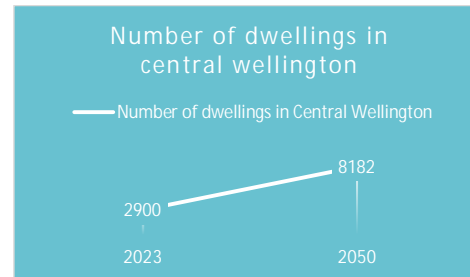
Wellington City



Figure 1-1 Wellington City Council Boundaries

Wellington (Pōneke) is New Zealand's capital city, located on the south-western tip of the North Island (see Figure 1-1). It is the third most populous city in New Zealand, with a current population of approximately 550,000. The 2018 census showed 202,000 residents residing in the central City.

Long-term population forecasts for the central City predict a growth of between 50,000 to 80,000 residents over the next 30 years, with population expected to reach around 248,000 by 2043. The ratepayer base is also predicted to increase, from around 86,600 in 2021/22 to approximately 92,500 by 2032/33¹.



There is also a trend to apartment living, both in the central city and suburbs. This is likely to accelerate with urban intensification provided for in the City planning framework.

Cumulatively, these changes combined with the unique topography and climate of Wellington

present a range of challenges for kerbside services. These include:

- Wind (refer Figure 1-2)
- Steep narrow streets with challenging access
- Population growth
- Increasing presence of multi-unit developments
- Potential for increasing waste generation

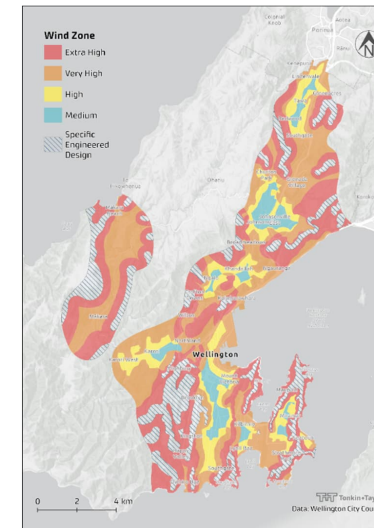


Figure 1-2 Wellington City Council Wind Zones

¹ (Wellington City Council, 2021)

2. Policy context and drivers for change

A number of external factors will influence council's approach to redesigning kerbside collections. These include national and local policy alongside social, economic and environmental considerations.

Suburban collections contract renewal

The current contract for rubbish and recycling collection across suburban areas of Wellington will expire in mid-2026. Council needs to confirm the services to be delivered under a new contract from that time. Any changes from the current service will need to be reflected in the 2024 Long Term Plan that will be finalised in draft form in early 2024.

A key driver for completing this initial analysis now is timeframes for the preparation of the Long Term Plan and for procuring a new contract. Specifically:

- The draft Long Term Plan, developed by late 2023, needs to reflect the proposed changes.
- A new contract will take 2-3 years to procure. This includes appointing a supplier (12 – 18 months) and an additional 12-18 months for securing equipment and planning any new service roll out.

Council is considering moving to a universal rubbish and recycling service, funded by a targeted rate.

8

This is a common approach in New Zealand with most areas currently offering pay as you throw rubbish bags moving to this approach.

Waste and resource recovery policy

Te rautaki para I Waste strategy

Te rautaki para I Waste strategy provides strategic direction for New Zealand waste systems from now to 2050. The guiding principles in the strategy are noted in Figure 2-1.



Figure 2-1 Te rautaki para I Waste strategy guiding principles

With the legislative framework currently changing to support the vision and direction of Te rautaki para I Waste strategy, there is some uncertainty about what the future arrangements will look like. Signalled changes include nationally coordinated investment in infrastructure, clearer obligations for producers of waste (households and businesses) and clarification on the role and responsibility of councils.

Central Government has also outlined the future direction for recycling collections and organic waste

management and the need to divert this material from landfill. The collection of food waste from households is likely to become mandatory and there is a clear signal that over the medium term this will also apply to non-households. Consistent provision of recycling services for households is also likely to be mandatory. How household service requirements apply to multi-unit dwellings remains unclear.

Proposed container return scheme (CRS)

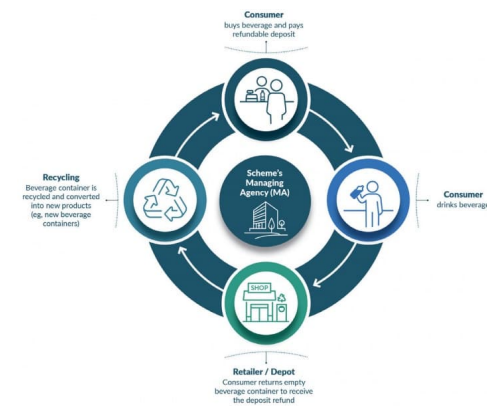


Figure 2-2 CRS scheme design

A proposal for a Container Return Scheme (CRS) for New Zealand was developed through a co-design process involving local government and the packaging industry. Consultation indicated a high level of public support and government indicated

that scheme would progress. In March 2023 scheme development was deferred.

The container return scheme was designed to encourage consumers and business to return beverage containers (e.g. bottles, cans etc.) for recycling and/or re-use. They do this by including a refundable deposit (e.g. 20-cents or more) in the price of purchase².

Local Government Act 2002



Figure 2-3 LGA purpose statement

The activities of council are governed by the Local Government Act 2002 (LGA). The LGA covers a wide range of local government activities, with the purpose of promoting social, economic, environmental and cultural wellbeing now and in the future (refer Figure 2-3).

² Interim regulatory impact statement: A beverage container

Of particular relevance to waste management and resource recovery is the requirement to develop a Long Term Plan, setting out council priorities and budgets over a 10 year timeframe. The Long Term Plans are where any rates based spending on rubbish and recycling services is actually committed

He anamata para kore mō Pōneke - A zero waste future for Wellington

A zero waste future for Wellington is council's first zero waste strategy.

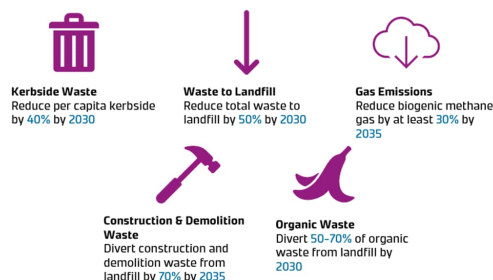


Figure 2-4 Wellington City Council zero waste targets

The zero waste strategy sets the blueprint for intergenerational sustainability in Wellington City. It outlines how a circular economy can design out waste and pollution, keep resources in use for as long as possible, and safely manage the waste that can't be reused or recycled.

return scheme for Aotearoa New Zealand, Ministry for the Environment, 2022

The strategy is broadly consistent with national direction (Te rautaki para I Waste strategy) and in particular, the delivery of services to households to reduce waste to landfill by 40%.

Wellington Region Waste Management & Minimisation Plan (WMMP) 2017-2023

Carterton, Hutt City, Kāpiti Coast District, Masterton District, Porirua City, South Wairarapa District, Upper Hutt City and Wellington City councils have worked together to produce the Wellington Region Waste Management and Minimisation Plan. The WMMP guides how each council can contribute toward the regional vision "Waste Free, together", with the tagline: "for people, environment, and economy." The regional WMMP underpins a number of joint initiatives including the regional waste forum, and the business case for organic waste collections and facility being undertaken by Porirua, Hutt and Wellington City Councils. The WMMP has been reviewed and a new draft WMMP is currently open for consultation.

Detail on other relevant legislation is available in Appendix A.

Social Drivers

Across New Zealand, and in Wellington, there has been a noticeable shift in attitudes toward waste reduction.

He anamata para kore mō Pōneke - A zero waste future for Wellington notes that Wellingtonians care deeply about the city's environment and the roles we can all play to protect and enhance it. It notes that addressing the city's waste is one step everyone can take to reduce the impacts of climate change³.

According to the 2022 Kantar Better Futures Report three of the top ten concerns of New Zealanders relate to waste management and minimisation (represented by green bars in Figure 2-5), with two of the top 10 relating to economic issues (red), and five relating to social issues (yellow). This includes the build-up of plastic in the environment (66% of people recognise this as an issue), too much waste/rubbish being generated (60%) and overpackaging, non-recyclable packaging and landfill (59%). These are noted as being growing concerns with two of these issues moving up in the top ten, and one being a new entry entirely.

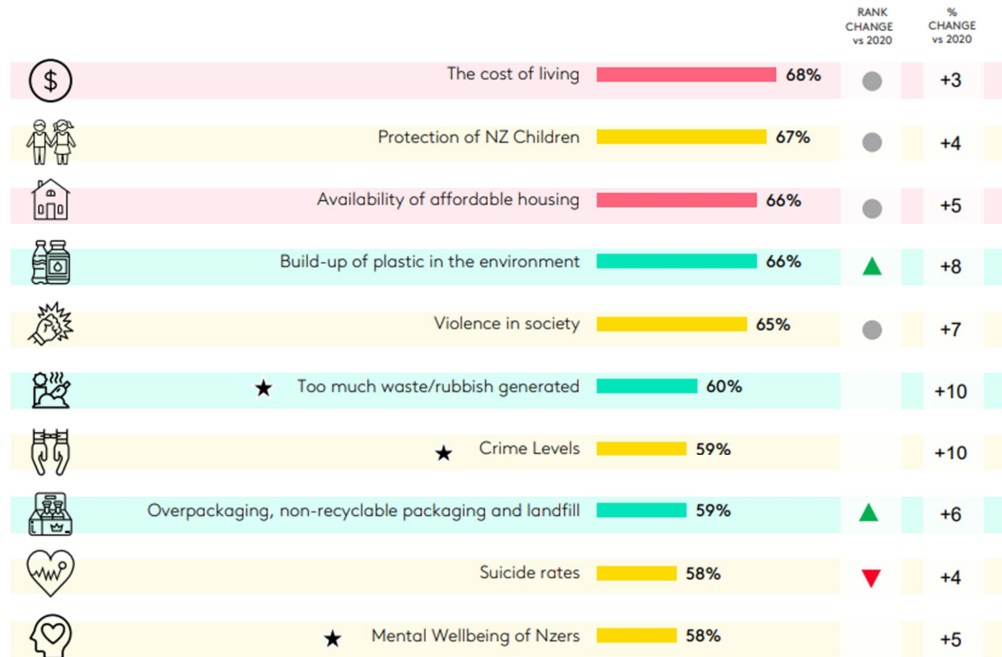


Figure 2-5 Top ten concerns for New Zealanders according to Kantar (2022)

³ He anamata para kore mō Pōneke - A zero waste future for Wellington, 2023

Economic Drivers

The Government's expansion of the waste disposal levy progressively over four years means that by July 2024 there will be a levy of \$60 per tonne for all waste disposed at a Class 1 landfill. This will increase the cost of managing rubbish for council, households and businesses. This is likely to increase the demand for infrastructure that supports diverting waste from landfill.



Figure 2-6 Waste levy disposal expansion

Figure 2-6 summarises the impact of waste levy charges for disposal costs to Class 1 landfills through to 2024. In addition to increasing the cost of disposal, levy funds contribute to establishing waste minimisation infrastructure. For Wellington this could include establishing processing

infrastructure for organic materials and/or improving recyclable materials processing.

The disposal of waste to landfill also represents the loss of materials with potential economic value. The value of materials is related to the way they are collected and the ability to produce uncontaminated materials for further processing.

By supplying high quality (with low contamination) materials for recycling, council will be in a more favourable position to generate revenue from the sale of recyclable materials they collect. This revenue off-sets the cost of collecting materials, minimising the rateable charge for waste minimisation and management at a household level.

An example of this is separate collection of glass at the kerbside. This allows the collection contractor to sort glass by colour, increasing the value and options for recycling. This comes at additional cost for collection due to slower collection and the need to carefully manage safety of collections staff.

Alternatively, a wheelie bin collecting paper and cardboard, glass and plastics can be employed. This results in lower quality recyclable materials being collected, but at a more affordable cost to households.

Environmental Drivers

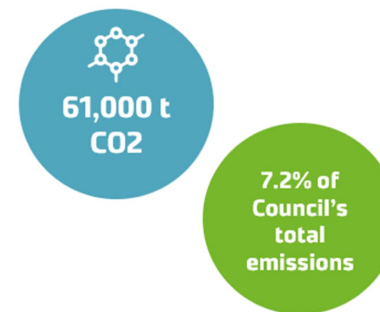


Figure 2-7 Wellington City Council emissions from solid waste

In 2022, solid waste accounted for 7.2% of Wellington City's total emissions, representing approximately 61,000 t of carbon dioxide⁴. By reducing the volume of waste entering the Southern Landfill, in particular organic materials, Wellington City can reduce the volume of emissions generated by solid waste activity.

Wellington City Council is currently working towards the consenting and construction of the Southern Landfill Piggyback Extension, as well as the construction of the Sludge Minimisation Facility at Moa Point. Together, these projects will provide a solution for waste that can't be composted, recycled, or reused, and better position council to encourage waste minimisation.

⁴ Wellington City Council emissions inventory, 2022

3. The current situation

This section summarises the current approach to collecting rubbish and recycling in Wellington with some comment on issues and opportunities. Information is also provided on approaches adopted elsewhere and discussions with stakeholders.

Current State - Wellington

Suburban Household Collections

Wellington City Council provides a household collection to more than 60,000 properties across the city. The service is summarised in Figure 3-1.

Suburban Household Collection

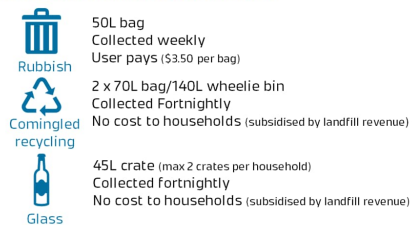


Figure 3-1 Summary of household collection system

The collections are delivered by EnviroNZ under contract to council. The current contract expires in mid-2026.

The household kerbside rubbish collection service is a pay as you throw (PAYT) model. This allows Wellington City residents to dispose of an uncapped volume of rubbish, providing they pay \$3.50 per 50L bag. An estimated 40% of Households purchase a wheelie bin service for rubbish collection from the private sector.

Recycling services are provided using a 140L wheelie bin (paper, plastics, cans) and 45L crate (glass) for around 40,000 properties. 22,000 properties that are deemed as unsuitable for a wheelie bin-based collection are provided with 52 recycling bags each year. One additional crate for glass and additional recycling bags can be purchased from council (26 bags for \$13.00, glass crate \$15.00).

The existing kerbside collections achieve a diversion rate⁵ of just 23% and provide an inconsistent level of service to residents across Wellington City. Across New Zealand there is a move towards bins for rubbish collection and the introduction of organic materials collections (food only or food and garden waste) to all households.

CBD Household Collections

Households in the central city can place council rubbish bags on the roadside seven days a week. Recycling (paper, plastic, cans and glass) is collected in clear plastics bags on Tuesdays. The service is delivered on behalf of council by Eco Maintenance, sub-contracted to Fulton Hogan.

CBD Household Collection

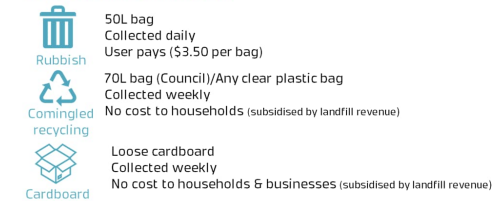


Figure 3-2 Summary of CBD collection system

Wellington City Council offers a free cardboard collection for residents and businesses in the central city every Tuesday night alongside the CBD household collection.

⁵ The tonnage of material sent to landfill relative to that which is recycled, composted, or otherwise processed for recovery.



Figure 3-3 CBD free cardboard collection

The council CBD collections address challenges unique to the CBD including avoiding collections during business hours and minimising material on footpaths.

Beyond council provided services, central city apartment buildings and businesses contract private companies to collect waste and recyclable materials from their premises. Bins are stored off streets/footpaths and most services involve collection vehicles entering service lanes or garages and/or moving and then returning containers.

Collections from businesses

Council does not currently provide collections for businesses beyond the CBD cardboard collection noted above. Rubbish, recycling and food waste services are provided by the private sector with specific arrangements for each situation.

In some cases, businesses will have direct relationships with collection companies (e.g. for secure paper). Cleaners may also manage rubbish and recycling, particularly in multi-tenant buildings.

Cleaners may remove materials or use building rubbish and recycling arrangements.

Businesses are often tenants rather than building owners. This means that cost recovery through rates is unlikely to be a suitable option for collection of materials from businesses.

Businesses in the CBD can also place cardboard out for collection on a Tuesday night. Anecdotally this service is well used by retailers with significant quantities of cardboard placed out for collection on a typical Tuesday evening.

Case study: Wellington CBD collections

Council does not currently supply waste collection services to commercial premises. Commercial collections are carried out by the private sector, under varying arrangements as described above.

There is a significant amount of use of the nightly council provided CBD residential waste collection services by commercial users. This occurs either by businesses purchasing council rubbish and recycling bags, or illegally dumping unlabelled rubbish bags in the CBD. The bags are removed by the council contractors because leaving them on the streets would present a hazard – blocking footpaths and accumulating waste over time.

The CBD roadside rubbish and mixed recyclables collection service is not intended for use by commercial users, and the inappropriate use presents several issues:

- Where non council bags are used there is no payment to use the service.

- Council, and therefore ratepayers, are paying the costs of the collection, transport, and disposal of the non-council bag material.
- There is little to no price incentive for waste to be appropriately sorted prior to disposal, reducing the diversion rate.
- Recycling in bags needs to be sorted prior to sending to the current materials recovery facility.



Figure 3-4 Illegal dumping in Wellington City

Some enforcement has been undertaken; however it has not been sufficient to make significant progress with this issue. The threshold of proof (linking dumped material to a household or business) has been increasingly difficult to meet. Council staff have noted that they suspect in some cases the offenders simply remove any identifying items prior to disposal. As a result, the cost of clean-up and management then falls to council and its contractors – and therefore the ratepayer.

These factors combined mean there is inconsistency in level of service and funding across businesses and households in the CBD. In some cases, businesses and households (in apartments) are paying the private sector for rubbish and recycling collections. In other cases, materials are being collected at no cost. Examples include illegally dumped rubbish (in unmarked bags) and business generated recycling in clear bags.

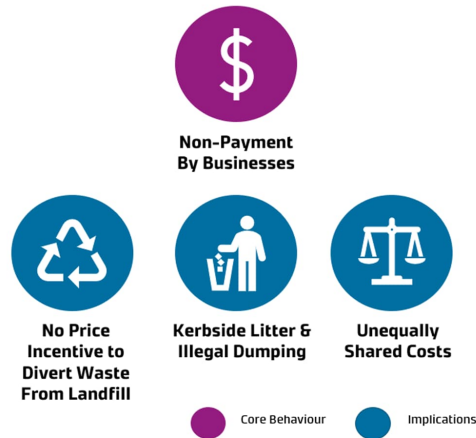


Figure 3-5 Implications of incorrect use of CBD collections

Case Study: Kaicycle

Kaicycle is a composting service provider using bikes and a small electric van to collect food waste

from households and businesses. The food waste is mixed with arborist waste to create compost that is used at their regenerative and organic urban farm in Newtown (refer Figure 3-6).

Kaicycle operates on an opt-in model based on interest from customers rather than efficiencies. They are expanding their operations to include an in-vessel composting unit based at Rongotai. This will provide a significant increase in processing capacity but will present challenges with transport logistics.

Like private waste collection providers, Kaicycle deliver a waste collection service with downstream processing. Kaicycle also delivers community development, kai resilience and circularity with the collection of 'waste' materials being one facet of what they aim to achieve.

Because of Kaicycle's size and the small and dispersed nature of their collection clients, the cost of service may be higher than purely commercial options. Their customers pay for the collection of food organics recognizing that they are also investing in community outcomes.



Figure 3-6 Kaicycle urban farm

The introduction of a universal council collection service presents the opportunity to embed composting service providers like Kaicycle within Wellington's network of material collectors and processors. Providing for private and community sector collections from business and local processing of food organics from households and businesses where available will ensure there is space for small scale, community focused initiatives.

Market Share

The introduction of a universal council collection service will impact upon the business of existing waste collection providers. In order to quantify any potential impact, the market share for suburban rubbish bins was surveyed via a combination of bag

sales data provided by WCC⁶ (Appendix B) and a survey of bags and bins set out in a random selection of suburban areas within Wellington in May 2023.

The number of rubbish bag sales equates to around 37% of households putting a bag out each week. If every household put out a bag every two weeks then the bag sales would cover approximately 74% of residents. Some rubbish bags are purchased by small businesses in both the CBD and suburban areas. In some cases households put out more than one bag for collection.

The survey of rubbish bag and bin set out over one week suggests that Wellington City Council bags are used by around 63% of residents noting that this estimate considers a small sample size over one week. It is likely that some households did not put out a rubbish bag or bin during the survey week but for this assessment it has been assumed that the 63% figure is representative of the proportion of households using bags or bins.

Bag sales data suggests that on average, 26,000 rubbish bags are sold each week across 71,000 households that currently have access to the service. Noting that a number of low waste generating households will use less than a bag per week.

The bag sales data information from the bag and bin survey suggest that bag users put a bag out every 1-2 weeks and that council's market share is higher than might be predicted from bag sales alone.

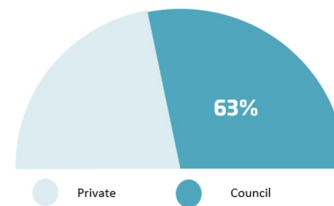


Figure 3-7 Council's market share of suburban rubbish collections

The market share of almost 40% for private bin services is largely made up of 240L wheelie bins, noting that data surrounding the number of different sized bins for each private waste provider has not been collated as part of this work.

The scale of the existing market share indicates that many residents are willing to pay for the convenience and/or capacity offered by bins and evidences the willingness of ratepayers to pay for the council provided collection service. This is significant if the new service is to be delivered through a targeted rate.

⁶ Bag sales data suggests that on average, 26,000 rubbish bags are sold each week across 71,000 households that currently have access to the service. Noting that a number of low waste generating households will use less than a bag per week.

Examples outside Wellington

Collections systems from a sample of New Zealand and international examples have been analysed to

-  All Council's employ a 240L Fortnightly Recycling Collection
-  Annual charges for rubbish, recycling & organics range from \$220 - \$259
-  80% of Council's have introduced a separate glass collection

Figure 3-8 Trends in New Zealand kerbside collections

learn from the experiences of other local authorities. These are summarised as follows, with detailed summaries available in attachment A

⁶ Bag sales data suggests that on average, 26,000 rubbish bags are sold each week across 71,000 households that currently have access to the

Case Study: NZ council collections

The following trends were identified from analysis of the collection systems of Rotorua Lakes, Hut, Dunedin, Tauranga, and Christchurch City Councils.

Decisions on how materials are collected, for example glass separate or with other recyclable materials, are related to available processing infrastructure. In Christchurch (glass collected with other recyclable materials), the EcoSort Materials Recovery Facility separates glass to be incorporated into roading aggregate⁷. In other areas, including Wellington, glass collected separately is recycled into new bottles in Auckland.

In some cases, councils allow households to change the size of their bins, for example smaller bins for 1-2 person households.

Funding is typically through a targeted rate for each serviced property. A number of councils across New Zealand are currently moving away from pay as you throw arrangements⁸.

Collection of organic materials is also increasingly common with materials targeted influenced by available infrastructure and existing private sector services.

In the top half of the North Island council's typically offer a food waste only collection service. This reflects active green waste collection services provided by the private sector and processing

infrastructure suitable for a food only material stream.

In the Canterbury area, food and garden organics are targeted. These services have been in place for some time and typically use a smaller bin (80 – 140L) bin. This avoids competing directly with larger garden waste bins or bags that are also available.

Case Study: Cardiff

Cardiff County's transition from a bagged base collection system to a wheelie bin based system is described below. Cardiff has similarities to Wellington including population size and a growing population residing in multi unit dwellings.

In Cardiff bags for paper, cardboard, plastics, glass and tins have been collected weekly, alongside a bagged rubbish collection. The new kerbside system will introduce:

- Two reusable sacks for containers (plastic bottles, tubs, trays and cans), and paper and cardboard
- Fortnightly bin based rubbish collections
- Weekly food only collection in a manually collected container
- A wheelie bin or manually collected container for glass bottles and jars
- Opt-in garden collection

⁸ Examples of a shift from user pays bags to a rates funded wheelie bin include: Dunedin City Council (2024 roll out),



Figure 3-9 Cardiff County kerbside service

The service aims to increasing Cardiff's recovery rate from 53% to 75% by 2030.

Multi-Unit Dwellings

Cardiff County Council provides recycling, food, garden, and general waste collections to multi-unit dwellings. Each unit is provided with one caddy for food waste as well as recycling bags. Residents are expected to empty food waste into a communal food bin, and place recycling bags into a shared recycling bin in their complex. Garden and general waste can be placed directly into the respective shared bin.

Developers of all residential multi-unit dwellings are required to purchase the bin provision for each unit. These will then be serviced by the Council contractor.

Hastings District Council (2020 roll out), Thames Coromandel District Council (2023 roll out)

The Council's guidance surrounding the provision of bins for shared houses and flats (MUD) is available in Appendix C Cardiff County MUD planning controls.

Case Study: Zurich

The City of Zurich provides waste management services to approximately 500,000 residents. The city faces servicing challenges including significant wind and rain, and a population that are heavily reliant on public transport.



Figure 3-10 Cargo-tram recycling collection

The City provides a network of collections and drop offs including:

- Bagged kerbside rubbish collection
- Wheelie bin based food and garden kerbside collection
- Bundled cardboard kerbside collection
- Drop-off locations for rubbish, cans, glass and textiles

- Point of sale drop-off locations for PET bottles and batteries
- Cargo-tram collection service for PET bottles, TetraPak, polystyrene, metals, textiles and bulky items.



Figure 3-11 Zurich recycling drop-off point

Together, the various collection arrangements deliver a recovery rate of 60%.

The success of the Zurich model is supported by a culture of compliance, high fees for rubbish bags (approximately 93% higher per bag than Wellington City Council currently charges), and a network of convenient locations.

Stakeholder Engagement

A separate stakeholder engagement report has been prepared in support of this project. The report is available in full in Attachment A.

A summary of insights that are considered significant to the development of options is summarised as follows.

Waste Providers



Figure 3-12 Waste providers

Four private waste collection providers and one composting service provider were interviewed regarding existing and potential future waste collection arrangements. Key insights from the interviews include:

- Waste providers recognise the value of a universal council collection service.
- To attract and retain staff, collections should be configured to deliver a safe and pleasant working environment. This includes considerations like reducing manual lifting

which is tiring and exposes workers to the risk of strain injuries.

- Waste providers offer bespoke collections to commercial premises and multi-unit dwellings that suit the needs of the individual property.
- Improved opportunities for processing collected materials (recyclables and organic materials) are needed in the region. Two providers expressed interest in establishing processing facilities.

Multi-unit dwellings



Figure 3-13 Multi-unit dwelling in Wellington City

An online survey was established to gather data for multi-unit dwellings (MuD), across all suburbs. The objective of the survey was to obtain a selection of building types and sizes from across the City's suburbs. A detailed summary of the survey is

available in Appendix A Stakeholder engagement report.

Key insights from the survey include:

- Approximately 50% of residential multi-unit dwellings have a dedicated waste storage area.
- Approximately 55% of residents in MuD would have space for a 7L food waste container, or a larger bin for a shared kitchen.
- Property managers of residential MuD indicated that waste collections cost approximately \$16 - \$20 per unit each month.

Commercial premises

The online survey also gathered data for commercial premises. The objective of the survey was to obtain a selection of commercial building types and sizes from across the City. A detailed summary of the survey is available in Attachment A Stakeholder Engagement Report.

Key insights for commercial premises from the survey include:

- Commercial premises are less likely than residential MuD to have a common waste storage area
- Commercial premises with multiple tenants tend to use a commercial waste collection

service in addition to the Council kerbside collection service

- Monthly spend on waste collections was not available for commercial premises.

Property managers of residential MuD indicated that waste collections cost approximately \$16 - \$20 per unit each month



Figure 3-14 Wellington City commercial buildings



4. Options Development

Developing options for the redesign of Wellington’s waste, recycling and organic materials collection needs to start with a clear understanding of the problem to be solved. This is supported by identifying key considerations for collection system design and implementation. In some cases, these considerations will ensure that bottom lines are met, for example meeting legislative requirements or keeping people safe. In other cases, they will differentiate between options and therefore assist in identifying the preferred approach for Wellington.

The problem statement

The problem statement has been defined by council to address the goal to

‘... optimise kerbside waste collections to reduce the amount of residual waste collected from households by 40%, by 2030’.

The Zero Waste Strategy provides context in noting that *‘Too much divertible waste is going to landfills which is adding to our emissions and preventing the re-use of valuable resources. Council has fallen behind other local authorities in their ability to handle rubbish collected, particularly regarding reuse and recycling’.*

Key considerations

Key considerations to analyse collection service options have been developed under five broad categories.

- Economic
- Social
- Safety
- Waste Minimisation/Diversion
- Environmental

A series of considerations for each category was discussed with the council team. The agreed considerations are defined in Table 4-1. The focus of the data collected on various collection system options has been on providing evidence to support evaluation of each option with respect to these considerations. For example, considering costs for various collection system configurations, the safety implications of collection approaches and the capture of materials for recycling or recovery.

It is important to note that these considerations reflect aspects of the four wellbeings that guide council activity under the Local Government 2002. There are considerations that are important to reflect in any final service design but that will be addressed in all solutions that can sensibly be considered. For example options that don’t provide for rubbish collection or recycling will not be considered.

The focus of the considerations noted in Table 4-1 is on those that will assist council in identifying a preferred approach to rubbish, recycling and organic materials collection in Wellington.

Table 4-1: Key considerations

Consideration	Container
Economic	Affordability (High, Medium or Low Cost) of the solution based on capital and ongoing operational costs reflected in user charges or other funding arrangements
Circular economy	The level of confidence (High, Medium or Low market risk) in markets for the output(s) from the solution
Accessibility	The ability of the solution to provide an “attractive and accessible” service to users
Safety/ Handling	The level of automation vs manual handling and associated health and safety risks regarding trucks, runners and the general public
Diversion	The amount of new diversion of material from landfill disposal (High, Medium or Low) diversion.
Greenhouse gas emissions	The anticipated net greenhouse gas emissions associated with the solution including transport emissions, process emissions, offsets (e.g. biogas use) and embodied emissions in equipment. (High, Medium or Low net emissions).

We have designed collection system options that reflect a typical or average household. It is important to recognise that household needs vary significantly. For example:

- The number of people in households may range from a single person to multi-generational or large shared houses.
- Individuals or the household as a whole may

Developing a Long List of options

Overview

Rubbish, recycling and organic material collection options have been considered for:

- Suburban areas – largely single or small multi-unit (up to 10) housing.

Factors that may make a household eligible for a 'bespoke service' include:

- No or limited space at the kerbside.
- Difficult access. Either from the household to the kerbside, or for a truck navigating a narrow or steep street.
- High density.
- Private accessways.

Container	Advantage	Disadvantage	Storage/access
Bags	User pays, easy to move, no container left on street	Manual handling, sharps, tearing, animal scavenging (leading to litter)	Stored on property
Bins	Linked to property, wheeled, automated handling	Difficult on stairs/steep streets, container left on street	Stored on property
Crates	Materials visible, kerbside sort (quality)	Manual handling, heavy when full, container left on street after collection	Stored on property
Larger bins/ bin depots	Multiple households, controlled access (limited to residents only and may include swipe card restrictions), suitable to service steep/ constrained areas, automated handling	Semi manual handling, heavy to shift, container left on street, distance from household, shared use increases risk of poor compliance, use of public/private space e.g. road reserve or shared space in Multi-unit development	Access, bins at point of servicing

be:

- Highly motivated recyclers, carefully putting materials in the appropriate container for recycling or recovery.
- Committed to reduce waste and therefore putting limited waste, recycling and/or organic materials out for collection.
- Do the best they can, but not getting all materials in the appropriate container.
- Unmotivated to participate in recycling or organic materials collections, for example due to scepticism about whether materials are recycled, or lack of confidence in council services.

- Multi-unit housing (more than 10 units) – suburban and central city.
- Businesses – commercial and industrial.

In developing options for collection services the focus is on meeting council's waste diversion objectives. The preferred option selection will also address the key considerations set out above.

The starting point for developing options is developing a 'standard' service for suburban areas of Wellington. This reflects the need to define the service to be procured for a start in 2026. This service can then be adapted to a number of bespoke arrangements to meet the needs of other households and potentially businesses.

The following questions have framed the development of options for a standard service.

- How will materials be segregated by households (e.g. separate glass, food only)?
- How frequently will materials be collected?
- What container will be used?
- How does each collection option impact on other components of the collection service and/or on downstream processing requirements?

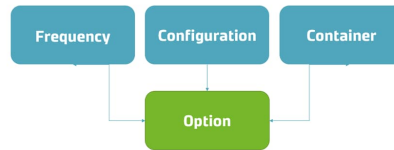


Figure 4-1 Process to develop standard service

Container options

There are multiple options for the containers used to collect rubbish, recycling or organic materials. Each have advantages and disadvantages as summarised in Table 4-2. It is important to recognise that there is no 'perfect' option, rather different containers have advantages and disadvantages that need to be balanced to identify a preferred option for specific circumstances.

As noted earlier in this report, a large proportion of Wellingtonians currently use bags for rubbish and in some cases recycling. There is also a significant proportion of households paying for a bin service for rubbish alongside the council recycling bin. Bin depots/waste rooms are common in larger multi-unit developments.

Where containers do not provide enough capacity for the rubbish produced by a household there is a risk that rubbish is placed in recycling or organic materials containers.

Table 4-2: Container options advantages and disadvantages

Container	Advantage	Disadvantage	Storage/access
Bags	User pays, easy to move, no container left on street	Manual handling, sharps, tearing, animal scavenging (leading to litter)	Stored on property
Bins	Linked to property, wheeled, automated handling	Difficult on stairs/steep streets, container left on street	Stored on property
Crates	Materials visible, kerbside sort (quality)	Manual handling, heavy when full, container left on street after collection	Stored on property
Larger bins/ bin depots	Multiple households, controlled access (limited to residents only and may include swipe card restrictions), suitable to service steep/ constrained areas, automated handling	Semi manual handling, heavy to shift, container left on street, distance from household, shared use increases risk of poor compliance, use of public/private space e.g. road reserve or shared space in Multi-unit development	Access, bins at point of servicing

Interaction between options

In some cases a decision made about collection approach for one material stream has an impact on options for other materials. This is relevant for collections and also for how materials are processed once collected.



Separated food waste is suitable for anaerobic digestion or composting (with green waste or similar material).

Food and garden waste collected together is suitable for composting or dry digestion (emerging technology)

Materials including food should be collected weekly.



Recycling excluding glass requires sorting with equipment that is currently available in Wellington.



Recycling collected in a single bin including glass ('co-mingled') requires sorting equipment that is not currently available in Wellington.



Mixed glass (the three colours) requires colour sorting with equipment that is not currently available in Wellington.



Rubbish collection needs to be weekly (to avoid public health/nuisance issues) unless food is collected separately

Grouping options

There are multiple combinations of target material, container type, container size, collection frequency and materials processing. To avoid evaluating all of the theoretical possibilities, we have taken an approach that:

- Focuses on each target material stream individually – organic materials, recycling and rubbish.
- Considers key differences between options rather than every possible permutation. For example:
 - Considers type of container.



- Assumes container size and collection frequency will provide similar capacity e.g. 120 L weekly vs. 240 L fortnightly.
- Assumes that appropriate downstream processing capability will be in place.

This approach leads to nineteen 'standard' options for evaluation across all target material streams. These include four options for rubbish, nine options for recycling and six options for organic materials as summarised in Table 4-3.

Table 4-3: Options considered

	Container	Capacity	Frequency	Material
Rubbish				
R1	Bags	50L	Weekly	Rubbish
R2	Bin	80L	Weekly	Rubbish
R3	Bin	120L	Fortnightly	Rubbish
R4	Bin	240L	Four week	Rubbish
Recycling				
RE1	Bin	120L	Weekly	All materials
RE2	Bin	240L	Fortnightly	All materials
RE3	Bag	140L	Fortnightly	Paper, plastic, cans
RE4	Bin	120L	Weekly	Paper, plastic, cans
RE5	Bin	240L	Fortnightly	Paper, plastic, cans
RE6	Crates	135L	Weekly	Paper, plastic & cans, glass. Each in own crate.
RE7	Crate	45L	Weekly	Mixed glass
RE8	Crate	45L	Fortnightly	Mixed glass
RE9	Bin	80L	Four-week	Mixed glass
Organic Materials				
O1	Bin	23L	Weekly	Food only
O2	Bin	80L	Weekly	Food only
O3	Bag	80L	Weekly	Food and garden
O4	Bin	120L	Weekly	Food and garden
O5	Bin	120L	Fortnightly	Garden only
O6	Crate	240L	Four weeks	Garden only

Service considerations

Bespoke service configuration

The focus of the ‘standard’ options has been on approaches that are suitable for single households with easy access to a kerbside location for their containers to be placed for collection. In considering standard options it is important to consider how ‘bespoke’ services could be configured to:

- Provide a consistent level of service (potentially delivered in a different way).
- Make use of similar containers and collection vehicles, to avoid unreasonable additional costs.
- Address the specific matters that mean there is a need for a bespoke service, for example:
 - Narrow streets or restricted access.
 - Steep streets or areas unsuitable for kerbside placement of containers for other reasons.
 - High density, meaning containers for individual households may not be appropriate.

Examples of a bespoke approach include the use of large, shared containers, increased provision for ‘back door’ services for those with limited mobility, local bin depots (storage where there is difficult access to homes). This approach is consistent with the way that waste and recycling services are

currently designed and delivered for multi-unit developments by the private sector across Wellington City.

The options for bespoke services will be developed as part of the detailed specification for new services procurement. It is likely that service providers will also be encouraged to offer innovative solutions where the ‘standard’ service is not appropriate.

The role of private contractors

The standard service options have been developed assuming that the service will be delivered by council and funded by a target rate. This has yet to be confirmed – this will be done through a business case process, Long Term Plan development and community consultation.

It is important to consider how the assumed approach will impact on others providing waste, recycling and organic materials collection services in Wellington City.

Private contractors currently provide waste, recycling (business and multi-unit developments only) and organic materials collection services across Wellington City. A move to a standard service provided to all households in Wellington City would:

- Significantly reduce or completely remove the market for rubbish collection services in the suburban area.
- Potentially impact on the demand for green waste collection services if a Food and

Green waste collection services is introduced.

- Completely remove the market for services for multi-unit developments if they are covered by the council service.

There will be opportunities for collection contractors to provide services under contract to council. There will also continue to be opportunities to provide services ‘on top of’ council services, for example green waste collections (additional capacity if council is collecting some green waste). Depending on council’s view on business collection, opportunities will remain to continue to provide services to businesses across the City.

The role of community groups

Community groups also provide some services, typically on a relatively small and localised scale. Examples include community gardens accepting materials for composting.

Kaicycle is an example of a community enterprise who collect food waste and compost at two locations in Wellington. This is an important source of revenue that supports their mission of seeing communities recycling their organic waste and growing nutrient-dense produce locally.

A move to a standard service provided to all households in Wellington City would:

- Remove the market for collection of food waste from households (if a food or food and garden waste collection is introduced).

- Potentially limit the availability of food waste as an input to the composting process.

Materials processing is less clear, but there is potential to structure any organic materials processing arrangements to allow a portion of materials to be processed by social enterprises and community groups e.g. Kaicycle.

Multi-unit developments

Multi-unit developments are located across Wellington City and may comprise townhouses, low rise buildings and high rise apartment buildings. In some cases, particularly smaller developments in a suburban setting, a standard service may be appropriate. For larger developments and those with limited space at kerbside, services will need to be designed for specific requirements.

Most central city apartment developments have some form of dedicated waste area and a bespoke service delivered by the private sector. Regardless of who delivers the service (council or private sector) a specific service for each building would be required.

Components may include:

- Shared bins across multiple households.
- Several collections per week (reducing the size or number of containers required).
- Collection of materials from on the premises or from private accessways.

Apartment owners are rated on a per dwelling (apartment) basis. This means that it is possible to levy a targeted rate for waste, recycling and organic materials collection.

If multi-unit developments are to be included in the council services they would require a bespoke service, design for each development's specific requirements. It is expected that this would reflect current arrangements with provision for organic materials collection where appropriate. This would replace existing private sector services and is likely to supersede the CBD roadside collection where relevant.

Key considerations in determining whether to include multi-unit developments in the provision of (bespoke) organic materials, recycling and rubbish collections will include:

- Consistency of services for households across Wellington City.
- Whether government requirements for provision of services to households includes multi-unit developments.
- The cost of delivering services to multi-unit developments including designing a bespoke service for each development and providing ongoing services.
- The impact on existing private sector service providers.

Business collections

Businesses are located across Wellington City and may comprise owner occupied premises, small developments with multiple business tenants and larger developments or buildings with multiple tenants. In office buildings, waste may be handled at a building level and/or by individual tenants. Some materials may also be managed by office cleaners.

In some cases, particularly for small businesses in smaller developments in a suburban setting, a standard service may be appropriate. For larger developments and those with limited space at kerbside, services would need to be bespoke for specific requirements.

Many CBD buildings have some form of dedicated waste area and a bespoke service delivered by the private sector. As noted above a typical building might also have a range of services delivered for each tenant and/or a cleaning firm removing waste from offices or other premises.

Unless a building or development is unit titled, business premises are likely to be rated on a building basis. This, combined with the range of requirements for each tenant and building means that a targeted rate would need to be set for each building (or even each tenant).

Service design would also need to be specific to each building or development and potentially to each business. In this scenario council will also need to consider what specialist services might be provided.

Examples include:

- Secure paper/documents.
- Healthcare waste (including sanitary bins, needles).

CBD collections

The current council provided CBD collection is targeted at inner city households but anecdotal evidence suggests some businesses are also using this service. A move to providing a bespoke service to households in the CBD would mean that council will need to offer a similar service to businesses and/or those businesses will need to make arrangements with the private sector.

The current cardboard collections capture a significant quantity of cardboard from businesses in the CBD. For some businesses this service will be complimentary to services provided by a waste collections company and/or their cleaners. For other businesses the cardboard collection will operate alongside the use of council bags for rubbish collection.

With current pricing in the region of \$300 per tonne of cardboard, collection of cardboard in CBD may be a viable service with a significant proportion of the cost covered through the sale of materials.

5. Option assessment

Approach

Each option has been assessed against the key considerations. This process can be considered a 'fatal-flaw analysis' where options with multiple 'flaws' were not taken forward for more detailed consideration.

Table 5-1 illustrates the colour code used to illustrate whether a specific option is the best, better or worse than the status quo.

Table 5-1: Key considerations analysis approach

Best	The option is the best option with respect to the key consideration.
Better	The option is a better option with respect to the key consideration.
Worse	The option is a worse option with respect to the key consideration.

For each consideration a range of evidence has been used to evaluate the options. In some cases we have been able to provide a semi-quantitative assessment, in others we have drawn on evidence to provide commentary but no quantified assessment.

Each key consideration is discussed briefly below with further details on the evidence base and assessment of options provided in Appendix D.

Cost to user

We have reviewed costs to users across New Zealand for comparable services to provide a basis for cost range for the various options. Because of the way that this information is available, data on individual target materials (rubbish, recycling, organic materials) is less comprehensive than data on combined collection systems.

Where there is sufficient data available we have provided an indicative range for the service cost reflecting current (2022/2023) pricing.

Circular Economy

The circular economy consideration is focussed on the ability of a particular collection approach to enable the target materials to be captured and reused or processed for a similar purpose. All of the target materials have established markets, predominantly in New Zealand.

Commentary is provided on capacity, frequency and any interaction with other components of an integrated collection system. For example, providing capacity significantly in excess of what is likely to be required is likely to result in some contamination through people putting non target materials into containers. Collecting some materials together can have an impact on material quality, for example broken glass contaminating cardboard and paper when all recyclable materials are collected together. In either case, a decreased volume of material may be recycled, or the collected material will be of lower value.

Access to markets is a different consideration from the revenue potential. For example, aluminium cans have a high value as a tradable commodity while cardboard is relatively low value, in some cases close to zero. In both cases the materials can be readily recycled and there is an active market for recovered materials. This is in contrast to mixed paper or plastics where there are limited local options for use of the materials.

Accessibility

A key focus for council in delivering rubbish, recycling and organic materials collection is accessibility of the service for all households within the city. This means that the ideal system will be suitable for a range of property types including individual homes in flat to sloping areas as well as homes in steeper areas and within multi-unit developments.

Ideally containers should be easy to handle when full for all residents i.e. including those with limited mobility. This means that containers that will be heavy when full (larger containers) and containers that require lifting or carrying to place for collection are less preferred.

Safety/Handling

The waste and resource recovery sector have been working hard to improve the health and safety of staff involved with the collection of rubbish, recycling and organic materials. The WasteMINZ Health and Safety Sector have taken a lead at a sector level with active support from local

authorities, waste collection companies and WorkSafe NZ.

The work has been informed by research on safety statistics across the sector, best practice in New Zealand and internationally and balancing practical considerations with safety.

The implications for rubbish, recycling and organic materials collections include:

- Approaches that avoid manual handling are preferred.
- Collections that involve staff moving around vehicles are less safe than those where containers can be handled remotely.

Diversion

A key focus of the collection system redesign is increasing the diversion of material from landfill. At a collection level this is focussed on the capture of material in a way that enables downstream processing that may include sorting, cleaning and various forms of remanufacturing.

For evaluation purposes, we have estimated diversion based on available materials and the proportion of material captured.

- Available materials have been estimated based on waste household composition surveys and materials currently captured through council recycling collections.
- The capture of materials has been estimated based on:
 - 85% of households ‘participating’ in the recycle collection service.
 - 42% of households participating in a food only collection⁹, 58% of households participating in a food and garden collection¹⁰
 - Variable ‘recognition’ of materials into the recycling or organic materials container.

The participation rate (% of households participating in the collection system) and the recognition rate (% of materials placed by those participating in the collection in the recycling container) combined to provide a Capture Rate. The Capture Rate is the % of materials available from all households placed in the recycling container.

The effectiveness of household’s use of a recycling or organic materials collection will vary significantly. Some households will carefully place only target materials out for collection. Some households will not put materials out if they are unsure i.e. not place all potentially recyclable or

recoverable materials out for collection. Some households will put out, for example, all plastics. This will result in contamination in the recycling stream.

While not explicitly considered in this analysis, any effective rubbish, recycling and organic materials collection system will require supporting education and information. This is critical when a new service is implemented but should also be considered a critical part of ongoing service delivery.

Greenhouse Gas Emissions

We have provided an indication of the greenhouse gas emissions impact of the various collection system options. Our estimates are focussed on the impact of removal of materials from landfill and direct (collection related) transport impacts. We have not attempted to quantify the emissions benefits or costs associated with remanufacturing or export of materials once they are captured.

⁹ Research into barriers to use of food scraps collections, Sunshine Yates, 2023

¹⁰ Performance analysis of mixed food and garden waste collection schemes, WRAP, 2021

Organic materials collection options

Organic materials collection options have been identified assuming that appropriate downstream processing infrastructure will be in place.

Organic materials collections are typically funded through a targeted rate. For combined food and garden and garden only collections it is possible to offer a range of bin sizes to accommodate different households.

The organic materials collection options are summarised in Table 5-2. Noting that there is no status quo, given council does not collect food or garden organics. High level analysis of the options is summarised in Table 5-3, commentary on each of the considerations for each option is provided in Appendix F.

The following options reflect the 'standard service' noting that a bespoke service is likely to offer a variation to the collection capacity or frequency.

Table 5-2: Organic material collection options

	Container		Frequency	Material
O1	Bin ¹¹	23L	Weekly	Food only
O2	Bin	80L	Weekly	Food only
O3	Bin	80L	Weekly	Food and garden
O4	Bin	120L	Weekly	Food and garden
O5	Bin	120L	Fortnightly	Garden only
O6	Crate	240L	Four weeks	Garden only

The analysis presented in Table 5-3 illustrates that there is no perfect option (all dark shading). On balance, Options O1 and O3 have been evaluated as providing good outcomes across multiple considerations and are therefore preferred. This is given that:

- The frequency of both collections provides good flexibility to households.

- The 23L food bin is easy to move relative to other food only options given the small capacity.
- The 80L food and garden bin collects a larger volume of material than other weekly collections, resulting in lower emissions relative to material captured.



Figure 5-1 120L wheelie bin and 23L manually collected food only container

¹¹ Food bin (manually collected)

Table 5-3: Organics options long list considerations

Option	Container	Configuration	Frequency	Capacity (L)	Cost to user	Circular Economy	Accessibility	Safety/Handling	Diversion	Greenhouse Gas Emissions
O1	Food bin (manually collected)	Food only	Weekly	23L	Best	Worse	Worse	Best	Worse	Best
O2	Bin	Food only	Weekly	80L	Best	Worse	Better	Worse	Worse	Worse
O3	Bin	Food and green	Weekly	80L	Best	Worse	Worse	Worse	Worse	Worse
O4	Bin	Food and green	Weekly	120L	Best	Best	Best	Worse	Worse	Worse
O5	Bin	Green only	Fortnightly	120L	Best	Best	Best	Worse	Worse	Better
O6	Bin	Green only	Four-weekly	240L	Best	Best	Better	Worse	Worse	Better

Best	The option is the best option with respect to the key consideration.
Better	The option is a better option with respect to the key consideration.
Worse	The option is a worse option with respect to the key consideration.



Recycling collection options

Recycling collection options have been identified assuming that appropriate downstream processing infrastructure will be in place¹². Options RE4 and RE8 are the status quo, noting that option RE3 is currently used as an exception where a wheelie bin service is considered unsuitable.

Recycling collections are typically funded through a targeted rate. As for rubbish collection, it is possible to offer a range of bin sizes to accommodate different households. For example RE5 could be delivered using a 140L bin (current service in Wellington) or 240L bin (current service in the Lower Hutt and Porirua).

The recycling collection options are summarised in Table 5-4. High level analysis of the options is summarised in Table 5-5.

Commentary on each of the considerations for each option is provided in Appendix F.

The following options reflect the 'standard service' noting that a bespoke service is likely to offer a variation to the collection capacity or frequency.

Table 5-4: Recycling collection options

	Container	Capacity	Frequency	Material
RE1	Bin	120L	Weekly	Paper, plastic, cans, glass
RE2	Bin	240L	Fortnightly	Paper, plastic, cans, glass
RE3	Bag	60L	Fortnightly	Paper, plastic, cans
RE4	Bin	140L	Weekly	Paper, plastic, cans
RE5	Bin	240L	Fortnightly	Paper, plastic, cans
RE6	Crate	120L	Weekly	Crates for Paper, plastic & cans, glass.
RE7	Crate	45L	Weekly	Mixed glass
RE8	Crate	45L	Fortnightly	Mixed glass
RE9	Bin	80L	Four-week	Mixed glass

The analysis presented in Table 5-5 illustrates that there is no perfect option (all dark shading). On balance, Options RE2, RE5, RE8 and RE9 have been evaluated as providing good outcomes across multiple considerations and are therefore preferred.

In summary:

- RE2 provides for a decrease in frequency of collections and number of vehicle movements. This is likely to decrease the ongoing cost of the service. End markets for collected material do not currently exist in Wellington.

- RE5 removes the need for manual handling of the comingled stream and increases capture relative to number of vehicle movements for comingled recycling. A second truck will be required for the glass collection.
- RE8 delivers a high quality glass recycling stream with established markets but requires manual handling that presents health and safety risks to the contractor.
- RE9 removes the need for manual handling of the glass stream and increases the capture of glass, but provides a lower quality material to the market.

¹² This assumption relates to a separate project being undertaken by Wellington City Council – "Waste Business Model Options"

Table 5-5: Recycling options long list considerations

	Container	Configuration	Frequency	Capacity (L)	Cost to user	Circular Economy	Accessibility	Safety/Handling	Diversion	Greenhouse Gas Emissions
RE1	Bin	Paper, plastic, cans, glass	Weekly	120						
RE2	Bin	Paper, plastic, cans, glass	Fortnightly	240						
RE3	Bag	Paper, plastic, cans	Fortnightly	60						
RE4	Bin	Paper, plastic, cans	Fortnightly	140						
RE5	Bin	Paper, plastics, cans	Fortnightly	240						
RE6	Crate	Multiple crates	Weekly	120						
RE7	Crate	Mixed glass	Weekly	45						
RE8	Crate	Mixed glass	Fortnightly	45						
RE9	Bin	Mixed glass	Four-weekly	80						

Best	The option is the best option with respect to the key consideration.
Better	The option is a better option with respect to the key consideration.
Worse	The option is a worse option with respect to the key consideration.



Rubbish collection options

Rubbish collection options have been identified assuming that food waste will be collected separately. This reflects the signalled direction from government and trend in metropolitan centres in New Zealand.

Option R1 is the status quo – pay as you throw rubbish bags.

Where rubbish is collected in bins funding is normally via an annual charge. Examples include direct charges for private services or funding through a targeted rate. There are examples of pay as you throw systems in New Zealand using tags that users purchase and attach to their bins¹³.

It is also possible to offer a range of bin sizes to accommodate different households. This is typically approached by offering a default service with the option for households to request a larger bin for additional cost and/or a smaller bin for a reduced cost.

Providing adequate capacity for rubbish has been a central consideration to all options for rubbish collections. Particularly as providing inadequate capacity may see households use other bins that have additional capacity to dispose of rubbish e.g. disposing of rubbish in the recycling bin. This increases the contamination of other material streams and will have implications for compliance and enforcement. At the same time, restraining the

¹³ Examples include Western Bay of Plenty District Council, some areas within Auckland Council.

capacity for rubbish is an important means to nudge households to divert material from the rubbish stream to the organics or recycling bin where appropriate.

The rubbish collection options are summarised in Table 5-6. High level analysis of the options is summarised in Table 5-7, commentary on each of the considerations for each option is provided in Appendix F.

The following options reflect the 'standard service' noting that a bespoke service is likely to offer a variation to the collection capacity or frequency.

Table 5-6: Rubbish collection options

Container		Frequency	
R1	Bags	50L	Weekly
R2	Bin	80L	Weekly
R3	Bin	120L	Fortnightly
R4	Bin	240L	Four weekly

The analysis presented in Table 5-7 illustrates that there is no perfect option (all dark shading). On balance, Option R3 has been evaluated as providing good outcomes across multiple considerations and is therefore preferred. This is given that:

- The reduced frequency of the collection is likely to minimise the ongoing cost of the

service, however the change in container will incur a one-off cost.

- Decreased manual handling when compared to bags. Noting that a runner may still be necessary for difficult to access streets and the footpath will remain 'cluttered' after the service.
- The collection frequency is reduced meaning we may expect reduced emissions from trucks.
- The volume of material is capped, thereby promoting waste minimisation. Compliance is more easily managed than with a bagged collection.
- Bagged collections have not been taken forward because of the inherent health and safety risks to the contractor. This reflects trends across other councils shifting from bagged rubbish collections to wheelie bins.

Table 5-7: Rubbish options long list considerations

Option	Container	Frequency	Capacity (L)	Cost to user	Circular Economy	Accessibility	Safety/Handling	Diversion	Greenhouse Gas Emissions
R1	Bag	Weekly	50		NA				
R2	Bin	Weekly	80		NA				
R3	Bin	Fortnightly	120		NA				
R4	Bin	Four-weekly	240		NA				

Best	The option is the best option with respect to the key consideration.
Better	The option is a better option with respect to the key consideration.
Worse	The option is a worse option with respect to the key consideration.



Shortlisted options

The evaluation of options for each material stream provides one or more preferred option for each stream. This is for a 'standard' service and is likely to be complemented by options for a bespoke service. Consistent with the Better Business Case approach we have also carried through the current service for comparison with the shortlisted options.

The options for each material type can be combined to create a shortlist of six standard kerbside collection systems for suburban areas (Table 5-8).

These options are presented as packages, however, given that there is no interaction between recycling and organics collections, the combining of these is largely arbitrary and these components of the service could be considered in isolation.

The cost ranges noted in Table 5-8 are based on the information presented in Appendix D. Published pricing (targeted rates) for similar services or service components have been used to develop the cost ranges for each combination of organic materials, recycling and rubbish collection. No system is exactly the same and factors including Wellington's unique topography and locally available processing will have impact on costs for a service in Wellington City.

The shortlisted options are defined below with combined options discussed in the following pages.

Organics



Weekly 80L food and garden wheelie bin



Weekly 23L food bin (manually collected)

A food and garden collection is likely to be most suitable for composting. Food only material is suitable for composting or anaerobic digestion.

A 23L food bin will require manual handling. Unlike other materials collections where alternative methodologies can be effectively introduced, for domestic food waste only collections the alternatives are limited and present additional complexities (eg considerable excess volume and increased contamination). Appropriate mitigations will need to be fully considered (eg suitable collection vehicles) in order to best reduce and manage any risks from a 23L bin collection methodology.

Recycling



Fortnightly wheelie bin including glass (RE2)



Fortnightly wheelie bin excluding glass (RE5) + four-weekly 80L glass wheelie bin (RE9).



Fortnightly wheelie bin excluding glass (RE5) + fortnightly 45L glass crate (RE8)

As noted previously in this report, these options have trade-offs relative to downstream processing and safety.

- A recycling collection that combines all materials (RE2) will require new sorting infrastructure for Wellington and will produce relatively low value glass and paper/cardboard products. However, this collection methodology requires minimal manual handling and as a result reduces exposure to hazards for drivers and runners.
- An 80L glass bin (RE9) will require new colour sorting infrastructure for Wellington and will produce relatively low value glass product. However, this collection methodology requires minimal manual handling and as a result reduces exposure to hazards for drivers and runners.

Other considerations include:

- A larger wheelie bin (240L vs 140L) for mixed recyclables is likely to result in higher diversion rates but also risks higher contamination rates.
- Larger bins can be heavier and unwieldy to move, particularly where there are steps or steep paths to navigate.

Rubbish



Fortnightly 120L wheelie bin (R3)

Rubbish collection would be funded through a targeted rate for all serviced properties. This is a change from the current 'pay as you throw system. There is potential to make provision for variable sizes to account for large and small households.

Table 5-8: Shortlisted options

Option	Rubbish	Recycling ¹⁴	Organics	Indicative costs ¹⁵
SQ	Weekly bag (pay as you throw)	Fortnightly wheelie bin + fortnightly 45L glass only crate	No collection	
A	Fortnightly 120L wheelie bin	Fortnightly wheelie bin incl glass	Weekly 23L food only bin (manually collected)	\$300 - \$350
B	Fortnightly 120L wheelie bin	Fortnightly wheelie bin excl glass + four-weekly 80L wheelie bin	Weekly 23L food only bin (manually collected)	\$250 - \$300
C	Fortnightly 120L wheelie bin	Fortnightly wheelie bin incl glass	Weekly 80L food and garden wheelie bin	\$250 - \$350
D	Fortnightly 120L wheelie bin	Fortnightly wheelie bin excl glass + four-weekly 80L wheelie bin	Weekly 80L food and garden wheelie bin	\$200 - \$250
E	Fortnightly 120L wheelie bin	Fortnightly wheelie bin + fortnightly 45L glass only crate	Weekly 23L food only bin (manually collected)	\$200 - \$270
F	Fortnightly 120L wheelie bin	Fortnightly wheelie bin + fortnightly 45L glass only crate	Weekly 80L food and garden wheelie bin	\$250 - \$300

¹⁴ The bin for mixed recyclables (with or without glass) is variously 140L and 240L across New Zealand.

¹⁵ These costs provide an indicative range of the targeted rate charged per rateable unit. Noting that the split between processing, transport, education etc. is privy to individual councils and pricing is intended to provide an indicator of the likely cost range that service options will sit within (on a per service property basis) drawing on similar services across New Zealand and in particular those that have recently been contracted.



Short list assessment

Assessment summary

Each of the shortlisted options has been assessed against the key considerations. Table 5-9 summarises our assessment of the short-listed options with a darker shade indicating a better outcome for each of the considerations (figure right).

Table 5-9, with commentary in each cell, is provided as Appendix G. The evidence base used to make the assessments is provided in Appendix F.

Best
Better
Similar
Worse
Worst

Key points to note from the overall assessment include:

- No one option is obviously the better or best option.
- The preferred option will depend on the considerations that are considered more important. For example:
 - While costs to users are likely to rise for all options, fewer material streams/containers and automated collection may deliver efficiencies for collection costs.
 - Separate collection and colour sorting of glass provides the best access to markets and meets circular economy principals.
- Accessibility will be a key consideration for all options during detailed specification development.
- Safety for collections staff is an important consideration.
- All of the options will improve diversion and reduce emissions. Food and garden waste collections will capture more material and reduce emissions further than a food only collection.
- All options will need to be adapted in some way (frequency, container etc/) to provide a bespoke service.

Table 5-9: Shortlist options - consideration

Option	Rubbish	Recycle	Organic	Cost to user	Circular Economy	Accessibility	Safety/ Handling	Diversion	Greenhouse Gas Emissions
SQ	Bag	Bin + crate	NA						
A	Fortnightly bin	Bin	Food						
B	Fortnightly bin	Bin + glass bin	Food						
C	Fortnightly bin	Bin	Food and garden						
D	Fortnightly bin	Bin + glass bin	Food and garden						
E	Fortnightly bin	Bin + glass crate	Food						
F	Fortnightly bin	Bin + glass crate	Food and garden						

Option A: single recycle bin and food only bin.

This option involves a standard service comprising:

- Fortnightly rubbish collection in a 120L wheelie bin.
- Fortnightly collection of recyclable materials (incl glass) in a single wheelie bin (typically 240L).
- Weekly collection of food waste only in a 23L bin (manually collected).

From a cost to householders perspective, this option will be 'similar' to the status quo with increased cost for food only collection offset by lower cost for recycling collections given the decrease in frequency of collection and vehicle movements.

For circular economy (access to markets) this option is considered 'worst' relative to the status quo. The collection approach for recyclable materials relies on downstream sorting including removal of glass as a mixed colour stream. There are limited markets for mixed colour glass meaning the most likely short-term market is incorporation into aggregate i.e., low value. Fine glass pieces in the mixed recycling stream will also contaminate the paper/cardboard and limit on-shore markets meaning the material may need to be exported for recycling.

Food collected can be processed through anaerobic digestion (producing power and digestate) or composting (producing compost). The small

container reflects 'typical' household food waste generation and will help to limit contamination.

Due to the need to lift a potentially heavy 23L bin and manoeuvre a larger bin for recyclables this option was considered 'worse' than the status quo from an accessibility perspective.

Safety/handling was considered 'similar' to the current situation. This reflects improvements through avoiding manual handling of glass offset by the manual emptying of the food waste container.

This option was assessed as 'better' than the status quo for diversion reflecting moderately increased capacity for recycling and provision for food waste collection.

This option is considered 'better' from a Greenhouse gas emissions perspective due to the removal of food waste from the rubbish stream. There is also minor benefit from avoided truck movements through collecting all recyclable materials together.

Option B: recycle bin, glass bin and food bin

This option involves a standard service comprising:

- Fortnightly rubbish collection in a 120L wheelie bin.
- Fortnightly collection of paper/cardboard, plastics and cans materials in a wheelie bin (typically 240L).
- Four weekly collection of glass in a 80L wheelie bin.
- Weekly collection of food waste only in a 23L bin (manually collected)

From a cost to householders perspective, this option will be 'worse' with increased cost for food only collection alongside similar costs for recycling collection given the decrease in frequency of collection and a slight decrease in vehicle movements.

For circular economy (access to markets) this option is considered 'worse'. The collection approach for glass materials relies on downstream sorting of glass most likely producing a mixed colour and fines stream. There are limited markets for mixed colour glass meaning the most likely short-term market is aggregate i.e., low value.

Due to the need to lift a potentially heavy 23L bin for food waste and manoeuvre a 80L bin for glass and a larger bin for recyclables this option was considered 'worse' than the status quo from an accessibility perspective.

Safety/handling was considered 'similar' to the current situation. This reflects improvements through avoiding manual handling of glass offset by the manual emptying of the food waste container.

This option was assessed as 'better' to the status quo for diversion reflecting moderately increased capacity for recycling and provision for food waste collection.

This option is considered 'better' from a greenhouse gas emissions perspective due to the removal of food waste from the rubbish stream. There is also minor benefit from avoided truck movements.

Option C: single recycle bin, food and garden waste bin

This option involves a standard service comprising:

- Fortnightly rubbish collection in a 120L wheelie bin.
- Fortnightly collection of recyclable materials (incl glass) in a single wheelie bin (typically 240L).
- Weekly collection of food and garden waste in a 80L bin.

From a cost to householders perspective, this option will be 'similar' to the status quo, with increased cost for food and garden waste collection offset by lower cost for recycling collections given the decrease in frequency of collection and vehicle movements.

For circular economy (access to markets) this option is considered 'worst'. The collection approach for recyclable materials relies on downstream sorting including removal of glass as a mixed colour and fines stream. There are limited markets for mixed colour glass meaning the most likely short-term market is incorporation into aggregate i.e. low value. Fine glass pieces in the mixed recycling stream will also contaminate the paper/cardboard and limit on-shore markets meaning the material may need to be exported for recycling.

The 80L bin provides capacity for food waste and a relatively small amount of garden waste. This will

limit the potential for contaminants to be placed in the bin alongside food and garden waste given households are not likely to have excess capacity in the bin.

Due to the need to manoeuvre potentially heavy larger bins for recyclables and organic materials this option was considered 'worse' than the status quo from an accessibility perspective.

Safety/handling was considered 'better' than the current situation. This reflects improvements through avoiding manual handling of glass and automated collection of rubbish and organic materials.

This option was assessed as 'better' than the status quo for diversion reflecting moderately increased capacity for recycling and provision for food and garden waste collection.

This option is considered 'best' from a greenhouse gas emissions perspective due to the removal of food and garden waste from the rubbish stream. There is also minor benefit from avoided truck movements for separate glass collection.

Option D: recycle bin, glass bin, food and garden waste bin

This option involves a standard service comprising:

- Fortnightly rubbish collection in a 120L wheelie bin.
- Fortnightly collection of paper/cardboard, plastics and cans materials in a wheelie bin (typically 240L).

- Four weekly collection of glass in a 80L wheelie bin.
- Weekly collection of food and garden waste in a 80L wheelie bin.

From a cost to householders perspective, this option will be 'worse' than the status quo with increased cost for food and garden waste collection and rubbish collection alongside similar costs for recycling collection.

For circular economy (access to markets) this option is considered 'worse'. The collection approach for glass materials relies on downstream sorting of glass most likely producing a mixed colour and fines stream. There are limited markets for mixed colour glass meaning the most likely short-term market is aggregate i.e. low value.

The 80L bin provides capacity for food waste and a relatively small amount of garden waste. This will limit the potential for contaminants to be placed in the bin alongside food and garden waste given households are not likely to have excess capacity in the bin.

Due to the need to manoeuvre a potentially heavy 80L bin for glass and a larger bin for recyclables this option was considered 'worse' than the status quo from an accessibility perspective.

Safety/handling was considered 'best' compared to the current situation. This reflects improvements through automated collection of rubbish, recycling, glass and organic materials.

This option was assessed as 'better' than the status quo for diversion reflecting moderately increased capacity for recycling and provision for food and garden waste collection.

This option is considered 'best' from a greenhouse gas emissions perspective due to the removal of food and garden waste from the rubbish stream. There is also minor benefit from avoided truck movements for reduced frequency of glass collection.

Option E: recycle bin, glass crate and food only bin

This option involves a standard service comprising:

- Fortnightly rubbish collection in a 120L wheelie bin.
- Fortnightly collection of paper/cardboard, plastics and cans in a wheelie bin (typically 240L).
- Fortnightly collection of glass in a 45L crate.
- Weekly collection of food waste only in a 23L bin (manually collected).

From a cost to householders perspective, this option will be 'worse' than the status quo with increased cost for food waste collection alongside similar costs for recycling collection.

For circular economy (access to markets) this option is considered 'better'. The collection

¹⁶Options E and F replicates the existing recycling service (140L comingled wheelie bin + 45L glass crate) or use a 240L bin.

approach for glass materials provides a colour sorted stream (sorted at kerbside) with access to markets in New Zealand (Auckland).

Food collected can be processed through anaerobic digestion (producing power and digestate) or composting (producing compost). The small container reflects 'typical' household food waste generation and will help to limit contamination.

Due to the need to lift a potentially heavy 23L bin for food waste and a potentially heavy 45L crate for glass and manoeuvre a larger bin for recyclables this option was considered 'worse' than the status quo from an accessibility perspective.

Safety/handling was considered 'worse' than the current situation. This reflects continued manual handling and kerbside colour sorting of glass, in addition to manual handling of food waste, off set by automated collection of rubbish and mixed recycling.

This option was assessed as 'better' than the status quo for diversion reflecting moderately increased capacity for recycling and provision for food waste collection.

This option is considered 'better' than the status quo from a greenhouse gas emissions perspective due to the removal of food waste from the rubbish stream.

Option F: recycle bin, glass crate and food and garden bin

This option involves a standard service comprising:

- Fortnightly rubbish collection in a 120L wheelie bin.
- Fortnightly collection of paper/cardboard, plastics and cans in a wheelie bin (typically 240L).
- Fortnightly collection of glass in a 45L crate¹⁶.
- Weekly collection of food and garden waste in a 80L wheelie bin.

From a cost to householders perspective, this option will be 'worse' than the status quo with increased cost for food and garden waste collection alongside similar costs for recycling collection.

For circular economy (access to markets) this option is considered 'better'. The collection approach for glass materials provides a colour sorted stream with access to markets in New Zealand (Auckland).

The 80L bin provides capacity for food waste and a relatively small amount of garden waste. This will limit the potential for contaminants to be placed in the bin alongside food and garden waste given households are not likely to have excess capacity in the bin.

Due to the need to lift a potentially heavy 45L crate for glass and manoeuvre a larger bin for recyclables this option was considered 'worse' than the status quo from an accessibility perspective.

Safety/handling was considered 'similar' to the current situation. This reflects manual handling and kerbside sorting of glass off-set by automated collection of rubbish, mixed recycling and organic materials.

This option was assessed as 'better' than the status quo for diversion reflecting moderately increased capacity for recycling and provision for food and garden waste collection.

This option is considered 'better' from a greenhouse gas emissions perspective due to the removal of food and garden waste from the rubbish stream.

Trade offs

The recommendation to progress option F as the preferred option reflects good outcomes on balance across the agreed criteria. However, when each criteria is viewed in isolation alternative options present as best. Therefore we have provided an overview of these alternative options for each criteria, the consequential trade-offs have also been noted.

Criteria	Best options for criteria	Trade-offs involved
Cost	Options B & E	Circular Economy Safety
Circular economy	Options E & F	Safety Cost
Accessibility	Options E & F	Safety Cost
Safety/Handling	Options D & C	Accessibility Cost
Diversion	Options E & F	Safety Cost
Greenhouse gas emissions	Options C, D & F	Accessibility Cost

Figure 5-2 Trade offs considered for each criteria

Preliminary preferred option / alternatives

All of the short listed options have potential to deliver on some or all of the desired outcomes. However, based on the assessment presented here we have identified a preferred option and two alternatives for a 'standard' kerbside service for presentation in the draft Wellington City Long Term Plan. On balance these options present a reasonable compromise between a range of factors and have no identified fatal flaws.

As discussed previously in this report, the 'standard' service adopted will need to be bespoke for a significant number of properties across Wellington City. This includes those with difficult access (for residents and/or collection vehicles) and/or high density. Individual households may also be given the opportunity to adjust the service to suit their needs, for example increasing or decreasing the capacity of specific collection containers.

The collection system, including 'standard' and bespoke' components, will be delivered for council by one or more contractors. The preferred option agreed through the Long Term Plan process will provide a basis for procuring a collection contract. The procurement process will:

- Provide for alternative solutions that can deliver similar benefits at similar or lower cost.
- Provide real world pricing for services in Wellington from 2026.

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Preferred option

The preferred option (Option F) comprises:

- Fortnightly collection of rubbish in a 120L wheelie bin.
- Fortnightly collection of paper/cardboard, plastics and cans in recycle wheelie bin.
- Fortnightly collection of glass using a crate with kerbside colour sorting of glass.
- Weekly collection of food and garden waste in an 80L wheelie bin.

The 'standard' service may be adapted to a bespoke service by providing for larger shared bins, 'central' bin storage locations and/or providing alternative containers such as bags in some areas.

Based on pricing we have reviewed across New Zealand we anticipate that delivering this service in 2023 in Wellington would require a targeted rate in the range \$300 - \$350 per serviced household each year (2022/23 cost).

Subject to design and implementation this can be expected to deliver diversion in the region of 50% once fully implemented. A significant proportion of this diversion will be new, organic materials, contributing to a significant reduction in waste related emissions.

Alternative options

Alternative options that could be presented in the Long Term Plan include:

- Changing the organic materials collection to a weekly food only collection using a 23L container (Option E).
- Changing the glass collection to a four weekly collection using an 80L wheelie bin (Option D with food and garden collection).

Based on the cost and diversion information reviewed for this report, Option E is likely to cost less and deliver lower diversion and emissions reductions.

Similar benchmark data for Option D suggests similar capture of glass (with limited markets, and no processing infrastructure currently available in Wellington) and diversion and emissions reductions similar to the preferred option. This is based on a single data point (Timaru) so cost could be higher.

Single recycle bin options

Options that include a single bin for recycling (combining paper/cardboard, plastics, cans and glass) are not preferred. This is because broken glass in the bins contaminates cardboard, reducing its value.

Wellington's existing Materials Recovery Facility is not configured to process material from a single bin recycling collection. This means that if a single bin recycling collection was progressed the existing facility would need to be reconfigured or a new Materials Processing Facility would be required.

Bespoke Service

Bespoke options may need to be provided for multi-unit dwellings, commercial premises, households with difficult access and properties on private roads/accessways. Implementation considerations for bespoke services have been considered in Table 6-1 (refer page 52), possible approaches are discussed here.

Drawing on the services incorporated into the preliminary preferred option and alternatives, bespoke options should offer:

- Similar capacity for each material stream, reflecting 'typical' material generation.
- Organic materials collection – reflecting materials likely to be generated by the household or business.
- Recyclable materials collection.
- Rubbish collection.

For all material streams, capacity may be provided in a range of ways. Options include:

- Providing the 'standard' bins for each material stream.
- Larger, shared bins.
- More frequent collections.
- Targeting specific recyclable materials (in separate bins), for example cardboard.

Where there is limited space (in apartments) or difficult access for storage of containers shared storage may be provided. This could take the form

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of a waste room in an apartment building or development or shared 'bin depot' in a residential area. Residential areas with difficult access or limited storage space can be considered in the same way as a multi-unit development with residents taking materials to a centralised point in the same way that apartment dwellers take their materials to a waste room.

For organic materials collection, many multi-unit developments and businesses will produce negligible green waste meaning that a food only collection may be more appropriate. As for the standard service, any collection incorporating food will need to be no less than weekly to avoid material becoming odorous.

A bespoke service for organic materials collection may:

- Provide a food only collection, in a shared container, for multi-unit developments where green waste is not generated, potentially with collection several times a week to provide the required capacity.
- Provide storage of individual household organic materials bins in an appropriately located bin depot.
- Collect food waste in bags (for opening at the processing facility).

For recycling collections similar options apply with a combination of centralised storage, larger containers and increased frequency available to meet the specific requirements.

This means that a bespoke service for recyclable materials collection may:

- Provide storage of individual household recycling bins in a bin depot.
- Provide recycling depots at various locations in the City (the Zurich approach).
- Provide larger shared bins, potentially with more frequent collection.
- Target specific materials as separate streams, for example cardboard.
- Collect mixed or separate recyclable materials in bags.
- Daily bundled cardboard collection in the CBD (targeted at businesses).

For rubbish, in some cases collection is likely to be required more frequently than fortnightly due to the quantities involved and the risk of stored waste becoming odorous.

For bespoke rubbish collections, options include:

- Provide storage of individual household rubbish bins in an appropriately located bin depot.
- Provide larger shared bins, likely with more frequent collection.
- Collect rubbish in bags.

Multi-unit developments - service options

The preliminary preferred option presented above is focussed on suburban areas with provision for bespoke services to provide an equivalent level of service for households unable to access the standard service due to topography, housing density or other access issues. This may apply to steep or narrow streets or multi-unit developments where standard bins are unworkable.

Council needs to make a decision on whether some or all multi-unit developments will have access to an organic materials, recycling and rubbish collection service. Adopting a similar approach to looking at options for a standard service, we have set out approaches and key considerations.

The analysis presented in this report notes that multi-unit developments are likely to require a bespoke service. Some smaller developments in suburban areas may be suitable for a standard service, with bins presented at kerbside.

For developments unsuitable for a standard service the two options for Council are to:

- Rely on the private sector to provide recycling and rubbish collections (the status quo); or
- Provide organic materials, recycling and rubbish collection services (bespoke) funded by targeted rates on each unit.

Private sector services.

It may be possible to require specific services to be provided by the private sector through an amended waste by-law. This is the approach that has been adopted by Kāpiti Coast District Council for all household recycling and waste collection services. We have assumed the private sector will not provide organic materials collections.

It is not clear whether the proposed mandatory kerbside standardisation requirements will cover multi-unit developments. If they do, then it may be that Councils are required to provide services to multi-unit developments i.e. the first option will not meet the mandatory requirements.

Council services

Delivering organic materials, recycling and rubbish collection services would be an extension of the bespoke arrangements proposed for standalone households in locations unsuitable for a standard service.

As for existing private sector services and other bespoke services, the approach for each development should offer:

- Similar capacity for each material stream, reflecting 'typical' material generation.
- Organic materials collection – reflecting materials likely to be generated by the household.
- Recyclable materials collection.
- Rubbish collection.

For all material streams, capacity may be provided in a range of ways. Options include:

- Providing the 'standard' bins for each material stream.
- Larger, shared bins.
- More frequent collections.
- Targeting specific recyclable materials (in separate bins), for example cardboard.

Shared storage is likely to be in place, for example waste rooms in an apartment building or development or a shared 'bin depot'.

For organic materials collection, many multi-unit developments will produce negligible green waste meaning that a food only collection may be more appropriate. As for the standard service, any collection incorporating food will need to be no less than weekly to avoid material becoming odorous.

A bespoke service for organic materials collection from multi-unit developments may provide a food only collection, in a shared container, potentially with collection several times a week to provide the required capacity. This is most likely to be effective if combined with caddies for individual properties.

For recycling collections similar options apply with a combination of centralised storage, larger containers and increased frequency available to meet the specific requirements.

This means that a bespoke service for recyclable materials collection may:

- Provide recycling depots at various locations in the City (the Zurich approach).
- Provide larger shared bins, potentially with more frequent collection.
- Target specific materials as separate streams, for example cardboard.

For rubbish, collections are likely to be required more frequently than fortnightly due to the quantities involved and the risk of stored waste becoming odorous.

For bespoke rubbish collections the approach is likely to involve providing larger shared bins, likely with more frequent collection.

Multi-unit developments – option assessment

The two options are discussed in the following sections, covering the same considerations used to evaluate standard service options. In this evaluation we are considering whether to offer an equivalent (bespoke) service to multi-unit developments rather than what type of service to offer. As noted above, it has been assumed that a private sector service (the status quo) will offer recycling and rubbish collection, but not organic materials collection.

Cost to user

Collections from multi-unit developments are currently funded by individual households or through their body corporate fee.

A council provide service will provide some efficiencies through providing a large number of services. Where these services are standardised across a small number of variations this may provide some cost savings.

Introducing organic materials collection will increase cost, but there may be potential to reduce rubbish collection costs as a result of reduced quantity (and frequency).

Circular economy

The approach to collecting recyclable materials is likely to be similar between the two options. The ability to have material specific containers, for example targeting cardboard or glass, is a benefit from a circular economy perspective.

Introducing an organic materials collection will require careful design to ensure that the collected material is suitable for processing. Introducing organic materials collection from households in multi-unit developments would be a key benefit of a Council provided service.

Accessibility

The services provided to multi-unit developments vary by development and provider. This means households have variable services. When a new

organic materials, recycling and rubbish service is rolled out to standalone properties there is a risk that private sector services do not match services provided by Council.

Safety/Handling

Multi-unit developments are typically serviced using large wheelie bins or front load bins. These bins are often manually moved to collection vehicles for empty. This reflects storage arrangements and access limitations for collections, with fully automated collections not feasible in many cases.

Diversion

Current collection services largely replicate suburban (standard) collections i.e. focusing on recyclable materials. A move to a council service that includes organic materials collections will increase diversion of materials from landfill. A focus on food only materials will deliver an estimated additional 15% diversion of material from multi-unit developments based on modelling completed for this project.

Greenhouse gas emissions

With similar collection vehicle movements the key driver for greenhouse gas emissions changes will be the diversion of organic materials from landfill. This means that a council provided service that targets organic materials alongside recyclables and rubbish will reduce emissions further than the current approach.



Summary

The trade-offs between criteria are summarised in Figure 5-3 and discussed below.

The Status Quo delivers services at an acceptable cost for each development. The services vary and do not reflect the new standard/bespoke service proposed. Diversion and emissions reductions will be less for a continuation of the status quo.

A council service for MUDs is likely to increase cost for many developments as well as shifting cost from body corporate fees or the equivalents to individual unit's property rates. A new service targeting organic materials will provide an equivalent service to households in multi-unit developments, increase diversion and reduce emissions further than the current approach.

On balance a Council service has the most potential to deliver on some or all of the desired outcomes for Council. This is based on the assumption that the private sector will not provide organic materials collection.

Confirming the approach for multi-unit developments can take place once collections for suburban areas are established. This avoids implementing multiple changes at one time while providing an opportunity to develop the bespoke approach in suburban areas. This also means there is time to confirm government requirements and if needed consider the use of a by-law to require the private sector to provide organic materials collection from multi-unit developments.

Criteria	Best approach	Trade-offs involved
Cost	Status Quo	Diversion, GHG
Circular economy	Either	Safety, Accessibility
Accessibility	Council service	Cost
Safety/Handling	Either	Circular economy
Diversion	Council service	Cost
Greenhouse gas emissions	Council service	Cost

Figure 5-3 Multi-unit developments service trade offs

6. Implementation Considerations

A kerbside collection that delivers a satisfactory level of service and realises the goals and objectives of council and Central Government’s strategy will achieve a high participation and capture rate, with low contamination.

The following considerations should be accounted for in order to realise this.

Caddies and liners

Some international guidance¹⁷ suggests a complimentary kitchen caddy improves participation in domestic organics collections however some councils in Aotearoa NZ¹⁸ have seen success without provision of a caddy. Consideration will need to be given to whether this addition forms part of the service and how, or if, there are any charges associated with this addition and how that impacts overall service and roll-out costs.

Compostable liners are another area for consideration. Some research suggests improved participation in organics collections where liners are provided¹⁹. There are logistics and financial aspects that need to be considered. Acceptability of this material at the processing facility is also an influencing factor.

¹⁷ WRAP. 2016. Food Waste Caddies and Caddy Liners. UK: WRAP

Additionally, there may be some increased risk of contamination due to general confusion around compostable/biodegradable/eco-plastics that will need to be considered in any supporting education and behaviour change campaign or enforcement regime.

Changes to bin sizes

Individual households may be given the opportunity to adjust the service to suit their needs, for example increasing or decreasing the capacity of specific collection containers.

Across New Zealand territorial authorities this is becoming increasingly common. Examples include:

- Tauranga City Council
- Auckland Council
- Rotorua Lakes Council
- Christchurch City Council

Based on the annual charges of these council collections, opting-in to a larger rubbish and recycling collection can incur a 26%-56% increase on the targeted rate for a standard service. Christchurch City Council requires the recycling capacity to remain larger than rubbish capacity if households do opt for a larger bin. Council could consider implementing similar controls to incentivise diversion while allowing for flexibility.

¹⁸ WasteMINZ. 2020. Recommendation for standardisation of kerbside collections in Aotearoa.

Logistics and operational efficiencies

Consideration should be given to how council will record, collect and use service-related data to inform service improvements as well as to meet statutory data obligations under the Waste Minimisation Act. Consideration should be given to the future data needs and requirements as signalled by Central Government and built into any new system from its implementation stage. Contract specific requirements will also need to be considered at contract development and negotiation stage.

Examples include electronic tagging of containers provided as part of a standard service and recording use of shared facilities (for example through access cards).

If data collection is well designed it is possible to track system performance and identify opportunities for improvement. For example, combining participation rates, residual waste composition and contamination rates will identify the aspects of service use that can be supported with information and education.

¹⁹ Ministry for the Environment. 2022. Literature review: Reducing household and business food waste



Funding

Targeted rates

Kerbside rubbish and recycling collections are predominantly funded via an annual targeted rate for New Zealand territorial authorities. The targeted rate is applied only to households who are eligible for the kerbside collection service noting that if the household decides that they will not participate in the service the targeted rate is still applied.

A targeted rate is straight forward for council rating officers to administer and provides council with a guaranteed source of funding to administer the contract.

Incentives to reduce waste and recycle materials where possible

With the rate levied on all serviced households there is limited financial incentive to reduce the amount rubbish placed out for collection. Some Councils in New Zealand address this in part by allowing households to opt for smaller or larger rubbish bins i.e. paying more or less for the capacity that they require.

Pay as you throw

A small number of Councils offer a pay-as-you-throw model (PAYT), where households pay per bag (the status quo for WCC), or per lift of a wheelie bin. By implementing a pre-paid system, each

household is only paying for the rubbish they generate – providing a financial incentive for people to reduce their waste.

No councils in New Zealand have employed electronic tagging to administer a user-pays system. This is because tags can become damaged during servicing resulting in read failures. Poor weather conditions, incorrect placement and storing bins in close proximity can also corrupt the tag or readings. Failures from electronic tags are likely to attract a significant volume of complaints for council customer service officers and any cost or resourcing implications of this administrative response will need to be fully considered.

Councils operating a PAYT wheelie bin tend to use bin tags, where a tag is purchased from a retailer and removed when the bin is emptied. PAYT tags may be stolen or tampered with leading to inaccuracies or missed collections. Similar to bags, they can impose a higher cost per household where the collection costs are shared across a smaller number of households.

PAYT systems typically involve several parties offering services and competing for market share. This means each service provider has a subset of households to cover costs meaning service cost per household can be higher.

Private accessways

A number of residential properties in Wellington are on private roads or accessways. Where these accessways are suitable for 'standard' collection vehicles formal agreement will be required prior to

providing services, to address issues such as any damage to pavements. Where the access ways are not suitable for the 'standard' collection a bespoke collection will be required.

Each private road/accessway is likely to require an assessment by council to identify the best approach to delivering collection services. Where a private accessway is deemed unsuitable for servicing, households may need to bring their bins to the nearest public road for servicing or establish a central collection area (with standard or larger bins).

Bespoke solutions such as use of a smaller collection vehicle and/or higher frequency collection could also form part of the solutions considered.

The presence of private accessways has implications for collection contracts. Examples include the likely need for different collection vehicles and containers. A private accessway is one of the triggers for a bespoke collection service where they are unsuitable for the standard service or unwilling to provide access to standard collection vehicles.

Community facilities

Within the existing kerbside collection system schools, early childhood centres and not-for-profit organisations can access the standard household service. Where these facilities generate a volume of organic materials, recycling and rubbish that can be collected using the standard service this service

should be made available with suitable funding arrangements in place.

To deliver more equitable outcomes Council could opt to offer services to organisations that generate large quantities of materials, including Marae and clubs. This would be a variation on bespoke service arrangements with suitable charging arrangements to be established.

With increased scale, these organisations are comparable to businesses rather than households. Some of these facilities may need to be serviced outside of standard collection hours which may present challenges regarding efficiency of collection routes. This suggests any decision to provide services should be made alongside Council's position on servicing businesses.

Processing infrastructure

Organics

A number of composting service providers operate in the Wellington region alongside community scale initiatives. Together these provide some capacity for the processing of organic materials locally, largely focussed on green waste. The existing processes are not appropriate for processing the anticipated quantities of food and green or food only material anticipated.

Wellington City, Porirua City and Hutt City Council are currently progressing a business case to assess costs, benefits, and risks for options for processing organic material. The outcome of that business case has yet to be finalised by the three councils but is

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likely to lead to the processing capability for food and/or food and green waste materials being available to the Wellington Region. There is considerable further work required to get to this point including procurement process(es) and an application to the Waste Minimisation Fund for grant funding support.

It is unlikely that any new processing infrastructure will be operational by the start of the new Wellington City Council contract, therefore a temporary solution outside of the region may be necessary.

Recycling

The way that recyclable materials are collected at the kerbside has a number of implications for processing opportunities. Existing recyclables infrastructure in Wellington can sort a mixed stream that includes glass. Glass collected separately at the kerbside is currently handled, either as a colour sorted stream or a mixed glass stream.

Council is evaluating options to enable resource recovery and/or materials processing of materials from Wellington City and across the Region. There is potential that this could include developing a Materials Recovery Facility for mixed paper, cardboard, plastics and cans or a similar facility with capability to handle a mixed stream including glass. It may also be possible to establish a facility focussed on glass processing if this is required for the collection option selected.

Materials separated through a Materials Recovery Facility will be supplied to existing markets. This includes processing in New Zealand (plastics, cardboard, steel, glass) and off-shore (plastics, aluminium, paper)

Impact of a container return scheme

The proposed Container Return Scheme (CRS) will encourage consumers and businesses to return beverage containers (e.g. bottles, cans etc.) for recycling and/or re-use.

The New Zealand CRS was deferred in March 2023 with no timeframe for implementation. It is possible that a CRS will be progressed relatively quickly (within the next few years). It is also possible that a CRS will not be introduced in the near future.

A CRS may have the following impacts for council's kerbside collection service if implemented within the term of the new contract:

- Reduced quantity of containers collected through the kerbside service. This could allow Council to adjust capacity and/or frequency of recycling collections.
- Increased value of containers (PET, HDPE, glass, aluminium cans) if containers collected at kerbside are eligible for any refund through the CRS. This may reduce the net cost of the kerbside recycling service if Council includes a revenue share component in recyclables processing arrangements.

Although there is uncertainty on the timing and design of a New Zealand CRS, flexibility to respond to any potential future changes in this area will need to be considered at procurement and contract negotiation stages.

If the CRS is progressed in the short-term it may be possible to adjust scheme configuration (collection capacity) to reflect changes in materials collected at kerbside. If there is no material progress on a New Zealand CRS when the contract specification is finalised the contract terms should include provision for making adjustments if a CRS is implemented during the contract term.

Roll-out process

Staged roll out

The potential scale and complexity of change from some of the options, and in particular from the likely need for bespoke services, is likely to be better suited to a staged roll-out process.

Rolling out services across existing serviced areas with multi-unit developments added in a subsequent stages is one option. In existing serviced areas there will be a mix of:

- Properties suitable for a 'standard' service.
- Private roads/accessways suitable for a standard service where access agreements will need to be put in place.
- Private roads/accessways, multi-unit developments and areas with difficult access unsuitable for a standard service where

bespoke arrangements will need to be put in place.

The first task will involve identifying all properties suitable for a 'standard' service. This will include properties that currently have Council recycling bins, some properties that are serviced using recycling bags and some private roads/accessways and smaller multi-unit developments.

A bespoke service will need to be designed for each area that is unsuitable for the 'standard' service. This will include private road/ accessways, multi-unit developments and public roads with difficult access. It is anticipated that Council will establish a range of potential solutions that can be combined to address the requirements of each area, road or development. Detailed arrangements may change once a supplier is confirmed through procurement.

Considerable engagement will be needed with those provided with a bespoke service. Building sufficient time to undertake this work into the roll-out process is critical to the success of the service implementation.

There is potential to stage any roll out in a few ways. For example by suburb or materials stream. Timing may be influenced by availability of suitable processing facilities for the collected materials (as noted above).

Regardless of the approach, consideration will need to be given to the timeframes and required lead in time (e.g. for contractor mobilisation or manufacturing of any necessary bin assets), the impact on resources and need for temporary

resourcing (both for council and contractors), and alignment with other council initiatives or changes.

Communications

Any city-wide communications and collateral (whether a combined or separated roll out approach) that will support the roll-out will need to provide clarity on the implications for all residents across the city, including MUDs and CBD residents/rate payers. Consistent messaging across the city is likely to be important for the successful roll out.

With any new service, the participation rate may not immediately achieve any pre-set targets. While a gradual increase is expected, consideration may need to be given to a second or third tranche of engagement. This may also include specific engagement methodologies for targeted communities.

Simple nudge interventions including stickers have been proven to increase participation, namely for food scraps collections, in New Zealand and overseas. Studies estimate a cost of \$0.75 per household for communications can result in an increase in participation of between 16-20%.

Compliance monitoring and enforcement

To effectively support participation and produce a quality service, any education and behaviour change approach will need to be run alongside an effective and comprehensive compliance monitoring and enforcement (CME) programme. The design and development of any supporting

CME approach will need to take into consideration the limitations of current legislation and the changing policy environment. CME resourcing requirements and division of responsibilities may also form part of contract development and negotiation processes.

Bespoke service development approach

Implementation considerations specific to bespoke services (areas with difficult/private access, high density and/or multi-unit developments) are noted in Table 6-1.

Multi-unit developments

As noted previously, providing services to multi-unit developments can potentially follow the roll out of standard and bespoke services to standalone properties. A logical sequence would be:

- Work through bespoke service design as part of a roll out of services across the currently serviced areas and properties.
- Extend bespoke services to multi-unit developments currently serviced by the private sector within suburban areas/outside the CBD.
- Extend bespoke services to multi-unit developments within the CBD.

Table 6-1: Bespoke service implementation considerations

Implementation considerations	Overview
Property stocktake	To best understand the scale and extent of the bespoke service requirement a stocktake of properties and their limitations or opportunities will need to be undertaken. This information will be required for procurement and contracting purposes and will also inform the rollout planning, strategy and implementation.
Bin roll out	Delivery of bin infrastructure for bespoke services will need to be coordinated with individual body corporates, property managers or business associations. Ensuring continuity of service for each property will also require coordination with existing service providers. This will need to be considered as part of procurement and contract negotiation processes.
Specific collateral	Any education and behaviour change collateral or information will need to reflect specific bespoke service requirements, and will need to be ongoing in nature.
Specific education support	Access to residents/users may be limited and will need to be coordinated with body corporate, property managers and/or business associations. The high turn over of residents in MUDs and the inner CBD may also mean consideration of ongoing education or support to property managers.
Compliance monitoring and enforcement	For most medium to large MUDs it is likely that bin storage and collection will be from private property, this may limit or complicate compliance monitoring and enforcement under bylaws unless specifically addressed. Implementation will need to include consideration and development of service policy that supports effective use, management and monitoring. Working with body corporates, property managers and or business associations will be key to positive outcomes.
Resourcing	In general, roll out, implementation and support to bespoke service users is an ongoing and constant undertaking. The impact of this on council or contractor resourcing will need to be effectively considered and budgeted.



Preliminary risks and mitigations

Key preliminary risks include the approach to procurement, required lead in time, the evolving policy environment, public response to change and the regional approach to waste and resource management as well as infrastructure. Some mitigations to these risks have already been

undertaken including consideration of implications in the options analysis, collaboration with key regional stakeholders and continued communication on the options development process with decision makers.

Further mitigations and management actions to consider may include actively monitoring timeline risks, undertaking detailed implementation

planning (including consideration of temporary or work around arrangements where necessary), and early engagement with residents on the proposed and upcoming changes with a focus on the 'why'.

Table 6-2: Preliminary risks and mitigations

Risk	Likelihood (low, medium, high)	Severity (low, medium, high)	Mitigation	Residual Risk
Funding from MfE is not available for the purchase of equipment.	L	M	Early and ongoing engagement with MfE to agree on an aligned approach to funding application.	Alternative funding sources or increased per property service charge needed to offset the shortfall.
Bins and collection vehicles require a significant lead in time (12-18 months) resulting in a delay to the contract start.	M	H	Procurement plan timeline allows sufficient time for mobilisation. Early and ongoing engagement with suppliers to ensure timely delivery in NZ, accounting for potential delays.	Prolonged lead-in time which may delay introduction of service and the need for interim contract roll over solutions.
Political influences e.g. 2023 election, result in a significant change in central government direction.	L	M	Alignment to councils zero-waste strategy and the Regional WMMP to ensure legislative compliance regardless of central government changes.	
Ratepayers are unsatisfied with the proposed new kerbside service.	M	H	Proactive approach to engaging with ratepayers e.g. early touch points that share what the proposed service may be. Actively relate the service provision back to councils zero-waste strategy and the Regional WMMP goals and actions.	Slow take up of new services which may require additional communications and marketing.
The RWMMP process results in a vision that does not align with the Zero waste Strategy.	L	L	Active involvement from council officers to shape a vision that reflects the needs of WCC and others.	

Risk	Likelihood (low, medium, high)	Severity (low, medium, high)	Mitigation	Residual Risk
The joint organics business case recommends a preferred option that does not align with this report.	L	L	Active involvement from council officers to feed into the business case.	
Processing infrastructure for organics and/or recyclable material is not operational prior to the contract start date.	M	H	Align timelines for the organics business case and waste business model with the kerbside roll out.	Prolonged lead-in time or extended procurement process which may result in the need for interim processing solutions.



[Appendix A Other relevant legislation and policy](#)

Local Government Policy

WCC Long-term Plan 2021 – 2031

Wellington City Council's Long Term Plan (LTP) was adopted by the council on 30 June 2021. The focus of the LTP surrounds fixing the city's aging infrastructure, response to climate change, minimising sewage sludge and waste and cycleway networks. Of note to this work is the recognition of resource efficiency's (waste and energy) contribution to council's climate change response, and the plan to work on waste minimisation actions with a focus on food waste, biosolids and green waste in order to complement central government interventions on other types of waste.

Central Government Policy

The Resource Management Act 1991 (under review)

The Resource Management Act 1991 (RMA) promotes sustainable management of natural and physical resources. Although it does not specifically define 'waste', the RMA addresses waste management and minimisation through controls on the environmental effects of waste management. The government is working through a reform of resource management law in New Zealand with a proposed Natural and Built Environments Act, Spatial Planning Act and Climate Adaptation Act.

Climate Change Response Act 2002

The Climate Change Response Act 2002 puts in place a legal framework to enable New Zealand to meet its international obligations under the United Nations Framework Convention on Climate Change, the Kyoto Protocol and the Paris Agreement. The Act was amended in 2019 to provide a framework by which New Zealand can develop and implement clear and stable climate change policies that:

- Contribute to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5 degrees Celsius above pre-industrial levels.
- Allow New Zealand to prepare for, and adapt to, the effects of climate change.

Emissions Reduction Plan 2022

The Emissions Reduction Plan was released in 2022 and is a mechanism to allow New Zealand to prepare for, and adapt to, the effects of climate change, transitioning towards a more resilient low emissions economy. The plan sets out policies and strategies for the decarbonisation of every sector. In terms of waste, organic waste has a key focus at both a household and business level alongside exploration of bans or limits for the diversion of organics from landfill. The plan outlines the following actions:

- Improve household kerbside collections of food scraps.

- Invest in 2050 targets for biogenic methane in organic waste processing.
- Resource recovery infrastructure.
- Require the separation of organic waste.
- Target a 40 per cent reduction in biogenic methane by 2035 (relative to 2017 levels).

As noted above, the Emissions Reduction Plan relies on the New Zealand Waste Strategy to address waste and resource recovery related activities. In developing target emissions reductions, the ERP notes that:

... [the target] assumes 40 per cent of food waste diverted to composting (20 per cent windrow and 20 per cent in-vessel composting, or IVC) and 60 per cent to anaerobic digestion. It also assumes 100 per cent of diverted green waste to composting (60 per cent compost and 40 per cent IVC). In practice the best processing option should be selected based on availability of waste types and markets for potential products.

Waste Minimisation Act 2008 (under review)

The Waste Minimisation Act 2008 (WMA) sets a framework to encourage:

- A reduction in the amount of waste generated and disposed of in New Zealand;
- Minimisation of the environmental harm of waste; and
- Provision of economic, social and cultural benefits for New Zealand.

Under the WMA territorial local authorities are required to promote waste management and minimisation within their district. Part of this responsibility involves the creation and adoption of a Waste Management and Minimisation Plan (WMMP). The WMMP sets out Council priorities and activities for waste and resource recovery and must be reviewed every 6 years. There is a combined WMMP for the Wellington Region with a Regional Action Plan and individual Council Action Plans. The Region WMMP is currently under review.

Although the WMA is the current legislative instrument for directing territorial authorities on their waste related obligations, this Act (alongside the Litter Act 1979) is currently under a repeal and replace process by Central Government. Central Government has indicated an intention for the replacement act to be in place by 2025 and has highlighted that the new legislation will provide clear roles and responsibilities for central and local Government.

Litter Act 1979 (under review)

Under the Litter Act 1979 (Litter Act), 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 responsibility for monitoring litter dumping, acting on complaints, and dealing with those responsible for litter dumping. Councils reserve the right to prosecute

offenders via fines and infringement notices administered by a Council officer.

Council's powers under the Litter Act can be used to address illegal dumping issues that may be included in the scope of a Council's WMMP. As noted above, current waste management legislation reform is considering the Litter Act alongside the WMA.

Health Act 1956

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

While the Health Act has not been signalled as part of the current waste management legislation reform that is underway, consequential amendments to ensure alignment between the different Acts should be expected.

Waste Disposal Levy Expansion

For every tonne of waste disposed to landfill, a levy is applied and collected by the Ministry for the Environment (MfE). Since 1 July 2021, the landfill

waste disposal levy has been progressively increased and expanded. Over four years the levy will be applied to all landfills, with the exception of cleanfills and farm dumps. The levy at Class 1 landfills will increase from \$10 to \$60 per tonne. Under the current Waste Minimisation Act(2008) the additional revenue created from the levy will be invested in initiatives to support waste reduction²⁰, with funding allocated as follows:

- 50% is returned to territorial local authorities based on population, to spend on waste minimisation initiatives in accordance with their Waste Management and Minimisation Plans; and
- Around 50%, less administration costs, is made available for waste minimisation projects through the Waste Minimisation Fund.

MfE is currently reviewing the allocation of the waste levy, and therefore this proportion of levy money may be subject to change. The proportion of levy received by territorial authorities is expected to grow as the waste levy expansion and increase is implemented through to mid 2024. This provides an opportunity for territorial authorities to further invest in waste minimisation activity. MfE has developed guidance to improve the effectiveness of the levy spending by territorial local authorities and through the contestable fund

²⁰ <https://www.mfe.govt.nz/consultations/landfill-levy>

National Plastics Action Plan

Aotearoa New Zealand Waste Strategy 2023 – guiding principles and implementation phases.

In response to recommendations by the Office of the Prime Ministers Chief Science Advisor regarding rethinking plastics, in 2021 the Government released the National Plastics Action Plan. The National Plastics Action Plan identified a number of

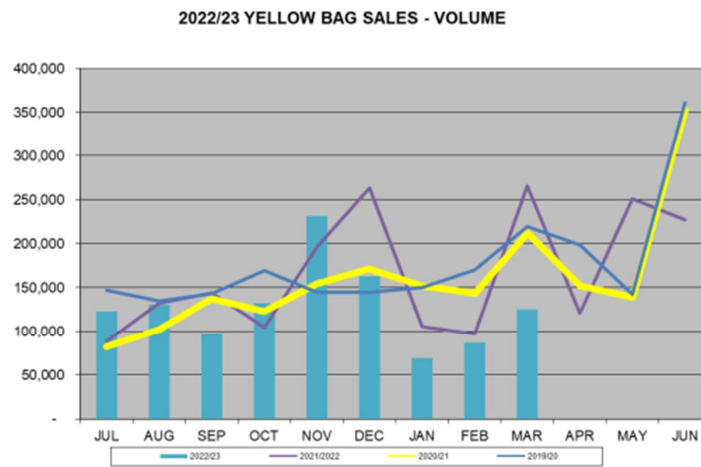
focus areas for improving our use and management of plastics, including:

- Regulated product stewardship;
- Potential container return scheme;
- Kerbside collection;
- Compostable packaging;
- Phase-out of single-use and hard-to-recycle plastics; and
- Plastics Innovation Fund and infrastructure investment.

Building off these focus areas, the Government is gradually phasing out specific hard-to-recycle plastics, including some single-use plastics, through three tranches between 2022 and 2025. The timeline allows for items that are easier to be replaced by reusable or alternative products to be phased out earlier than those that may be more challenging to replace.

The implementation of these phase outs and associated National Plastics Action Plan actions have the potential to impact waste services in Wellington as they are likely to change the types of products and materials that may be collected via council waste and recycling service

Appendix B Wellington City Council rubbish bag sales data



The table below shows the number of bags sold compared to budget YTD and previous years.

March	Monthly Actuals	Monthly Bud (Seasoning)	Variance	YTD Actuals	YTD Bud (Seasoning)	Variance	Variance %	Full Year Budget	YTD Actual 2022	YTD Actual 2021	YTD Actual 2020
No of Bags Sold	125,500	168,629	(43,129)	1,159,000	1,298,520	- 139,520	-11%	1,782,503	1,398,500	1,279,500	1,425,000
Bag Revenue	358,930	482,280	(123,350)	3,314,740	3,713,767	- 399,027	-11%	5,097,960	3,775,950	2,900,040	2,959,065

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Figure 6-1: Wellington City Council bag sales data²¹

²¹ Given there is an annual price increase for rubbish bags effective 1 July, sale volumes increase in June. E.g. the price per bag increased from \$3.29 to \$3.50 (6% increase).

Appendix C Cardiff County MUD planning controls

Houses of Multiple Occupation (HMO)

- 4.14 Additional consideration should be made for those properties being converted into HMOs. Bin provisions will be based on how many residents are in each unit (see Table 1).



- 4.15 Developers of high density, multiple occupancy dwellings or five or more flats must provide a dedicated refuse store or screened storage area for bins/bags. The bin store must be capable of housing the maximum number of containers required, based on an assessment of projected arising's.

Houses converted to flats

- 4.16 For houses being converted into flats, the preferred option is individual bin allocation. Each flat would be allocated:
- 140L wheeled bin or bags (equivalent to 140L) for general waste
 - 25L kerbside caddy for food waste
 - Green bags for recycling



4.17 There is also the option for communal bins which can be comprised of large 660L or 1100L bulk bins or smaller 240L wheeled bins. Table 2 shows the bin provision of smaller wheeled bins for converted flats, and Table 3 shows the potential provision for larger bulk bins.

Number of flats	Recycling	General	Garden	Food
3	n/a	1 x 240L and 1 x 140L	240L	1 x 25L
4	n/a	2 x 240L	240L	2 x 25L
5	n/a	3 x 240L	240L	2 x 25L
6	n/a	3 x 240L and 1 x 140L	240L	240L
7	n/a	4 x 240L	240L	240L
8	n/a	4 x 240L and 1 x 140L	240L	240L
9	n/a	5 x 240L	240L	240L

Table 2: Bin provision for houses converted to flats

Purpose built flats

4.18 Developers should allow a degree of flexibility with the storage of waste, particularly for purpose built flats, to accommodate possible future changes to the Council’s waste collection method.

4.19 For large developments of purpose built flats and apartments, refer to the waste storage requirements shown in Table 3. The calculations for recycling and general are based on an allocation of 140L per each flat, with the minimum number of bins.

Number of Flats (up to 3 Bedrooms)	Recycling (L)	General (L)	Garden* (L)	Food** (L)	Reuse/Bulky Storage
5	660	660	-	240	-
10	1100	1100	-	240	5m ²
15	2200	2200	-	240	5m ²
20	2200	2200	-	240	5m ²
25	3300	3300	-	480	5m ²
30	4400	4400	-	480	5m ²
35	4400	4400	-	480	5m ²
40	5500	5500	-	480	5m ²
45	6600	6600	-	720	10m ²
50	6600	6600	-	720	10m ²

Table 3: Waste and recycling storage capacities for larger developments

*Garden waste is not supplied under the assumption that the flats do not have individual gardens/amenity areas. If the proposed development has individual gardens, waste bins can be provided in 240L containers on request.

**Receptacles for food waste must be no larger than 240L wheeled containers, due to the weight and the resulting health and safety implications for collection operatives.

4.20 In the instance where the proposed flats are “cluster flats” (multiple bedrooms with multiple occupancy, and a shared kitchen) the storage requirements are based on the

number of bedrooms. See Table 4. These calculations were based the following expected waste volumes per week per bedroom:

- 60 litres of general waste
- 60 litres of recycled waste
- 7 litres of food waste

Number of Bedrooms	Recycling (L)	General (L)	Garden* (L)	Food** (L)	Reuse/Bulky Storage
10	1100	1100	-	240	5m ²
20	2200	2200	-	240	5m ²
30	2200	2200	-	240	5m ²
40	3300	3300	-	480	5m ²
50	3300	3300	-	480	5m ²
60	4400	4400	-	480	10m ²
70	4400	4400	-	480	10m ²
80	5500	5500	-	720	10m ²
90	5500	5500	-	720	10m ²
100	6600	6600	-	720	10m ²

Table 4: Waste and recycling storage capacities for large developments of studio or cluster flats

*Garden waste is not supplied under the assumption that the flats do not have individual gardens/amenity areas. If the proposed development has individual gardens, waste bins can be provided in 240L containers on request.

**Receptacles for food waste must be no larger than 240L, wheeled containers, due to the weight and the resulting health and safety implications for collection operatives.

4.21 The City of Cardiff Council currently operates a chargeable collection for large, bulky items from domestic properties. Due to statutory targets, under cover storage for the reuse/recycling of bulky waste items is now a compulsory element for purpose built flats. The proposed storage area should be a dedicated area, so that bulky items awaiting collection do not interfere with the collection of other bins.



High Rise

- 4.22 In high rise developments where it is not always convenient for residents to take waste to a single storage area, or a large enough waste storage area cannot be found, alternative arrangements need to be considered. The developer should contact Waste Management at the earliest opportunity before confirming alternative arrangements.
- 4.23 High rise buildings present a number of challenges for the designer in respect of waste management strategies and in this respect we recommend that the designer / developer

takes the opportunity to discuss the proposals at an early stage with the Waste Management Team, Development Control and Building Control.

Communal Storage

- 4.24 Options for communal storage areas include small storage areas on each floor (which can be collected by building maintenance staff), or a large communal storage in a ground floor/basement location that requires residents to take waste/recyclables to the ground floor/basement level. If containers are to be moved by a lift, the lift must be large enough to safely accommodate a container and a member of staff.
- 4.25 Where waste containers are to be taken to a collection point (other than the kerbside) by residents or staff, a method statement must be provided. The statement must describe the proposed method of transporting containers to the dedicated collection point, and the access and turning space for refuse collection vehicles.
- 4.26 If the full bin provision is unable to be accommodated in a communal bin store it is possible to pay for additional collections using a commercial waste contract. This will allow the development to have a smaller volume of storage, as the frequency of collection is increased. For more advice please contact Waste Management.

(Note: the free domestic collection service offered by the Council may not be compatible with other commercial waste contractors. The Council's commercial waste service is compatible and can therefore be used in conjunction with the domestic service.)

Composting

- 4.27 Consideration should be given to the provision of composting facilities in developments with gardens. Home composting should take place in all new dwellings where space is not restricted. Home composting bins can be purchased from The City of Cardiff Council by calling Connect to Cardiff on **029 20872087**.

Equality considerations

- 4.28 Equality of residents should be considered when designing waste storage and collection facilities on new residential developments. This is especially important in affordable housing, where houses should be designed to be able to function as "life-long homes".
- 4.29 Residents who are elderly or disabled, and are therefore unable to move waste from a bin store to the collection point (i.e. kerbside), are entitled to the Council's Assisted Lift service. This is an arrangement for the collection crews to collect waste from a more suitable area. In order to facilitate this service, developments should be designed with suitable space to store waste which is within 25m of the collection point and 10m of the dwelling.
- 4.30 For developments which feature a communal bin store with doors should make special considerations for residents with limited dexterity or strength. Thought should be given to suitable door handles and door weight.

Appendix D Options assessment supporting evidence

Cost

As defined in the agreed criteria, cost reflects the “affordability (High, Medium or Low Cost to user) of the solution based on capital and ongoing operational costs reflected in user charges or other funding arrangements.”

The cost to user has been employed as the metric for cost given that:

- Council data surrounding the total contract cost is largely confidential.
- Several variable costs exist within the overall contracts including education, transport to end market facilities, enforcement, containers etc., and these may not reflect the situation for Wellington City.

The costs per user as presented account for any revenue from the sale of recyclable materials or organic materials derived products (compost, biogas). They also reflect any Council overhead charges including direct service/contract management activity and general administration overhead.

Summary of kerbside collection charges

Where sufficient data is available we have provided the service cost reflecting current (2022/2023) pricing. Noting that these reflect the standard service cost charged via an annual targeted rate to eligible households.

Various factors influence overall cost including distance to processing or disposal facilities, disposal costs and collection route characteristics. When using these costs to develop indicative ranges for Wellington key considerations include:

- For all collections, Wellington’s topography and need for bespoke collections mean costs will be relatively high.
- For organic materials, costs are likely to be relatively high due to transport to processing and/or markets.
- For recyclables processing, costs are likely be similar to other areas. For rubbish, disposal and transport costs in Wellington are relatively low.



Table 6-3: 2022/23 Kerbside collection annual targeted rate

Council	Annual Targeted Rate (2022/2023)	Standard Service	Note
Western Bay of Plenty District Council	\$ 149.00* (\$251.70)	<ul style="list-style-type: none"> • PAYT 140L rubbish wheelie bin • Fortnightly 240L recycling wheelie bin • Fortnightly 45L glass only crate • Weekly 23L food only manually collected container 	*Plus \$3.95 per lift per 140L rubbish. Assuming one lift every two weeks the total cost of collection service would be \$251.70.
Timaru District Council	\$ 238.00	<ul style="list-style-type: none"> • Fortnightly 140L rubbish wheelie bin • Fortnightly 140L recycling wheelie bin • Fortnightly 80L glass only wheelie bin • Weekly 140L food and garden wheelie bin 	
Hamilton City Council	\$ 187.00	<ul style="list-style-type: none"> • Fortnightly 120L rubbish wheelie bin • Fortnightly 240L recycling wheelie bin • Fortnightly 45L glass only crate • Weekly 23L food only manually collected container 	
New Plymouth District Council	\$ 181.74	<ul style="list-style-type: none"> • Fortnightly 140L rubbish wheelie bin • Fortnightly 240L recycling wheelie bin • Fortnightly 45L glass only crate • Weekly 23L food only manually collected container 	
Christchurch City Council	\$ 189.50	<ul style="list-style-type: none"> • Fortnightly 140L rubbish wheelie bin • Fortnightly 240L recycling wheelie bin • Weekly 80L food and garden wheelie bin 	The targeted rate funds the recycling and organics collections only. rubbish is funded via the uniform annual general rate (charge not specified).
Rotorua Lakes Council	\$ 228.56	<ul style="list-style-type: none"> • Weekly 140L rubbish wheelie bin • Fortnightly 240L recycling wheelie bin • Fortnightly 40L glass only crate 	

Council	Annual Targeted Rate (2022/2023)	Standard Service	Note
Tauranga City Council	\$ 220.00	<ul style="list-style-type: none"> Fortnightly 140L rubbish wheelie bin Fortnightly 240L recycling wheelie bin Fortnightly 45L glass only crate Weekly 23L food only manually collected container 	
Auckland Council	\$ 313.00* (\$384.28)	<ul style="list-style-type: none"> Fortnightly 120L rubbish wheelie bin Fortnightly 120L recycling wheelie bin Weekly 23L food only manually collected container 	<p>*Based on new waste service charges for 2022, therefore does not include organics collection.</p> <p>Food scraps is funded via its own targeted rate of \$71.28 for a property therefore the total annual charge for kerbside waste collections is likely to be \$384.28</p> <p>Transport costs are significant in Auckland compared to Wellington.</p>
Dunedin City Council	\$ 270.00*	<ul style="list-style-type: none"> Fortnightly 140L rubbish wheelie bin Fortnightly 240L recycling wheelie bin Fortnightly 45L glass only crate Weekly 23L food only manually collected container OR 140L food and garden wheelie bin 	<p>*Proposed cost estimate for new service to be introduced in 2024. Current costs comprise a targeted rate (for a recycle bin and glass crate) of \$106 per serviced unit. Rubbish bags are \$3.60 (40L) or \$3.80 (65L) giving a weekly rubbish bag and recycle cost of about \$295.</p>
Waimakariri District Council	\$ 363.55	<ul style="list-style-type: none"> Fortnightly 140L rubbish wheelie bin Fortnightly 240L recycling wheelie bin Weekly 140L food and garden wheelie bin 	Very high disposal costs (\$350 vs \$220 per tonne)
Selwyn District Council	\$ 449.00	<ul style="list-style-type: none"> Weekly 80L rubbish wheelie bin Fortnightly 240L recycling wheelie bin Fortnightly 240L food and garden wheelie bin 	Very high disposal costs (\$350 vs \$220 per tonne)
Wellington City Council	NA	<ul style="list-style-type: none"> Weekly PAYT 50 L rubbish bag (\$3.50) Fortnightly 240L recycling wheelie bin Fortnightly 45L glass only crate 	The current costs for Dunedin provide an indicator of likely service cost (as a targeted rate) for a recycle bin and glass crate currently \$106 per serviced unit. Based on a weekly rubbish bag and recycle cost the annual cost is estimated at \$290.



Variations to standard kerbside collection charges

Some councils provide a variation to the capacity of the standard kerbside service for households. It is considered typical that an associated discounted or added cost is applied in line with any service change. This is considered particularly relevant for

households that are likely to generate larger volumes of waste including households with multiple generations or households with a number of tenants.

Table 6-4: Variations to standard kerbside collection charges

Council	Standard service	Variation to standard service	Cost of service
Rotorua Lakes Council	<ul style="list-style-type: none"> Weekly 140L rubbish wheelie bin Fortnightly 240L recycling wheelie bin Fortnightly 40L glass only crate 	Weekly 240L rubbish wheelie bin (↑ 71%) Fortnightly 240L recycling wheelie bin (↑ 0%) Fortnightly 40L glass only crate (0%)	\$364.81 (↑ 60%)
Selwyn District Council	<ul style="list-style-type: none"> Weekly 80L rubbish wheelie bin Fortnightly 240L recycling wheelie bin Fortnightly 240L food and garden wheelie bin 	Weekly 240L rubbish wheelie bin (↑ 200%) Fortnightly 240L recycling wheelie bin Fortnightly 240L food and garden wheelie bin	\$733.00 (↑ 63%)
Tauranga City Council	<ul style="list-style-type: none"> Fortnightly 140L rubbish wheelie bin Fortnightly 240L recycling wheelie bin 	Fortnightly 80L rubbish wheelie bin (↓ 43%) Fortnightly 140L recycling wheelie bin (↓ 42%)	\$190.00 (↓ 14%)
		Fortnightly 240L rubbish wheelie bin (↑ 71%) Fortnightly 240L recycling wheelie bin (0%)	\$320.00 (↑ 46%)

Note: Bracketed information indicates relative change from standard service

Costs for individual service elements

The costs of individual service elements have been employed to model a cost estimate for a new kerbside collection in Wellington City. Noting that in some cases the charge for an additional service has been used given that a breakdown of the standard service was not available. It should be

recognized that the cost per element provides a small sample of data. Given this, it should be interpreted as providing an indicative range for costs, and not a likely charge to be applied for Wellington City.

For multi-unit developments the cost can vary widely. Key factors including the number of

containers, target materials, access and service frequency. A key principle in setting charges for serviced properties may be to spread costs evenly across all properties. This will require some modelling of service types and costs across multi-unit developments if they are to be included in the service.

Table 6-5: 2022/23 Kerbside collection cost per element (per rated unit)

Council	Rubbish service and cost	Recycling service and cost	Organics service and cost	Breakdown / additional charge
Waimakiri District Council	Fortnightly 140L rubbish	Fortnightly 240L recycling	140L food and garden	Breakdown
	\$138.27	\$108.00	\$117.00	
Tauranga City Council	Fortnightly 140L rubbish	Fortnightly 240L recycling and 45L glass only	Weekly 23L food only	Breakdown
	\$140.00	\$90.00	\$72.90	
Auckland Council	Fortnightly 120L rubbish	Fortnightly 240L recycling	23L food only	Breakdown
	\$187.00	\$127.00	\$71.28	
Timaru District Council	Fortnightly 140L rubbish	Fortnightly 140L recycling wheelie bin and 80L glass only	Weekly 140L food and garden	Additional service charge. This means that the overhead cost of the services is covered in the base service.
	\$85.00	\$88.00	\$69.00	



Figure 6.2 illustrates the derived cost range for each service element. There are multiple factors that impact on the cost for a specific scenario when the pricing structure was established, transport (including allowance for congestion), disposal or processing costs and revenue from product.

The broader ranges for rubbish and recycling reflect the variation in costs (related to varying facilities and distance to the facility).

The smaller ranges for glass may reflect limited markets (predominantly Visy in Auckland with some materials processed as Fine glass pieces).

Food is a relatively new stream with pricing appearing consistent across recent new services. Food and garden waste is more established with the range likely to reflect the variation in transport distance to processing facilities.

The minimum, average and maximum charges for each service element respectively were combined to illustrate high, medium and low charges for each proposed option. This has provided the basis for the assessment of cost in the MCA analysis. The ranges are summarised in Figure 6.3.

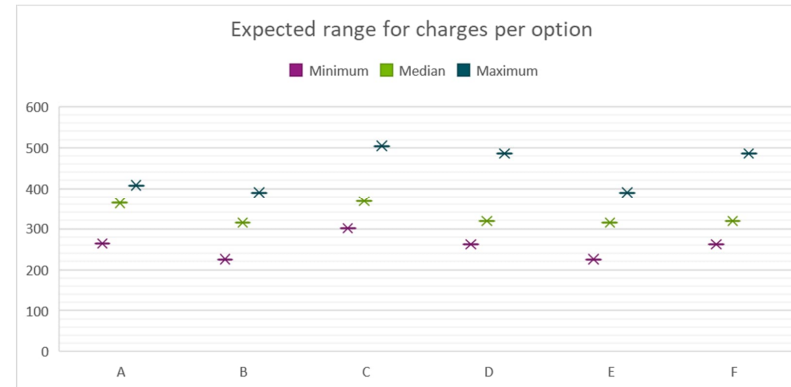


Figure 6-2 Indicative charges per option

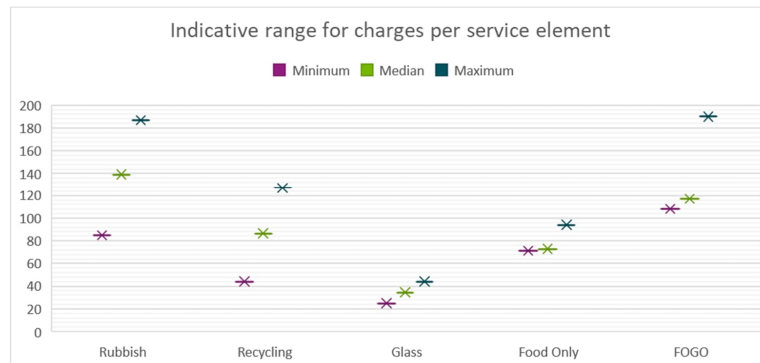


Figure 6-3: Cost per service element

Table 6-6: 2022/23 Kerbside collection targeted rate examples per element (where available)

Example	Configuration	Cost (Annual)	Rubbish	Recycling	Glass	Food Only	FOGO
Waimakiri	FR FRE WFOGO	\$ 363.55	\$ 138.27	\$ 108.00			\$ 117.00
Western Bay of Plenty	WR WRE WGO WFO	\$ 149.00					
Hamilton	FR FRE FGLO WFO	\$ 187.00					
New Plymouth	FR FRE FGLO WFO	\$ 181.74					
Christchurch	FR FRE WFOGO	\$ 196.45					
Rotorua	WR FRE FGLO	\$ 205.00				\$ 94.00	
Tauranga	FR FRE FGLO WFO	\$ 235.00	\$ 140.00	\$ 65.00	\$ 26.00 ²²	\$ 72.90	
Dunedin	FR FRE FGLO WFO	\$ 270.00					
Dunedin	FR FRE FGLO WFOGO	\$ 310.00					
Auckland	FR FRE WFO	\$ 313.00	\$ 187.00	\$ 127.00		\$ 71.28	
Selwyn	WR FRE WFOGO	\$ 449.00					\$ 190.00
Timaru	FR FRE FGLO WFOGO	\$ 238.00	\$ 115.00	\$ 60.00	\$ 60.00 ²³		\$ 108.00
Min			\$ 85	\$ 44	\$ 25	\$ 71	\$ 108
Median			\$ 139	\$ 87	\$ 35	\$ 73	\$ 117
Max			\$ 187	\$ 127	\$ 44	\$ 94	\$ 190

Notes: FR = Fortnightly Refuse, FRE = Fortnightly Recycling, WFOGO = weekly FOGO, WR = weekly refuse, WGO = weekly garden organics, WFO = weekly food organics, FGLO = fortnightly glass out.

²² 45L glass crate

²³ 80 L glass wheeled bin



Evaluation

The following assumptions regarding costs have influenced the development of cost ranges:

- Food only collections tend to have a lower cost to user than food and garden.

- Any variation to the capacity of the standard kerbside collection will have an associated cost impact.
- Costs vary between options for recycling and organics collections.

Drawing on the information presented above, indicative cost ranges for the shortlisted options

are presented in Table 6-7. These ranges are based on 2022/23 costs across New Zealand and provide a credible range. Subject to detailed service design and procurement, the costs are unlikely to be lower than the lower end of each range and the upper end provides a reasonable budget figure per household.

Table 6-7: 2022/23 Kerbside collection cost estimates (per rated unit)

Shortlisted option	Service	Data points	Adopted range per household
A	120 L rubbish + 240L recycle + 23 L food only	Auckland \$384 (rubbish transport is high)	\$300 - \$350
B	120L rubbish + 240L recycle + 80L glass + 23 L food only	Timaru additional services = rubbish 85+ recycle 88 with Auckland food 70 = \$240 – 250. Timaru figures excluded overhead costs.	\$250 - \$300
C	120L rubbish + 240L recycle + 80 L food and garden	Christchurch \$190 + rubbish Waimakariri = \$363 Selwyn (weekly rubbish, 240L FOGO) = \$449 Timaru rubbish 85 + Auckland recycle 127 + Timaru FOGO 70 = \$285	\$250 - \$350
D	120L rubbish + 240L recycle + 80L glass + 80L food and garden	Timaru \$176 additional services cost (own MRF and composting)	\$200 - \$250
E	120L rubbish + 240L recycle + 45L glass + 23 L food only	Hamilton \$187 (low disposal costs) New Plymouth \$182 (low disposal costs) Dunedin \$270 (2024) Tauranga \$220 Western Bay of Plenty \$250	\$200 - \$270
F	120L rubbish + 240L recycle + 45L glass + 80 L food and garden	Timaru 85 + Tauranga 90 + Timaru 70 = \$245 i.e. Timaru + Tauranga + Waimakiri = \$292	\$250 - \$300

Health and Safety

Health and safety of each option has been evaluated based on the level of automation versus manual handling and associated health and safety risks regarding trucks, runners, and the general public.

The level of automation versus manual handling has been used as the metric for health and safety given that:

- The collection methodology is a key determinant of outcomes.
- The collection methodology impacts on both operators and the public and should not be understated, with 10 fatalities recorded as a direct result of kerbside collections in 2001 - 2015²⁴.

Manual and automated handling

The container used for collection is a key determining factor for health and safety outcomes. This is given that the container type typically determines the collection methodology.

Kerbside waste collections are delivered via two methods; manual or automated handling.

Manual handling: any activity requiring a person to interact with their environment and use any part of

their muscles or skeletal system to lift, lower, push, pull, carry, throw, move, restrain or hold any animate, or inanimate, object²⁵

Examples of manual handling for kerbside collections include collection of a food only container to be emptied into a vehicle, collection of a glass only crate that is emptied into colour sorted sections of a side loader vehicle.

Automated handling: the use of a hydraulic system to collect a container which is then emptied into the hopper and returned to its original position safely. Once the container is released, the vehicle moves along the kerbside to the next one.

Examples of automated handling for kerbside collections include the collection of a wheelie bin using a hydraulic arm emptied into a side loader vehicle, collection of a large skip bin using a front load vehicle.

Manual handling is a hazard within the waste sector that is required to be effectively managed. This is evidenced by bag based collections causing 381 injuries per 1,000,000 hours compared to 41 injuries per 1,000,000 hours worked for automated bin based collections²⁶. Non automated bin based collections had 251 injuries per 1,000,000 hours worked (a 30% reduction from bag based collections).

Evaluation

In evaluating the health and safety outcomes of options, three distinct interactions with any kerbside collection methodology have been considered. These being:

- Households storing and manoeuvring bins on property and to the kerbside
- Collection vehicle operators and runners collecting containers
- Foot and vehicle traffic manoeuvring around vehicles and containers

The health and safety risks for different containers in the three identified interactions are summarised in Table 6-8.

In evaluating options we have assumed:

- Use of 23L bins, bags or crates will mean runners are a necessity.
- Manual handling methodologies increase health and safety risks.
- Smaller bins/crates may create tripping hazards on narrow footpaths.

a fair representation of injuries caused by different collection methods.

²⁴ Worksafe, 2015. Cited in Rubbish truck crash 11th fatal in industry since 2001, New Zealand Herald, 2015

²⁵ The code of practice for manual handling, WorkSafe, 2011

²⁶ Noting that this information is derived from the 2008 report Solid Waste and Recoverable Resources Industry Injury Causation. While the information is not recent, it is considered



Table 6-8: Potential hazards for different container types

Interaction	Bags	Manually Collected Container (e.g. glass only crate or food waste container)	Wheelie Bin (assuming automated lifting)
Households storing and manoeuvring bins on property and to the kerbside	<ul style="list-style-type: none"> • Heavy bags may break when transported to the kerbside, exposing waste materials including sharps that may injure people. • Bags are more likely to attract vermin and insects when compared to a wheelie bin. 	<ul style="list-style-type: none"> • When incorrectly lifted, heavy glass crates or food waste containers may cause strain injuries. 	<ul style="list-style-type: none"> • Large wheelie bins (e.g. 240L) contain a significant volume of material that may be heavy and difficult to manoeuvre . • Unsafe to manoeuvre up or down stairs and steep terrain
Collection vehicle operators and runners collecting containers	<ul style="list-style-type: none"> • Repetitive lifting of bags presents ergonomic risks including strain injuries • Repeatedly entering and exiting the collection vehicle exposes runners to risks including traffic and tripping • Runners²⁷ are required to work in adverse conditions including temperature or weather extremes • Exposure to sharps, medical wastes, hazardous wastes and human biological wastes • Pressure on operators to increase the speed of collection activities potentially • increases the level of risk to which runners are exposed, and may encourage short cuts and unsafe practices 	<ul style="list-style-type: none"> • Repetitive lifting of bins presents ergonomic risks including strain injuries • Repeatedly entering and exiting the collection vehicle exposes runners to risks including traffic and tripping • Runners are required to work in adverse conditions including temperature or weather extremes • Pressure on operators to increase the speed of collection activities potentially increases the level of risk to which runners are exposed, and may encourage short cuts and unsafe practices 	<ul style="list-style-type: none"> • Driver operators risk being struck by other road users including vehicles, cyclists, or the collection vehicle • Hazards associated with road works and other infrastructure maintenance activities on a collection route. • Bins may contain a variety of flammable, corrosive, or explosive waste such as hot ash, LPG cylinders, car batteries, used oil and other chemicals.

²⁷ Runners refers to any worker involved in kerbside collections that is required to exit the vehicle for the purpose of collecting bins and/or bags.

Interaction	Bags	Manually Collected Container (e.g. glass only crate or food waste container)	Wheelie Bin (assuming automated lifting)
Foot and vehicle traffic manoeuvring around collection vehicles and containers	<ul style="list-style-type: none"> Bags that have not been closed properly may present exposed waste, presenting a health risk to the public and animals Bags that are very light e.g. those containing recyclable materials may be picked up in high winds 	<ul style="list-style-type: none"> Before and after being emptied crates and food waste containers may not be obvious to the public, creating a tripping hazard Drivers may not see small containers when driving, entering driveways or parking, causing vehicle damage In high winds containers may litter the road, creating a hazard that drivers will need to manoeuvre. 	<ul style="list-style-type: none"> Wheelie bins left on the kerb may obstruct the use of the footpath for people using mobility scooters, prams etc.

Note: Potential hazards have been sourced from Health and Safety Guidelines: for the Solid Waste and Resource Recovery Sector – parts one, two, three, four and five (WasteMINZ, 2022)

Accessibility

Accessibility has been evaluated based on how "attractive and accessible" the service is considered to be. Accessibility has been considered as a function of manoeuvrability, convenience and the overall ability of households to participate in the service given that:

- Manoeuvrability of the receptacle determines whether people will be able to present any container at the kerbside without assistance
- Convenience/flexibility of the service will determine the participation rate of the service which can be equated to how 'attractive' the service is.

In assessing the accessibility of individual options, consideration has been given to the manoeuvrability of bins for the user. Bin weight, storage, mobility and presentation have been considered. Noting that there is considerable cross over between accessibility and health and safety in terms of manoeuvrability.

Bin weight

Wellington City Council's Solid Waste Management and Minimisation Bylaw 2020 enables development of controls that would set limits for bin weights. No controls have been developed to date. Controls made under the Auckland Council Waste

Management and Minimisation Bylaw 2019 outline weight limits for receptacles collected from a public space:

Glass material can be particularly heavy which impacts the weight, and therefore manoeuvrability, of bins. Similarly, food scraps can be heavy due to the high-water content. Limiting the volume (and therefore weight) by providing smaller bins or having specific weight thresholds for these materials will aid in bin manoeuvrability.

Mobility

Consideration of the impact of the different option on householders ability to store and manoeuvre

bins on their property and to the kerbside is included in the safety overview above.

Manual handling and moving of smaller receptacles may be an issue for some members of the community. Wellington City Council, like many councils, offer a back door or assisted service to customers who qualify. In WCC this is currently provided to approximately 80 households who are individually assessed.

For some with mobility restrictions, the ability to wheel a bin will be easier to manoeuvre than the need to lift and carry smaller receptacles.

Standards for containers

(1) The following weight requirements apply for the collection of domestic and commercial waste from a public place:

Type	Capacity	Maximum weight
Bins	1l - 80l bin	<20kg
	81l - 120l bin	<30kg
Bags	121l - 140l bin	<35kg
	140l - 240l bin	<60kg
	241l - 360l bin	<90kg
	1l - 80 litre bag	<10 kg

Figure 6-4 Auckland Council weight requirements

²⁸ Niu R, Woodbridge A, Smith B, Ruff S and Lawson R. 2013. Mobile garbage bins and hand injuries in older people. Medical Journal Australia.

However, bin design should be considered in order to mitigate unintended injury. For example, research into hand injuries in older people in 2013 concluded that *'Older patients are at risk of significant injuries to the dorsal side of their fingers when manoeuvring mobile garbage bins'*²⁸. The research recommended a number of simple measures that could be undertaken to avoid these issues, including:

- Using smaller bins (the study primarily considered injuries with 240L bins)
- Reducing loading
- Providing an assisted bin collection.
- Simple bin handle design modifications

Storage and presentation

The steep terrain, narrow roads and limited direct kerbside access for some properties is a challenge for servicing parts of Wellington. For some properties receptacles that can be more easily carried (such as bags or crates) would be more suitable, whereas for other properties the ability to wheel a bin to the kerb will be preferable.

Of the approximately 60,000 suburban households currently serviced by Wellington City Council, approximately 40,000 of these, or 67%, currently use a bin service. The remaining 20,000 households (33%) use a bag service, however it is understood from anecdotal evidence that many of these households are likely to be able to accommodate and use a bin service.

Frequency and container size

It has been noted that several councils offer variations to the standard kerbside collection service, typically in regard to container size. Providing this type of flexibility means that high-waste generating households are not financially disadvantaged because they are paying a targeted

rate for a service that does not fit their needs, in addition to a private waste collection service. This is of particular significance for multi-generational households, households producing large volumes of medical or sanitary waste, who may be predisposed to financial hardship.

The frequency of collections has been noted as impacting upon accessibility given the potential impact of missed collections. Noting that if a four-weekly collection for any material were to be missed, the household will be required to either stockpile waste for a total of 8 weeks between the collections, or they will need to transport materials elsewhere, potentially at a cost depending on the material type.

Evaluation

The following assumptions regarding accessibility have influenced evaluation of options:

- Larger bins present challenges when moving or storing bins.
- Smaller bins, bags or crates may present lifting challenges for some.
- Smaller wheelie bins are generally more universally manoeuvrable than larger wheelie bins or bins/crates/bags that need to be carried.
- Larger bin capacity will create weight concerns for some material streams.

- Less frequent collections limit flexibility and may present challenges to high-waste generating households.



Circular Economy

Circular Economy has been evaluated based on the level of confidence (High, Medium or Low market risk) in markets for the output(s) from the solution.

Contamination and markets have been considered as delivering upon circularly economy outcomes given that:

- Significant volumes of contamination may limit processing opportunities and devalue material that is collected.
- The availability of markets will determine the portion of collected material that is reprocessed.

Alignment with strategic priorities and impact on diversion have also been considered.

Contamination

The Recommendations for standardisation of kerbside collections research undertaken by WasteMINZ in 2020²⁹ outlines that current recycling contamination rates among the territorial authorities across Aotearoa NZ (that record this data) ranges from under 1% up to 40%.

The research included analysis of recycling systems. In regard to contamination, source-separated collection methodologies were

²⁹ WasteMINZ. 2020. Recommendations for standardisation of kerbside collections in Aotearoa.

identified as producing clean easily sale-able material while comingled systems (which is defined as a glass in systems) results in high contamination rates which are difficult to manage. The literature review portion of the report states:

"The literature reviewed unequivocally demonstrates that comingled recycling systems produce the highest levels of contamination, compared to two / multi-stream systems, source separated or kerbside sorting."

Appendix 3
Descriptive analysis of contamination rates for each county

County Index	Recycling System	Number of Samples	Mean	Standard Deviation	Max	Min
County 1	comingled recycling	45	16.55	7.02	30.65	6.53
County 2	comingled recycling	33	19.00	6.74	42.20	6.70
County 3	comingled recycling	24	25.22	8.11	42.50	13.00
County 4	comingled recycling	23	22.33	7.75	34.50	7.50
County 5	source separated recycling	21	4.42	3.17	12.50	1.20
County 6	comingled recycling	16	11.96	5.24	23.20	4.20
County 7	comingled recycling	16	13.46	6.11	25.20	3.70
County 8	source separated recycling	14	2.52	2.13	7.00	0.57
County 9	source separated recycling	5	3.51	2.51	7.20	1.50
County 10	comingled recycling	5	5.95	4.95	14.22	1.76
County 11	comingled recycling	3	15.05	7.71	22.99	7.59
County 12	source separated recycling	2	7.55	6.41	13.50	1.60
County 13	comingled recycling	2	14.77	1.00	15.45	14.06
County 14	comingled recycling	1	22.56	NA	22.56	22.56
County 15	comingled recycling	1	7.70	NA	7.70	7.70
County 16	comingled recycling	1	7.56	NA	7.56	7.56

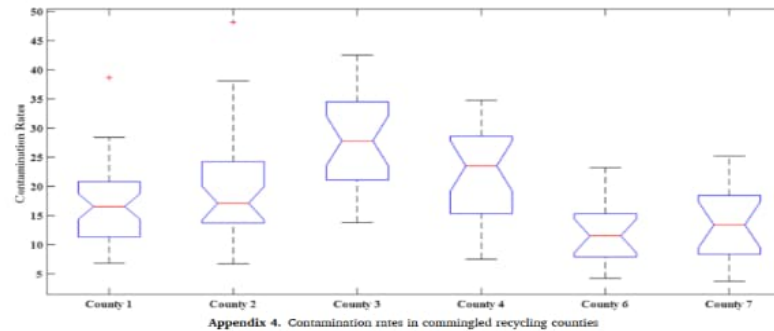


Figure 6-5 Recycling systems and corresponding contamination rates

In support of the WasteMINZ 2020 report, an American recycling systems contamination study published in 2023 considered the impact of collection methodology (commingled or source-separated) on the rate of contamination. The study included 15 counties, and analysed contamination rates for each, Figure 6-5 Recycling systems and corresponding contamination rates

The study found that “source separated recycling systems have lower contamination rates than commingled recycling systems. The lowest contaminants are found in counties [with] source separated recycling, and the highest are found in counties [with] commingled recycling with more than 20 percent contamination”³⁰.

Guidance to local authorities from WRAP UK in 2009 stated that “...kerbside sort systems which allow contamination to be filtered out at the point of collection gives the most reliable stream of quality materials.”³¹

Markets

Collection methodology directly impacts the quality of recycling produced, and therefore influences

³⁰ T. Runsewe, H. Damgacioglu, L. Perez, and N. Celik. 2023. Machine learning models for estimating contamination across different curbside collection strategies. Journal of Environmental Management.

³¹ WRAP UK. 2009. Choosing the Right Recycling Collection System

market availability. Recommendation number 3 in the WasteMINZ 2020 report on standardising kerbside collections recommended that Government

“Incentivise local authorities to collect glass separately to other recyclable materials to improve the quality of all materials accepted in kerbside recycling”³².

The impact and availability of markets for glass and paper and cardboard materials is of particular concern. The Aotearoa New Zealand waste industry regularly raises the issue of glass contamination, with qualitative feedback including³³:

- Glass collected in wheelie bins results in lower quality glass as glass broken during the collection and transport process can no longer be easily colour sorted.
- Removing glass from comingled collections ensures better quality paper and cardboard, and to a lesser degree, also improves the quality of plastic and metal.

International studies support these concerns and recommendations, with one study on the quality of

³² WasteMINZ. 2020. Recommendations for standardisation of kerbside collections in Aotearoa.

³³ WasteMINZ. 2020. Recommendations for standardisation of kerbside collections in Aotearoa

paper and cardboard from UK collection systems finding “.... the quality of recovered paper from comingled systems is very far from the quality obtained with selective systems: the unusable material content varies from 1% to 29% (11.9% on average) compared to less than 1%”³⁴.

End paper and cardboard markets are a particular concern for Aotearoa NZ as our onshore reprocessing capabilities are limited. The recent Waste and Resource Recovery Infrastructure and Services Stocktake produced for the Ministry for the Environment (MFE), highlights that:

“It is important to note that no domestic re-processors will accept fibre material that has been collected as part of a fully comingled collection”³⁵

International markets for paper and cardboard do exist and are being accessed by some other councils across Aotearoa NZ however quality does impact market availability and reliability as the MFE stocktake outlines:

“While currently the market supply and demand is favourable for sellers of recovered fibre, it is

³⁴ Ruben Miranda, M. Concepcion Monte, Angeles Blanco. 2013. Analysis of the quality of the recovered paper from comingled collection systems.

³⁵ Eunomia. 2023. Waste and Resource Recovery Infrastructure and Services Stocktake. Ministry for the Environment.

*not known how long this situation will last. Mixed paper is the least preferred feedstock, with mixed paper from a fully commingled collection the least preferred subcategory*³⁶

The market situation for glass is similar, however international markets do not tend to be an option for glass material due transportation complexities, including weight. The interim regulatory impact statement produced by MfE for the kerbside standardisation work concludes that:

*“With limited furnace capacity, lower quality glass is less likely to be transported to Auckland to be made back into bottles. Instead, it may be stockpiled, landfilled, or crushed into aggregate or filter material, which are less circular and less desirable uses.”*³⁷

Strategic Priorities

Council’s zero-waste strategy, adopted in 2023, sets the blueprint for intergenerational sustainability in Wellington City. Of note to this project are the targets to:

- Reduce kerbside waste per capita by 40% by 2030
- Reduce total waste to landfill by 50% by 2030

³⁶ Eunomia. 2023. Waste and Resource Recovery Infrastructure and Services Stocktake. Ministry for the Environment.

- Divert 50-70% of organic waste from landfill by 2030

In addition to the zero-waste strategy, the Wellington Region Waste Management and Minimisation Plan 2017-2023 (WRWMMP 2017-2023) is currently being reviewed. The WRWMMP will have a new regional vision, which is agreed across the region, and will include regional targets and actions. The Priority Actions included within the draft Zero Waste Strategy, will form the basis for the WCC Local Action Plan.

Evaluation

The following assumptions regarding circular economy have influenced evaluation of options:

- Commingled collection methodologies will result in higher contamination rates than any source-separated collection methodologies.
- Source-separated collection methodologies will result in a higher quality recycle.
- Higher quality recycling will improve end market availability.
- Wellington City Councils Zero Waste Strategy prioritises waste minimisation and circular outcomes.

³⁷ Ministry for the Environment. 2022. Interim regulatory impact statement: Improving household and business recycling. Wellington: Ministry for the Environment

Diversion

Diversion considers the amount of new diversion of material that is currently disposed of in landfill. The amount of new diversion has been employed as the metric for diversion given that the existing service does deliver on some diversion from landfill. Therefore, to build any case to shift from the status quo, the preferred option must provide new diversion that is beyond what the status quo is capable of.

Baseline data

Waste composition survey work completed in Wellington in 2018 provides an indicator of available materials from refuse placed in bags and various bins (private collections) (Table 6-9).

Diversion will be based upon the ability of an option to capture this material.

Table 6-9: Available materials (kerbside)

Waste Type	Material landfilled and diverted (t/yr)	Capture rate (for recycling) (%)
Paper	6,600	60%
Plastics #1,2,5	1,100	75%
Steel Cans	1,000	37%
Alum Cans	600	29%
Glass	5,950	83%
Food Waste	10,900	0%
Green Waste	7,550	0%
Residual	9,300	0%
Overall	43,000	24%

Case Studies

In defining what ‘good diversion’ looks like, the diversion rates of four other Councils serve as examples. For the purposes of this assessment the diversion achieved by any kerbside collection is derived from contractor data recording the tonnage of material sent to landfill relative to that which is recycled, composted or otherwise processed for recovery.

³⁸ Christchurch City Council Waste Assessment, 2019

The derived diversion rates account for diversion achieved as a result of the Council kerbside collection only.

Table 6-10 Example Diversion rates

Council	Rubbish (t)	Organics (t)	Recycling (t)	Derived diversion rate
Christchurch (FOGO)	43,000	51,000 (39%)	36,000 (28%)	67% ³⁸
Timaru (FOGO)	8,320	11,300 (46%)	4,900 (20%)	66% ³⁹
New Plymouth (FO)	7,800	1,500 (10%)	5,300 (36%)	46% ⁴⁰
South Taranaki (GO)	3,500	1,600 (25%)	1,300 (20%)	45% ⁴¹
Wellington	30,325	-	9,175	23%

Note: Both Christchurch and Timaru City Councils provide a food and garden collection, New Plymouth District provide a food only collection and South Taranaki District Council provide an opt-in garden waste only collection.

The figures presented in Table 6-10 illustrate the range of diversion that may be achieved. Of note is the higher diversion rates achieved with services targeting food and garden materials (Christchurch and Timaru). These high numbers suggest very a high capture rate for the target materials, supported by fortnightly rubbish collection.

Also of note is the apparent higher capture rate for recycling services with larger bins (240 L bins for

³⁹ Timaru District Council Waste Assessment, 2017 (using 2015/16 tonnages)

Christchurch and New Plymouth) compared to similar services using 140L bins in Timaru, South Taranaki and Wellington.

Calculating new diversion

The ability of each option to capture recoverable material currently being landfilled has been derived as a function of:

Participation: The percentage of people who will regularly present a bin for collection. We have assumed 85% of households use the recycling system.

Recognition: The percentage of material that will be placed in the correct bin for collection by those using the system.

The recognition rate combined with participation rate gives the Capture Rate (% of target material available from all households placed in the appropriate container).

For a new service, it will take some time to achieve the anticipated participation and recognition rates. For existing service (for example recycling) we have assumed an improvement in recognition rates as a result of ongoing education and enforcement.

Considering target diversion, it is reasonable to assume that the assumed capture rates (participation multiplied by recognition) are achieved at the end of the first year of the service.

⁴⁰ Taranaki Waste Assessment, 2023 using 2021/22 tonnages)

⁴¹ Taranaki Waste Assessment, 2023 using 2021/22 tonnages)



Table 6-11: New capture rates for material from proposed service elements

Collection Type	Participation	Recognition	Capture
Comingle recycling	85%	85%*	75%
Comingle recycling excluding glass*****	79%**	85%*	75%
Glass only wheelie bin	85%	95%*	85%
Glass only crate*****	90%	95%*	85%
Manually collected food only container	42%***	60%	25%
Food and green wheelie bin	58%****	60%	35%

Note: No asterisks indicates that this number has been derived or is taken to be generally reflective, but not verified by literature.

*Behaviours, attitudes and awareness around recycling, WRAP, 2022

**Machine learning models for estimating contamination across different curbside collection strategies, Runsewe et. Al, 2023

***Research into barriers to use of food scraps collections, Yates, S., 2023

****Performance analysis of mixed food and garden waste collection schemes, WRAP, 2021

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***** The increase in capture from service components currently employed by WCC attributed education and enforcement taking place in the roll-out of a new service.

These capture rates are applied to each option to derive the potential diversion (% and t) from each option. This is the tonnage of material sent to landfill relative to that which is recycled, composted or otherwise processed for recovery). This is summarised as follows:

Table 6-12: Modelled diversion rate for options

Option	Modelled diversion rate % (t/year)
	25% or 35% organic materials
SQ	10,300 t
A	14,200 t
B	14,800 t
C	17,900 t
D	18,500 t
E	14,800 t
F	18,500 t

The modelled rates are lower than those reported by similar services in place across New Zealand.

We have used published data to model system performance but the benchmark data suggests that there is potential to achieve substantially higher diversion rates for organic materials. This means the capture rates for organic materials can be considered a lower bound estimate higher rates (50% capture) recommended when considering collection and processing capacity requirements.

A key factor in achieving higher diversion rates will be ongoing education alongside targeted enforcement. This requires budget provision as part of the service cost, recognising this activity as a core part of service delivery.

Induced waste

In some cases collections target materials that may not be currently entering the collection system. The common example cited is green waste (that may be managed on property).

This means that there is a risk that a new service targeting green waste (such as a food and garden waste collection) may attract new materials into the collection system. This is termed induced waste and is an undesirable outcome in terms of waste minimisation.

One way to avoid this is to focus on materials that are currently being disposed of via the refuse collection. For most households this includes food waste, a small amount of green waste and some recyclable materials. Providing capacity (a combination of container size and collection frequency) that reflects typical generation of target materials will help to avoid attracting additional materials.

For the options considered in the report, examples of this approach include the 23L container for food waste and 80L bin for food and garden waste.

Greenhouse gas emissions

Where an option involves the removal of organic materials from the refuse bag or bin, the emissions reductions will be dominated by avoided landfill gas emissions. This means that options will be evaluated as better or best based on the anticipated capture of organic materials for processing. Because we have not determined the processing of these materials we have provided an indicative range of avoided emissions considering anaerobic digestion or composting of organic materials.

Emissions from food waste

Emissions savings from food waste collection are estimated as follows:

- The assumed capturing of food waste currently being landfilled is 2,735 t (25%⁴² of food waste from households landfilled in 2023)
- Accounting for emissions from processing
- CO₂e savings per year are projected to be between 1,100-1,600 t/year⁴³.

Emissions from food and garden waste

Emissions savings from food waste collection are estimated as follows:

⁴² Capture of food waste has been derived based on 42% participation and 60% recognition.

⁴³ The range of CO₂e savings is based on the processing of organic materials being undecided. Therefore, an estimate for

- The assumed capturing of food waste currently being landfilled is 6,470 t (35%⁴⁴ of food and garden waste from households landfilled in 2023)
- Accounting for emissions from processing
- CO₂e savings per year are projected to be between 2,000-3,000 t/year.

These calculations are underpinned by the following assumptions:

- Composting of food or food and garden waste will emit 0.172 kg CO₂e per kg of waste.
- Anaerobic digestion of food or food and garden waste will emit 0.02 kg CO₂e per kg of waste.
- 25% of food waste from households currently going to landfill will be diverted by any food only collection (2,735 t in 2023).
- 35% of food and garden waste will be captured by any food and garden collection (6,470 t in 2023).

Transport emissions

Transport emissions have not been calculated given that the collection methodology will determine available end markets, and therefore the transport requirements for materials. However, generally it can be noted that options that collect glass

emissions from composting and emissions from digestion has been used.

⁴⁴ Capture of food and garden waste has been derived based on 58% participation and 60% recognition.

separately will generate more emissions based on the need for an additional collection vehicle and the associated embodied and operational emissions resulting from this.

Diversion from CBD multi-unit developments

We have used 2018 census data and Sense Partners work on housing demand to estimate current households in the Wellington CBD. This suggests there are around 7,230 households in the Wellington CBD.

For the analysis we have assumed the same capture of recyclable materials (23%) as single unit dwellings.

Using waste generation rates from single unit dwellings across Wellington City, removing green waste from the composition provides an indicator of 'available' organic materials. This means that food waste makes up a greater proportion of residual waste from multi unit households.

Adopting the same modelling assumptions (25% capture, same per household waste generation) as those used for single unit dwellings provides an indicator of potential diversion of material from multi-unit developments in the CBD.

Table 6-13: Modelled diversion rates

Option	Modelled diversion rate % (t per year)	
	25 % food capture	50% food capture
Status Quo (recycle, rubbish)	23% (1,000 t)	23% (1,000 t)
Council service (food, recycle, rubbish)	35% (1,550 t)	44% (1,900 t)

should be adopted when considering collection and processing system capacity.

The lower end diversion compared to the standard service options reflects the food only organic materials collection. Targeted waste composition survey work would enable education and communications material to focus on materials available from CBD apartment households.

While the removal of green waste from the modelled waste composition reflects the absence of that material, there is not sufficient data to adjust the proportion of other components. Waste composition surveys may show there are larger proportions of recyclable materials (paper, plastics, cans) or kitchen scraps.

As for the diversion analysis for single unit dwellings the assumptions adopted are supported by the literature but benchmarking with services in place across New Zealand suggests there is opportunity to significantly exceed the modelled 25% diversion. The 50% food waste capture provides an indicator of potential capture based on some reported capture rates across New Zealand. This figure

Appendix E Options MCA Scoring

Rubbish collection options – evaluation comments

Option					Evaluation comments					
Container	Frequency	Category	Sub-Category	Capacity	Cost	Circular Economy	Accessibility	Safety/Handling	Diversion	Emissions
Bag	Weekly	Rubbish	Rubbish	50	Similar - Status quo. There is no change to the container or frequency, therefore cost of service is not expected to materially change.	N/A	Similar - Status quo. PAVT provides flexibility but only if people proactively purchase bags. Bags present lifting challenges to those with limited mobility.	Similar - Status quo. Presents high H&S risk due to manual handling, but does leave the footpath clear after servicing.	Similar - Status Quo	Similar - Status quo. The maximum collection frequency means that we would expect maximum emissions from trucks.
MGB	Weekly	Rubbish	Rubbish	80	Similar - There is no change to the frequency of collection, therefore the ongoing cost of service is not expected to materially change. The change in container will incur a one-off cost.	N/A	Better - A smaller MGB may work better among steep topography and provide ease of movement to those with limited mobility. The weekly service provides flexibility and minimises the consequences of a missed collection.	Better - Decreased manual handling when compared to bags, but still likely to require a runner for difficult to access streets. Footpath will remain 'cluttered' after the service.	Similar - Increased capacity at same frequency as status quo.	Similar - Status quo frequency. Given the maximum collection frequency means that we would expect maximum emissions from trucks. The volume of material is capped.
MGB	Fortnightly	Rubbish	Rubbish	120	Better - The decreased frequency of the collection is likely to decrease the ongoing cost of the service. The change in container will incur a one-off cost.	N/A	Similar - A larger bin provides equivalent capacity to bag per week, but likely less accessible for steep topographies. The fortnightly collection limits flexibility.	Better - Decreased manual handling when compared to bags, but still likely to require a runner for difficult to access streets. Footpath will remain 'cluttered' after the service.	Better - Move to fortnightly assumes weekly food organics collection	Better - The collection frequency is reduced meaning we may expect reduced emissions from trucks. The volume of material is capped.
MGB	Four-weekly	Rubbish	Rubbish	240	Worse - The decreased frequency of the collection is likely to decrease the ongoing cost of the service. The change in container will incur a one-off cost. However, the very low frequency of collection means that households generating significant general or sanitary waste may need to supplement the Council service with a private provider.	N/A	Worse - Very limited flexibility. Missed services will have a significant impact. The decreased frequency is likely to disproportionately impact households that generate significant sanitary waste.	Similar - Bins are likely to be at capacity and therefore heavy. The decreased frequency may mean bins will be overfull and this presents both litter and enforcement issues. We may expect more truck maintenance due to the repeatedly heavy loads being collected.	Better - Move to fortnightly collection frequency assumes weekly food organics collection	Better - The collection frequency is reduced meaning we may expect reduced emissions from trucks. The volume of material is capped.



Recycle collection options – evaluation comments

Option					Evaluation comments					
Container	Frequency	Category	Sub-Category	Capacity	Cost	Circular Economy	Accessibility	Safety/Handling	Diversion	Emissions
MGB	Weekly	Recycling	Comingled incl glass	120	Worse - The increase in frequency is likely to increase the ongoing cost of the service. This may be offset given that a separate glass truck will no longer be required.	Worse - May expect more contamination/wish cycling in a comingled collection that includes glass. This may negatively impact end market opportunities. Limited capability to handled fully co-mingled stream.	Better - Capacity provides ease of movement. Frequency provides good flexibility. 120L wheeled bin is better than 240 for moving. Option provides more frequent collection and therefore flexibility, user friendly (less education than some other options), no 'recycling week'.	Better - Manual handling risk is removed (when compared to collection including glass crates) given a mechanical arm can be used for collection. A rumer will still be required in areas with limited access.	Similar - Increased recycling capacity but limited processing capability to handle fully comingled recycling stream.	Similar - Removes the need for a separate glass truck. Increased collection frequency may increase emissions from trucks.
MGB	Fortnightly	Recycling	Comingled incl glass	240	Better - The decrease in frequency is likely to decrease the ongoing cost of the service. Savings may also be expected given that a separate glass truck will no longer be required.	Worse - May expect more contamination/wish cycling in a comingled collection that includes glass. This may negatively impact end market opportunities. Limited capability to handled fully co-mingled stream.	Worse - Same frequency but larger bins. 240L bins present challenges when moving/storing bins.	Better - Manual handling risk is removed (when compared to collection including glass crates) given a mechanical arm can be used for collection. A rumer will still be required in areas with limited access.	Similar - Increased recycling capacity but limited processing capability to handle fully comingled recycling stream.	Better - Removes the need for a separate glass truck. There will be the same number of trucks on the road but collecting more material meaning emissions relative to capture will be lower.
Bag	Fortnightly	Recycling	Comingled exd glass	140L	Similar - Status Quo.	Similar - Status Quo	Similar - Status Quo	Similar - Status Quo	Similar - Status Quo	Similar - Status Quo
MGB	Weekly	Recycling	Comingled exd glass	120	Worse - The increase in frequency is likely to increase the ongoing cost of the service. A separate vehicle for glass will still be required and therefore cost savings are not expected.	Similar - Status Quo	Similar - Weekly frequency provides similar flexibility. The exclusion of glass may deter participation if users are repeatedly contaminating the bin with glass.	Better - Removes current manual handling of comingled recycle stream.	Better - Increased capacity for recycling relative to the status quo.	Worse - There will need to be a separate glass collection on top of this high frequency collection. Therefore, multiple trucks will be required for the recycling stream.
MGB	Fortnightly	Recycling	Comingled exd glass	240	Similar - There is no change to the frequency of collections however more material will be collected which is likely to require more trucks, increasing the ongoing cost of the service.	Similar - Status Quo	Similar - Frequency preserves currently flexibility but using larger bins. The exclusion of glass may deter participation if users are repeatedly contaminating the bin with glass.	Better - Removes current manual handling of comingled recycle stream.	Better - Increased capacity for recycling relative to the status quo.	Better - Status quo frequency. But more material is collected, decreasing emissions relative to capture.
Crate	Weekly	Recycling	Source Separated indiv crates	120	Worse - Higher frequency and requires multiple trucks for recycling.	Better - Kerbside sort provides ability to address contamination.	Worse - Crates present challenges when moving and storing.	Worse - Manual handling is likely to increase given there are more containers to collect. Three small crates create a tripping hazard on the footpath.	Better - Increased capacity for recycling relative to the status quo.	Worse - This service requires multiple trucks for a high frequency collection.
Crate	Weekly	Recycling	Mixed Glass Crate	45	Worse - Higher frequency and capacity than status quo.	Similar - Status Quo	Similar - Residents are still required to present a separate container for glass.	Similar - This is the status quo with increased frequency. Manual handling risks remain and street litter remains.	Similar - Increased capacity for recycling relative to the status quo but excess capacity may increase contamination.	Worse - This service requires multiple trucks for a high frequency collection.
Crate	Fortnightly	Recycling	Mixed Glass Crate	45	Similar - Status Quo	Similar - Status Quo	Similar - Status Quo	Similar - Status Quo	Similar - Could reuse the existing glass crate.	Similar - Status Quo
MGB	Four-weekly	Recycling	Glass only	80	Better - Less frequent service but higher capacity.	Worse - Mixed colour glass, no capability to sort in Wellington so likely lower value markets.	Similar - Larger containers, may be heavy to get to kerbside when full of glass containers.	Better - automated collection of glass removes risk for collections staff.	Better - higher capture (to lower value markets)	Better - Lowest frequency of collections but the loads will be heavy which may mean that per loads emissions produced may be higher than those for other streams.

Organic materials collection options – evaluation comments

Option					Evaluation comments					
Container	Frequency	Category	Sub-Category	Capacity	Cost	Circular Economy	Accessibility	Safety/Handling	Diversion	Emissions
Manually collected container	Weekly	Organic	Food Only	23	Similar - Providing an additional service presents a new cost to households. However, depending on the Rubbish charging model there may be savings to the household.	Better - Manual empty allows for contamination check.	Better - The weekly frequency provides good flexibility. The small capacity is easy to move and light when compared to the alternative food only MGB.	Similar - HR&S risks from manual handling, however the smaller capacity may present less frequent issues with lifting. A runner or driver/runner will be required for the service and there may be a tripping hazard given the number of small bins left on the footpath.	Better - There is new diversion of organic materials from landfill.	Similar - High frequency to collect a small volume of material means emissions relative to capture may be high.
MGB	Weekly	Organic	Food Only	80	Similar - Providing an additional service presents a new cost to households. However, depending on the Rubbish charging model there may be savings to the household.	Better - automated empty and excess capacity (for a weekly FO collection) means there is a higher likelihood of contamination and less opportunity to address/detect during collection. FO suitable for composting and digestion.	Similar - The weekly frequency provides good flexibility. The small capacity is easy to move, but heavier than the alternative FO collection, particularly with FO (high water content). Given the putrescible contents, the bin will need regular cleaning which may be difficult for an MGB this size. Risk that excess capacity leads to less frequent presentation resulting in odour.	Better - Manual handling risk is removed given a mechanical arm can be used for collection. A runner will still be required in areas with limited access. Kerbside clutter may still be an issue but this is considered to be less of a hazard when compared to manually collected containers.	Better - There is new diversion of organic materials from landfill.	Better - High frequency to collect a larger volume of material means emissions relative to capture may be lower.
MGB	Weekly	Organic	FOGO	80	Similar - Households currently using a private green waste collection may expect savings assuming economies of scale are achieved. Households not generating green waste may pay for both capacity and a material that they do not generate.	Better - May expect more contamination in a FOGO collection than FO. Capacity should limit contamination. FOGO limits processing to composting or dry digestion.	Better - The weekly frequency provides good flexibility. The small capacity is easy to move with FOGO (lower density than FO).	Better - Manual handling risk is removed given a mechanical arm can be used for collection. A runner will still be required in areas with limited access. Kerbside clutter may still be an issue but this is considered to be less of a hazard when compared to manually collected containers.	Better - There is new diversion of organic materials from landfill.	Better - High frequency to collect a larger volume of material means emissions relative to capture may be lower.
MGB	Weekly	Organic	FOGO	120	Similar - Households currently using a private green waste collection may expect savings assuming economies of scale are achieved. Households not generating green waste may pay for both capacity and a material that they do not generate.	Similar - May expect more contamination in a FOGO collection than FO which may negatively impact end market opportunities. FOGO limits processing to composting or dry digestion.	Similar - The weekly frequency provides good flexibility. Potentially heavy to move and takes up the most space of any option for collection organic materials.	Better - Manual handling risk is removed given a mechanical arm can be used for collection. A runner will still be required in areas with limited access. Kerbside clutter may still be an issue but this is considered to be less of a hazard when compared to manually collected containers.	Better - There is new diversion of organic materials from landfill.	Better - High frequency to collect a larger volume of material means emissions relative to capture may be lower.
MGB	Fortnightly	Organic	Green Only	120	Similar - Households currently using a private green waste collection may expect savings assuming economies of scale are achieved. Households not generating green waste may pay for both capacity and a material that they do not generate.	Similar - May expect more contamination in a FOGO collection than FO which may negatively impact end market opportunities. FOGO limits processing to composting or dry digestion.	Similar - Fortnightly collection provides moderate flexibility. Smaller capacity provides good moveability and ease of storage.	Better - Manual handling risk is removed given a mechanical arm can be used for collection. A runner will still be required in areas with limited access. Kerbside clutter may still be an issue but this is considered to be less of a hazard when compared to manually collected containers.	Better - There is new diversion of organic materials from landfill.	Similar - Will require a separate truck which may increase transport emissions. May lead to higher capture of organic material and therefore decrease emissions from landfill - assuming the material captured was previously going to landfill.
MGB	Four-weekly	Organic	Green Only	240	Similar - Households currently using a private green waste collection may expect savings assuming economies of scale are achieved. Households not generating green waste may pay for both capacity and a material that they do not generate.	Similar - May expect more contamination in a FOGO collection than FO which may negatively impact end market opportunities.	Worse - Four-weekly collection provides poor flexibility. Capacity likely to present challenges when moving/storing bin.	Better - Manual handling risk is removed given a mechanical arm can be used for collection. A runner will still be required in areas with limited access. Kerbside clutter may still be an issue but this is considered to be less of a hazard when compared to manually collected containers.	Better - There is new diversion of organic materials from landfill.	Similar - Highest frequency of collection for a green only collection. Will require a separate truck which may increase transport emissions. May lead to higher capture of organic material and therefore decrease emissions from landfill - assuming the material captured was previously going to landfill.



Shortlist options – evaluation comment

SQ	Options			
	Rubbish	Recycling	Glass	Organics
A	50L Weekly	140L Fortnightly	45L Fortnightly	N/A
B	120L Fortnightly	240L Fortnightly	N/A	23L Weekly
C	120L Fortnightly	240L Fortnightly	80L Monthly	23L Weekly

Cost to User		Evaluation comments			
Markets	Accessibility	Safety/Handling	Diversion	GHG	
Similar	Similar	Similar	Similar	Similar	
Worse – Based on other council collections the annual expected cost per household may be in the realm of \$360.	Worst – Comingled including glass will require new processing infrastructure. Comingled including glass is proven to increase levels of contamination in the recycling stream when compared to glass out. Manual empty of food only allows for contamination checks which may improve end market opportunities.	Worse – 23L bin presents lifting challenges to those with limited mobility however the small capacity is easy to move and light when compared to alternative wheele bin. Use of 240L wheele bin presents challenges when moving or storing bins.	Similar – Manual handling for glass is no longer required but will be necessary for the 23L food only collection. Runners will be a necessity rather than an exception where access challenges exist. The 23L bin may present a tripping hazard when left on the kerbside and present challenges when empty in windy conditions.	Better – Reflecting moderately increased capacity for recycling and provision for food waste collection. Modelling projects a potential diversion rate of 44%	Better – The removal of food waste from the refuse stream will reduce emissions from landfill between 1700 and 2200 Co2e per year. There is also minor benefit from avoided truck movements through collecting all recyclable materials together.
Worse – Based on other council collections the annual expected cost per household may be in the realm of \$310.	Worse – Manual empty of food only allows for contamination checks which may improve end market opportunities. The comingled recyclable material will not be contaminated with glass and therefore we may expect improved end market options. However, mixed glass presents limited end markets and restricted value/circularity.	Worse – 23L bin presents lifting challenges to those with limited mobility however the small capacity is easy to move and light when compared to alternative wheele bin. 80L glass presents mobility challenges due to weight. 240L presents challenges when moving or storing bins.	Similar – Manual handling for glass is no longer required, but will be for the 23L food collection. Runners will be a necessity rather than exception. The 23L bin may present a tripping hazard when left on the kerbside and present challenges when empty in windy conditions. Although there are four collections, given the frequency of collections we would only expect a maximum of three bins to be presented once every four weeks.	Better – Reflecting moderately increased capacity for recycling and provision for food waste collection. Modelling projects a potential diversion rate of 44%	Better – The removal of food waste from the refuse stream will reduce emissions from landfill between 1700 and 2200 Co2e per year. There is also minor benefit from avoided truck movements through collecting all recyclable materials together.
Worse – Based on other council collections the annual expected cost per household may be in the realm of \$370.	Worst – Comingled recyclable material including glass will require new processing infrastructure. Comingled including glass is proven to contribute to increased levels of contamination in the recycling stream. We might expect more contamination in a FOGO collection than FO however the relatively small capacity should limit contamination. FOGO limits processing to composting or dry digestion.	Worse – The FOGO wheele bin removes the lifting hazard for the contractor, but may be heavier than the alternative food only caddy for households to manoeuvre. Risk that excess capacity leads to less frequent presentation resulting in odour i.e. people will not fill 80L weekly and opt to present the bin fortnightly. 240L present challenges when moving or storing bins.	Better – Manual handling for glass is no longer required. The organics collection can be automated meaning runners are likely to be an exception rather than necessity e.g., where there are access issues.	Best – Reflecting moderately increased capacity for recycling and provision for food waste collection. Modelling projects a potential diversion rate of 51%	Best – The removal of food and garden waste from the refuse stream will reduce emissions from landfill between 4000 and 5000 Co2e per year. There is also minor benefit from avoided truck movements through collecting all recyclable materials together.

D	120L Fortnightly	240L Fortnightly	80L Monthly	80L Weekly	Worse – Based on other council collections the annual expected cost per household may be in the realm of \$320.	Worse – The comingled material will not be contaminated with glass and therefore we may expect improved end market options. However, mixed glass presents limited end markets and restricted value/circularity. We might expect more contamination in a FOGO collection than FO. FOGO limits processing to composting or dry digestion.	Worse – 80L glass presents movability challenges due to weight. The FOGO wheele bin removes the lifting hazard for the contractor, but may be heavier than the alternative food only caddy to manoeuvre for households. Risk that excess capacity leads to less frequent presentation resulting in odour i.e. people will not fill 80L weekly and opt to present the bin fortnightly. 240L present challenges when moving or storing bins.	Best – Manual handling for glass is no longer required. The organics collection can be automated meaning runners are likely to be an exception rather than necessity. Although there are four collections, given the frequency of collections we would only expect a maximum of three bins to be presented once every four weeks.	Best – Reflecting moderately increased capacity for recycling and provision for food waste collection. Modelling projects a potential diversion rate of 51%.	Best – The removal of food and garden waste from the refuse stream will reduce emissions from landfill between 4000 and 5000 Co2E per year. There is also minor benefit from avoided truck movements through collecting all recyclable materials together.	
	E	120L Fortnightly	140L Fortnightly	45L Fortnightly	23L Weekly	Worse – Based on other council collections the annual expected cost per household may be in the realm of \$310.	Better – Manual empty of food only allows for contamination checks. The comingled material will not be contaminated with glass and therefore we may expect improved end market options. Source separated glass has established end markets and improved opportunity for circularity.	Worse – Crates and 23L bin present lifting challenges to those with limited mobility however the small capacity is easy to move and light when compared to alternative wheele bin. Retaining the existing recycling service reduces confusion for households and the need for additional education. The existing service provides high levels of customer satisfaction.	Worst – This collection requires manual handling for glass and organics meaning runners will be a necessity rather than exception. There is a health and safety risk around loose glass and poor behaviour. The 23L bin may present a tipping hazard when left on the kerbside and present challenges when empty in windy conditions. There will be three bins presented at the kerbside every two weeks.	Better – Reflecting moderately increased capacity for recycling and provision for food waste collection. Modelling projects a potential diversion rate of 44%.	Better – The removal of food waste from the refuse stream will reduce emissions from landfill between 1700 and 2200 Co2E per year. There is also minor benefit from avoided truck movements through collecting all recyclable materials together.
		F	120L Fortnightly	140L Fortnightly	45L Fortnightly	80L Weekly	Worse – Based on other council collections the annual expected cost per household may be in the realm of \$320.	Better – The comingled material will not be contaminated with glass and therefore we may expect improved end market options. Source separated glass has established end markets and improved opportunity for circularity. We might expect more contamination in a FOGO collection than FO. However, the relatively small capacity compared to other FOGO collections should limit contamination. FOGO limits processing to composting or dry digestion.	Similar – Crates present lifting challenges to those with limited mobility. Risk that excess capacity leads to less frequent presentation resulting in odour i.e. people will not fill 80L weekly and opt to present the bin fortnightly. Retaining the existing recycling service reduces confusion for households and the need for additional education. The existing service provides high levels of customer satisfaction.	Similar – Manual handling for glass is required but food waste is automated. Runners will be a necessity, but less frequently. There is a health and safety risk around loose glass and poor behaviour. There will be three bins presented at the kerbside every two weeks.	Best – Reflecting moderately increased capacity for recycling and provision for food waste collection. Modelling projects a potential diversion rate of 51%.

Attachment 1 Stakeholder Engagement Report

Wellington City Council

Redesigning Rubbish and Recycling Collections

Prepared for: Wellington City Council

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Document control

Title: Redesigning Rubbish and Recycling Collections Stakeholder engagement report					
Date	Version	Description	Prepared by:	Reviewed by:	Authorised by:
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Distribution:

Wellington City Council

1 electronic copy

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Executive summary

Tonkin + Taylor (T+T) is working with Wellington City Council (WCC) to provide technical specialist advice in reshaping collections, as part of its commitment to reduce the amount of waste going to landfill by 50% by 2030.

A range of engagement was undertaken to provide additional data relevant to the redesign that was not already on hand. This included:

- Mana whenua engagement.
- An online survey about current waste practices for multi-unit development (MUD) and commercial premises.
- Industry engagement through a series of interviews with key organisations.
- Market share sampling – a video capture survey of waste left for roadside collection, across a selection of streets covering approximately 100-200 households within five randomly selected suburbs.
- Peer engagement to ensure key stakeholders are on board with the project's aims, and able to contribute feedback as well as their own insights and experiences.

Mana whenua engagement was coordinated by WCC staff and focused on providing appropriate information and updates about project progress. As such, it is not discussed further as part of this report.

A total of 34 responses were received for the online survey, 27 in relation to residential collections and seven in relation to commercial collections, across 12 suburbs within WCC jurisdiction. Responses covered a wide range of building types and number of residents/tenants, from buildings at ground level through to high rise apartments. Survey results point to the expected mixed pattern across these types of properties: variable building access, variable waste collection practices, and variable capacity to incorporate food waste collection. No material information was provided around current monthly spend on waste collection.

The five areas randomly selected for market share sampling were Mount Victoria, Brooklyn North, Johnsonville North, Seatoun, and Ngaio South, with all areas sampled each morning across the week of Monday 8 May to Friday 12 May. The collection sample included general waste (refuse only), mixed recycling, and glass, with collections by Council operated services, and private contractors Low Cost Bins, Waste Management, JJ Richards, EnviroWaste, and Wheeliebin Wellington. Across all five areas across the week, a total number of 654 bins and bags were presented for collection. However, analysis of the data gathered revealed that across four of the five areas, a total of 80 Council bins and bags had been incorrectly placed throughout the week.

The market share sampling results identified that only Council was collecting recycling in each of the five areas. Council services dominated in each of the areas, however, this was inconsistently split between refuse and recycling or glass collection services: In Seatoun, Council refuse bags only accounted for 25% of waste collections, whereas Council recycling bags represented 8% and Council recycling bins 42% of collections in the area that week. In contrast, in Mt Victoria Council refuse bags accounted for 56% of all collections, while Council glass crates represented 25%, and in Brooklyn Council refuse bags made up 49% of collections, with Council recycling bags accounting for a further 34%. Waste Management was typically the second largest provider visible in the areas, however, the number of waste collections for this provider varied greatly across the five areas. In Brooklyn, Waste Management accounted for 6% of collections, equal with Low Cost Bins, and not far off Daily Waste's share of 5% of collections. By contrast, in Ngaio South Waste Management represented 30% of collections, versus 2% for Low Cost Bins and 1% each for JJ Richards and EnviroWaste.

Industry engagement involved interviews with commercial operators JJ Richards, Northland Waste (trading as Low Cost Bins), Waste Management, and current WCC contractors Enviro NZ, as well as not-for-profit composting service provider KaiCycle. The companies interviewed typically operate across all areas of Wellington City and tend to offer services to all types of property/customers – residential, MUDs, and commercial customers. Key challenges identified included:

- Collecting around traffic.
- Issues with density, including narrow streets and steep terrain.
- Health and safety, particularly with regard to manual collections. This was also identified as a barrier to maintaining a stable workforce.
- Obtaining access to suitable infrastructure.

While responses varied in terms of improving future service offerings, operators saw a tension between the need for standardisation and bespoke solutions, requiring innovation and flexibility in the approach. They suggested using a range of tools to optimise collections, including elements such as regulatory tools such as bylaws, through to new technology such as Radio Frequency Identification (RFID) and automation. They also highlighted the need to protect and invest in the workforce delivering services.

As part of peer engagement, a hui was held with WCC's operations team, to discuss what was and was not working well with current Council-operated waste collection services. This identified a number of measures that were working well, and a number that were not working as well. Measures that worked well included several related to the collections process (rubbish bags being faster to collect than wheelie bins, glass crates being good), and several related to community education (placing stickers on incorrectly presented glass crates, the '3 strikes' policy). Measures that did not work well included lack of oversight of health and safety issues through use of a contractor, issues with contamination in recycling bags, challenges manually tracing contamination and bag dumping, issues servicing gated MUDs, and lack of control over waste generation when purchased bags are used.

The waste operations team also suggested measures for consideration in redeveloping the service, including establishing collection points or hubs, health and safety of collection staff, pedestrian health and safety where bins are used in CBD areas, introduction of recycling in schools, consideration of commercial options for schools, and regular bulky waste collection services.

Following development of the multi criteria analysis, two peer review workshops were held with representatives from across WCC's various business units. Attendees were given a summary presentation of the process taken to shortlist options, as well as an overview of the shortlisted options, with room for discussion around issues to be considered through the approach.

There was some discussion around the timeframes for updating the service, and how WCC might stay ahead of the game. The project was viewed as an opportunity to address waste collection from a long term perspective. A concern was noted that historically, WCC services have lagged compared with other Councils. So, should the project look at current best practice elsewhere, and try to match this, WCC would simply fall behind again within a short timeframe.

Discussions were held around the driving forces behind current service delivery, including the need to tailor services to the topography, ensure ease of collection, and remain in line with legislative requirements. Other points of discussion included:

- Potential need to address funding of recycling services if the volume of waste to landfill decreases, as the recycling service is currently funded from landfill surpluses.
- Waste contractors experiencing ongoing trouble attracting and retaining staff.

- Wheelie bins not being universally preferable with drivers/handlers.
- The need for creating bespoke or customisable options to service some properties, especially MUDs, may raise issues in terms of policy implementation.
- Understanding the impact of transitioning from bags to 240 L bins on the volume of rubbish being generated.
- Understanding the potential increase/decrease in contaminated material needing diversion to landfill as a result of moving to larger recycling bins.

Following the peer review workshops, two further options to the shortlist. These both involved use of a 120 L general rubbish wheelie bin, with 'status quo' for recycling, i.e. use of a 140 L wheelie bin for general recycling, and 45 L crate for glass collection. The extra options then varied by either adding an 80 L food and organic waste wheelie bin, or a 23 L food only bin.

1. Introduction

Wellington City Council (WCC) has committed to reducing the amount of waste going to landfill by 50% by 2030. As such, it is working to optimise Wellington City's kerb waste collection service. Tonkin + Taylor (T+T) is working with WCC to provide technical specialist advice in reshaping collections. As part of this, targeted engagement has been used to gather additional data in areas where limited data is currently available, to supplement existing data and provide a clearer picture of the existing waste scape. Information gathered will help ensure services are fit for purpose, meeting the needs of Wellington City's residents and business owners into the future.

This report provides a brief summary of the methodology, followed by a summary of each engagement stream, including emerging key themes and statistics as relevant.

2. Methodology overview

As identified above, the purpose of engagement has been to provide additional data that can support known data limitations. This has meant that the engagement methodology has focused on targeted engagement, rather than wider public engagement.

The approach has included five focus areas, as follows.

Engagement with mana whenua

Engagement with mana whenua has been led by WCC. The focus of engagement has been to provide updates on project process to mana whenua. Usually, WCC and mana whenua hold six-weekly hui, however, as these were on hold during the project, information has instead been provided as monthly project updates sent via the internal Mataaho Aronui team.

Survey of multi-unit developments (MUDs) and commercial premises

There is limited data available on current waste management practices and issues in multi-unit developments (MUDs) and commercial premises. An online survey was established to gather data for these types of properties, across all suburbs. The objective of the survey was to obtain a selection of building types and sizes from across the City's suburbs.

Building, facilities and property managers were contacted via email and phone call and asked to complete the survey. It was anticipated that there would be some difficulty in achieving a conventional random sample, as the survey was reliant on building manager's willingness to participate. Therefore, to supplement figures, WCC and T+T staff local to the area who lived in MUDs with no property manager were also requested to complete the survey.

Market share sampling

To better support information gathered via surveys and interviews, a video capture survey was proposed to gather some statistical information on current waste volumes and collection methods. This was considered useful as multiple collection services are in operation, often on different days.

Sampling involved a random selection of five SA1 areas (a geographical block made up of approximately 100-200 residents). Video footage of waste left for collection along both sides of selected streets was captured for five consecutive business days, and the following information noted:

- Overall quantities of bins/bags

- Types of container used
- Types of waste being collected (insofar as this is possible to tell through type of bin and visual check)
- Operators collecting
- Quantities of bins/bags by operator

Industry engagement

As waste within the CBD and surrounding suburbs is currently collected both by Council and by a number of different private sector organisations, these organisations were considered key stakeholders for the project, for several reasons:

- They are already delivering waste management and minimisation services within the area, so have a good understanding of the local landscape
- They are likely to continue to be involved in delivery of future waste management and minimisation services.

Relevant organisations were identified and interviewed as part of the engagement process.

Peer engagement

Three key groups of stakeholders were classified as 'peers' in relation to the WCC project team:

- Internal technical stakeholders within WCC, such as the ops team and informed senior management
- Councillors
- External organisations with relevant industry knowledge, e.g. the Sustainability Trust, Waste Free Welly

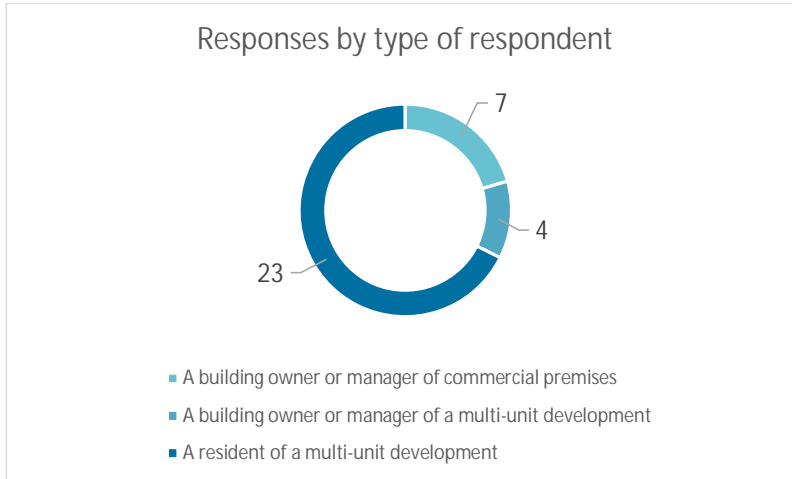
Engagement with these groups was considered important to successful project delivery, as it ensures that these stakeholders understand and are on board with what the project aims to achieve and allows these peers to contribute their own insight and experience, and provide relevant feedback.

An initial hui was held with WCC's waste operations team, to understand from its perspective what is and is not currently working well for Council-provided services.

A peer review workshop was also held in relation to the Multi Criteria Assessment. This allowed key stakeholders to test and gain insight into the decision making process and ensure robust outcomes.

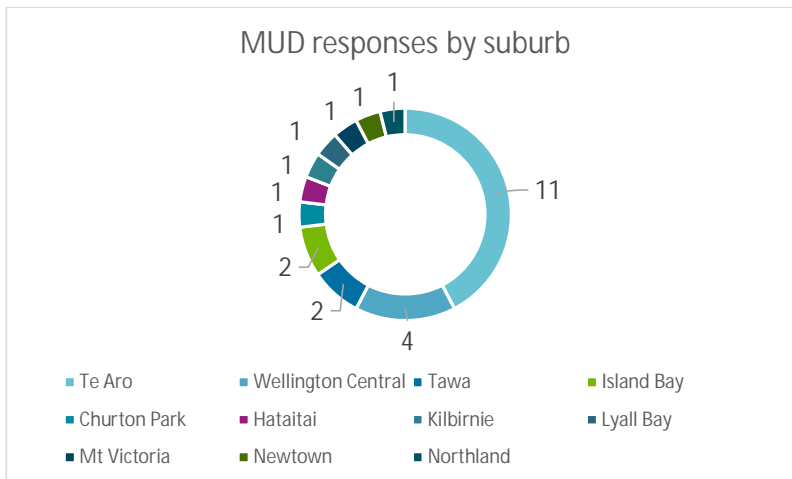
3. Survey of multi-unit developments and commercial premises

A total of 42 survey responses were received, however eight were incomplete and have therefore been discounted. Of the remaining 34 responses, 27 were in relation to residential collections and seven in relation to commercial collections. Overall response from property and facility managers was low, with the majority of responses provided by residents of multi-unit developments (MUDs), as shown in the graph below.

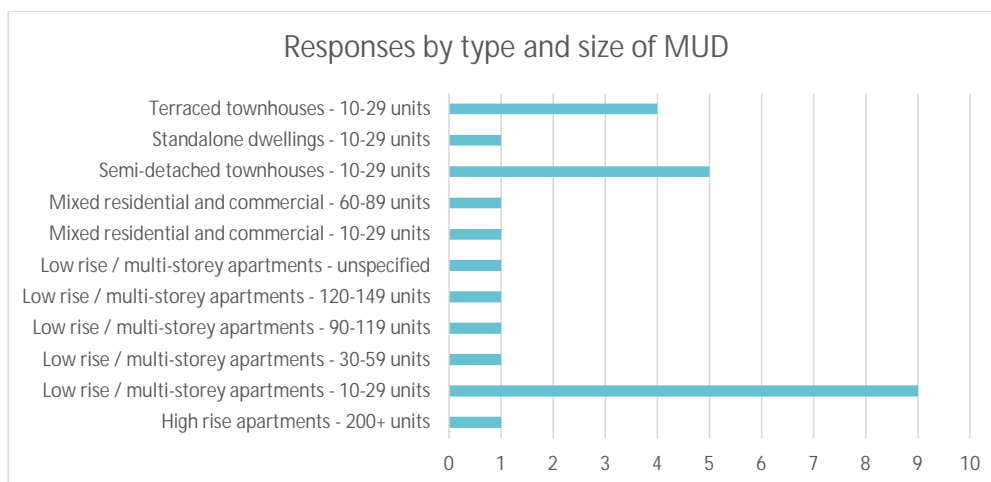


Multi-unit development response summary

Of the 27 responses relating to MUDs, 26 indicated which suburb they were responding for.



The majority of multi-unit development responses were for low rise / multi-storey properties with 10-29 units. The majority of responses overall, regardless of type of property, were for MUDs of 10-29 units.



Building access

Building access is varied, depending on the type of dwelling and number of units.

For low rise / multi-storey apartments, terraced townhouses, semi-detached townhouses, and standalone dwellings of 10-29 units (19 responses total):

- Six indicated that all buildings are at ground level
- Three indicated that buildings are at ground level, and that for buildings not at ground level, access is via stairs only
- Six indicated that access is via stairs only
- Two indicated that access was via stairs and elevator
- Two opted for "other," adding that access was via a shared driveway, or that residents leave their own bags or bins at the end of the street

Three responses relating to low rise / multi-storey apartments indicated a greater number of units, with one selecting 30-59 units, a second selecting 60-89 units, and the third selecting 90-119 units. Of these, the first indicated that buildings were at ground level, or had access via stairs and elevator. The second indicated that buildings were at ground level, with rubbish lockers located near the units. The third also indicated that buildings were at ground level, or had access via stairs and elevator.

Two MUDs consisting of mixed residential and commercial premises responded. One has 10-29 low-rise units, accessible via stairs only. The other has 60-89 mid-rise units, accessible via stairs and elevator.

The high rise apartment of over 200 units is accessible via stairs and elevator.

A total of 27 of the respondents provided information about access to waste storage areas. Of these, 13 respondents from MUDs with 10-29 units (low rise / multi-storey apartments, terraced townhouses, and semi-detached townhouses), indicated that there was no common waste storage area. The respondent for the mixed residential and commercial property with 10-29 units also indicated that this was the case.

Thirteen respondents indicated that properties had common waste storage areas external or internal to the building(s), as follows:

- One low rise / multi-storey apartment of 60-89 units, and one MUD of terraced townhouses with 10-29 units have external common waste storage areas, but the area available was unknown.
- Three low rise / multi-storey apartments of 10-29 units have external common waste storage areas, two of approximately 1-4 m², and the second of approximately 5-9 m².
- One low rise MUD of an unknown number of units had an approximate external common waste storage area of 10-14 m².
- One low rise / multi-storey apartment of 120-149 units had an approximate external common waste storage area of 20-29 m².
- Two low rise / multi-storey apartments of 10-29 units have internal common waste storage areas of approximately 5-9 m².
- One low rise / multi-storey apartment of 30-59 units has an internal common waste storage area of approximately 1-4 m².
- One mixed residential and commercial MUD of 60-89 units has an internal common waste storage area of approximately 30-39 m².
- One low rise / multi-storey apartment of 90-119 units has an internal common waste storage area of approximately 1-4 m².
- One high rise apartment of 200+ units has an internal common waste storage area of 30-39 m².

Current waste collection practices

Overall, respondents indicated that current waste collection is as follows:

- 13 indicated that waste is currently collected by a Council collection service. Of these, 12 responses related to low rise / multi-storey apartments, mixed residential and commercial, terraced townhouses, semi-detached townhouses, and standalone dwellings with 10-29 units. The remaining response related to a low rise / multi-storey apartment with 60-89 units.
- Four respondents indicated that waste is currently collected by both a Council collection service and a commercial collection service. These responses related to low rise / multi-storey apartments, semi-detached townhouses, and standalone dwellings with 10-29 units.
- Four respondents indicated that waste is currently collected by a commercial collection service. These responses related to an unspecified number of standalone units, a low rise / multi-storey apartment of 30-59 units, a mixed residential and commercial of 60-89 units, and high rise apartments of 200+ units.
- One respondent, answering for an MUD of 10-29 semi-detached townhouses, indicated that all units were responsible for their own waste collection, so some had wheelie bins from private contractors while others used Council bags.
- Five respondents were unsure about how waste was currently collected for the properties.

Methods of waste collection from MUDs has been summarised below, with the method for general waste / rubbish collection summarised first and supported by additional information about other rubbish collection methods currently in use.

Table 3.1.3-1: Summary of current waste collection from MUDs

Method used for general waste collection	Responses	Additional info
Council rubbish bag	15 responses from MUDs of 10-29 units. 1 response from a low rise / multi-storey apartment of 60-89 units.	1 using Council rubbish bag for recycling, and Council glass crates. 8 using Council recycling bags and glass crates. 4 using Council recycling bags. 2 using Council recycling bags for recycling including glass. Also using Council recycling bags and glass crates.
80 L wheelie bin	1 response from low rise / multi-storey apartment of 10-29 units.	Also using Council glass crates, and an 80 L wheelie bin for recycling.
120 L wheelie bin	1 response from standalone units (number unspecified).	Also using Council recycling bags and glass crates, and a 120 L wheelie bin for type 1, 2, and 5 plastic recycling, soft plastic recycling, food waste, green waste, and mixed organics.
240 L wheelie bin	1 response from a low rise / multi-storey apartment of 10-29 units. 1 response from a low rise / multi-storey apartment of 30-59 units.	Also using Council recycling bags. Also using 240 L wheelie bin for mixed recycling, 3.5 m ³ wire cage for paper.
1100 L wheelie bin	1 response from a low rise / multi-storey apartment of 10-29 units. 1 response from a low rise / multi-storey apartment of 120-149 units. 1 response from a mixed residential and commercial of 60-89 units.	No other options selected. No other options selected. Also using Council glass crates, an 1100 L wheelie bin for mixed recycling, and a 660 L wheelie bin for paper.
4.5 m ³ frontload waste bin	1 response from a low rise / multi-storey apartment of 10-29 units. 1 response from a high rise apartment of 200+ units.	Also using Council recycling bags and glass crates. Also using an 1100 L wheelie bin for mixed recycling, and a 6 m ³ wire cage for paper.

A total of 27 respondents indicated who in the building was currently responsible for putting out waste for collection, and where waste is collected from. Of these:

- 24 indicated that individuals within the building were responsible for putting waste out. Of these, 23 responses were from MUDs of 10-29 units, one from an MUD of an unspecified number of standalone units, and one from a block of 120-149 low rise / multi-storey apartments.
- Two responses indicated that a waste collection company removed waste from the waste room. These responses related to a low rise / multi-storey apartment of 30-59 units, and a mixed residential and commercial of 60-89 units.

- One response related to a high rise apartment of 200+ units indicated that the building owners or managers were responsible for putting waste out.
- One response relating to a low rise / multi-storey apartment of 90-119 apartments indicated that cleaners were responsible for removing waste from the property.
- Of the 22 properties where individuals are responsible for putting waste out, waste is collected as follows:
 - One indicated collection from an underground carpark, by a truck with manual handling.
 - Two indicated collection from an aboveground carpark, one by a truck with a bin lifter, and the other by both a truck with a bin lifter and a truck with manual handling.
 - 17 indicated roadside collection, with eight collected by a truck with manual handling, two collected by a truck with manual handling and a truck with a bin lifter, one with general waste collection from the rubbish room and recycling from kerbside, and the remainder unsure.
 - Three indicated private lane / access way, with one unsure of how rubbish was collected, one indicating use of a truck with a bin lifter, and one indicating use of a truck with manual handling and a truck with a bin lifter.
 - Two selected 'other'. One indicated that collection was from the roadside at the entrance to the complex, by both truck with manual handling and truck with bin lifter. The other indicated that collection was from the back of the unit, with collection by truck with manual handling.

Food waste collection

A question was asked about whether each unit in an MUD would have space to store a food waste bin, with an example given of a 7L kitchen caddy, or larger bin for shared kitchens. In all, 27 respondents replied to the question, with three unsure. Of the remaining 20, 15 selected yes, and nine selected no.

The 15 that selected yes consisted of 10 MUDs with 10-29 units (low rise / multi-storey apartments, semi-detached townhouses, and terraced townhouses), one set of standalone units (unspecified number), one mixed residential and commercial of 60-89 units, and one each of 30-59, 90-119, and 120-149 low rise / multi-storey apartments.

The nine that selected no consisted of seven MUDs with 10-29 units (low rise / multi-storey apartments, semi-detached townhouses, and standalone dwellings), one low rise / multi-storey apartment with 60-89 units, and one high rise apartment with 200+ units.

The same 23 respondents replied to the question about whether units had in sink disposal units for food scraps, with eight unsure. Of the remaining 19:

- Four selected "yes, all of them". Three responses related to low rise / multi-storey apartments and semi-detached townhouses with 10-29 units, and one related to a low rise / multi-storey apartment with 30-59 units.
- Two selected "yes, some of them do". Both responses related to MUDs with 10-29 units (terraced townhouses, and semi-detached townhouses).
- 13 selected "no". Of these, 10 responses related to MUDs with 10-29 units (low rise / multi-storey apartments, mixed residential and commercial, semi-detached townhouses, and terraced townhouses), one to a high rise apartment of 200+ units, and the remaining two related to low rise / multi-storey apartments of 60-89 and 90-119 units.

Monthly spend on waste collection

While an open-ended question was asked about the approximate cost of waste collection services per month for the MUDs, most respondents answering as residents were unsure about costs, unless they were accessing Council services and could respond about their own spend. Of responses from property managers:

- The mixed residential and commercial of 60-89 units has an approximate spend of \$1,200 per month.
- The block of 200+ high rise apartments had an indicative spend of over \$4,000 per month for waste collection.

Commercial premises response summary

A total of seven responses were received in relation to commercial premises, all from building owners or managers, as follows:

- One high rise (9-19 stories) in an undisclosed suburb, with 6-10 separate tenancies
- One commercial premises in Tawa with building(s) at ground level, and a total of 11-15 tenancies
- One mid-rise (4-8 stories) commercial premises in Wellington CBD with 2-5 tenancies
- One mid-rise (4-8 stories) mixed commercial and residential in Kilbirnie, Johnsonville, with less than 20 tenancies
- One high rise (9-19 stories) in Wellington CBD with 2-5 tenancies
- One high rise (9-19 stories) in Wellington CBD with less than 20 tenancies
- One low rise (1-3 stories) in Wellington CBD with 6-10 tenancies

Building access

Building access is varied across the properties reported on. Some properties likely consist of multiple buildings, as multiple methods of access, including "building(s) at ground level" alongside other methods. Of the seven responses received, six indicated whether there was a common waste storage area for the properties. Of these, only three have access to a common waste storage area. Access can be summarised as follows:

- The commercial premises in Tawa with 11-15 tenants is all at ground level. The respondent indicated that there was no common waste storage area, however, they also indicated that there is approximately 5-9 m² set aside for waste storage.
- The mid-rise commercial premises in Wellington CBD with 2-5 tenants has building(s) at ground level and is also accessible via stairs and elevator. There is an external common waste storage area of 5-9 m².
- The mixed commercial and residential mid-rise in Johnsonville with less than 20 tenants has building(s) at ground level. It is also accessible via stairs and elevator and has a waste chute. An internal common waste storage area is available; however, dimensions were not indicated.
- The low rise commercial premises in Wellington CBD with 6-10 tenants has building(s) at ground level, as well as access by stairs and escalator. No common waste storage area is available.
- The high rise commercial premises in an undisclosed suburb with 6-10 tenants is accessible via stairs and elevator. There is an external common waste storage area of 1-4m² available.
- The high rise commercial premises in the Wellington CBD with 2-5 tenants is accessible via stairs and elevator. No common waste storage area is available.

- The high rise commercial premises in the Wellington CBD with less than 20 tenants is accessible via stairs, escalator, and elevator. It was not indicated whether there a common waste storage area was available.

Current waste collection practices

Respondents for four properties indicated that the premises currently use a Council collection service, alongside other measures, as follows:

- The commercial premises in Tawa with 11-15 tenants uses Council rubbish and recycling bags, a Council glass crate, and a commercial collection service.
- The mixed commercial and residential mid-rise in Johnsonville with less than 20 tenants uses a Council collection service as well as a commercial collection service, with general waste and mixed recycling collected in 1100 L wheelie bins, and glass, tins, paper, separate plastics (types 1, 2, and 5), and soft plastics collected in 240 L wheelie bins.
- The high rise commercial premises in the Wellington CBD with 2-5 tenants uses both Council collection services and a commercial collection service. However, when selecting types of waste container used for various types of collection, only Council rubbish bags for general waste, and Council recycling bags for mixed recycling, tins, paper, plastics, and glass were selected.
- The low rise commercial premises in Wellington CBD with 6-10 tenants only uses a Council collection service. Types of container for collection and types of waste collected were not indicated, however, it was indicated that tenants are responsible for managing their waste.

For the remaining properties:

- No response about current waste collection practices was given for the high rise commercial premises in the Wellington CBD with less than 20 tenants.
- The mid-rise commercial premises in Wellington CBD with 2-5 tenants uses Council recycling bags, and a commercial collection service with 240 L wheelie bins for general waste.
- The respondent for the high rise commercial premises with 6-10 tenants (unknown location) was unsure about whether waste collection is provided by Council or a commercial collection service. However, they indicated that a 4.5 m³ frontload waste bin was used for general waste.

Six of the respondents indicated who in the building was responsible for putting out waste, with five indicating that tenants were responsible. Cleaners are responsible for putting out waste in the Wellington CBD high rise with 2-5 tenants. Responsibility was not indicated for the Wellington CBD high rise with less than 20 tenants.

Six respondents indicated where waste was collected from. This was again not indicated for the Wellington CBD high rise with less than 20 tenants, however, for remaining properties:

- The commercial mid rise in the Wellington CBD with 2-5 tenants has waste collected from an aboveground carpark.
- The high rise of 6-10 tenants in an unknown location has waste collected from a private lane or accessway.
- All other properties have waste collected from the roadside.

Four respondents were unsure or did not reply to the question about how waste was collected from the premises. Of the remaining three properties, one (the property in Tawa) indicated that waste was collected by a truck with a bin lifter. Two properties (the property in Johnsonville, and a mid rise in Wellington CBD with 2-5 tenants) indicated that waste was collected by both a truck with a bin lifter and truck with manual handling.

Food waste collection

Three respondents were unsure or did not answer the question about whether each unit in the building would have space to store a food waste bin.

The remaining four answered that the properties they were responding about would have space for a food waste bin. These respondents included the low rise in Tawa with 11-15 tenants, and from the Wellington CBD, the mid rise with 2-5 tenants, the high rise with 2-5 tenants, and the low rise with 6-10 tenants. Of these, the first two indicated that some tenants have in sink disposal units for food scraps. The respondent for the high rise with less than 20 tenants in the Wellington CBD did not answer this question, while the respondent with the mixed commercial and residential property in Johnsonville was unsure. The remaining three respondents indicated that tenants did not have in sink disposal units for food scraps.

Monthly spend on waste collection

None of those responding about waste collection for commercial premises gave any indication of monthly spend.

4. Market share sampling

Five SA1 areas were randomly selected for market share sampling:

- Mount Victoria
- Brooklyn North
- Johnsonville North
- Seatoun
- Ngaio South

All areas selected were sampled between Monday 8 May and Friday 12 May. Each area sampled represented approximately 100-200 households.

The collection sample included general waste (refuse only), mixed recycling, and glass. Collectors included Council operated services, as well as six private contractors: Low Cost Bins, Waste Management, JJ Richards, EnviroWaste, and Wheeliebin Wellington. An additional private contractor, Woods Waste, was not operating in any of the areas sampled.

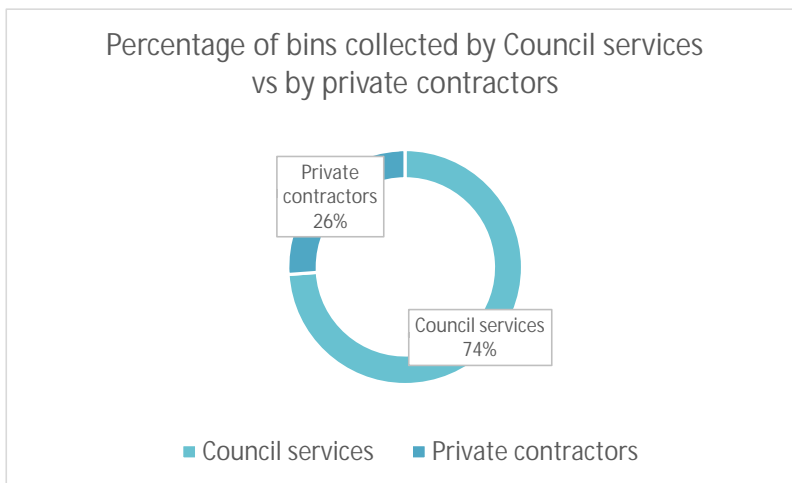
Across all five areas across the week, a total number of 654 bins and bags were presented for collection. However, analysis of the data gathered revealed that across four of the five areas, a total of 80 Council bins and bags had been incorrectly placed throughout the week. Data has therefore been adjusted to reflect these incorrect bin placements, in order to not over represent Council's market share.

Without knowing the collection schedule of the private contractors, it is difficult to tell whether bins were incorrectly placed for these services, so no adjustments have been made for these providers. However, analysing the information available, it appears that the margin of error for other service providers would be quite small, with the possible exception of Johnsonville (refer to Section 5.3 below on Johnsonville).

The overall number of bins and subsequent market share for each provider is summarised in the table below.

Table 5.4-1: Market share sampling bin collection results

Service provider	Total number of bins presented (all areas all days)	Incorrect bin placements (Council services only)	Adjusted total number of bins	Market share (based on adjusted numbers)
Council Recycling Bin (120L)	189	51	138	24%
Council Refuse Bag (70L)	250	12	238	41%
Council Recycling Bag (70L)	16	10	6	1%
Council Glass Crate (45L)	50	7	43	7%
Daily Waste 240L	17	n/a	17	3%
Low Cost Bins (240L)	31	n/a	31	5%
Waste Management (240L)	95	n/a	95	17%
JJ Richards (240L)	1	n/a	1	0%
EnviroWaste (240L)	1	n/a	1	0%
Wheeliebin Wellington (240L)	4	n/a	4	1%
Total	654	80	574	100%



This figure is slightly skewed however, as only Council was collecting recycling. Considering refuse only collection, the private sector market share increases to 39% of the service offering. As can be seen in the table below, Waste Management is the most significant private contractor, accounting for 25% of market share across the areas sampled.

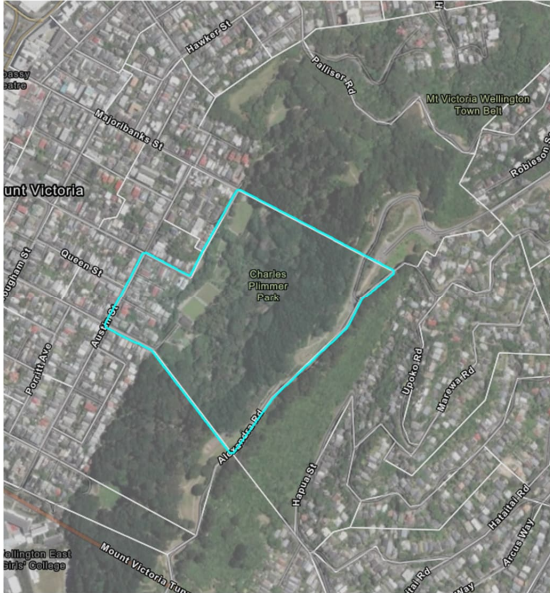
Table 5.4-2: Market share sampling bin collection (refuse only) results

Service provider	Total number of bins (refuse only) presented (all areas all days)	Market share
Council Refuse Bag (70L) (adjusted figure)	238	61%
Daily Waste 240L	17	4%
Low Cost Bins (240L)	31	8%
Waste Management (240L)	95	25%
JJ Richards (240L)	1	0%
EnviroWaste (240L)	1	0%
Wheeliebin Wellington (240L)	4	1%
Total	654	100%

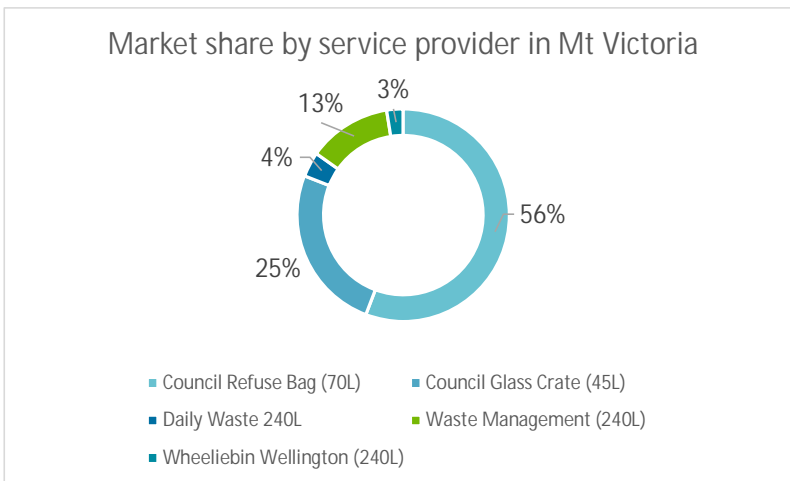
Results are further summarised by area below.

Mount Victoria

The sample area surveyed is shown in the image below.

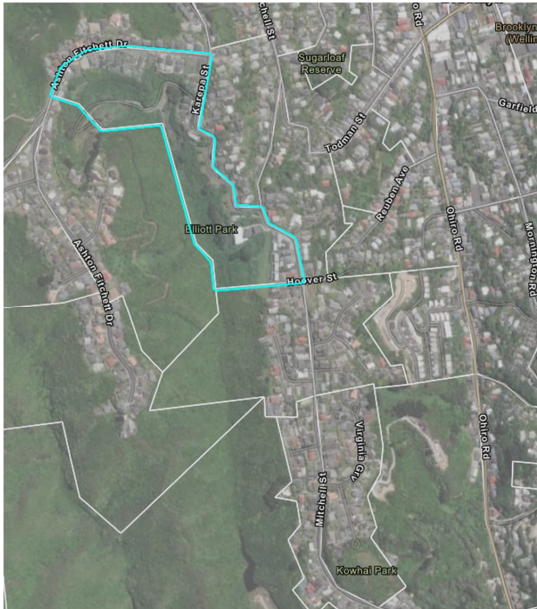


A total of 98 bins and bags was seen in the sample area across the week, covering Council services, as well as bins for Daily Waste, Waste Management, and Wheeliebin Wellington. Council services accounted for 83 bins and bags, however of these, a total of 19 bins or bags were incorrectly put out for collection across the week. This brings the total for all correctly placed bins and bags down to 79, and 64 for Council services. The market share between Council and private contractors is shown in the graph below.

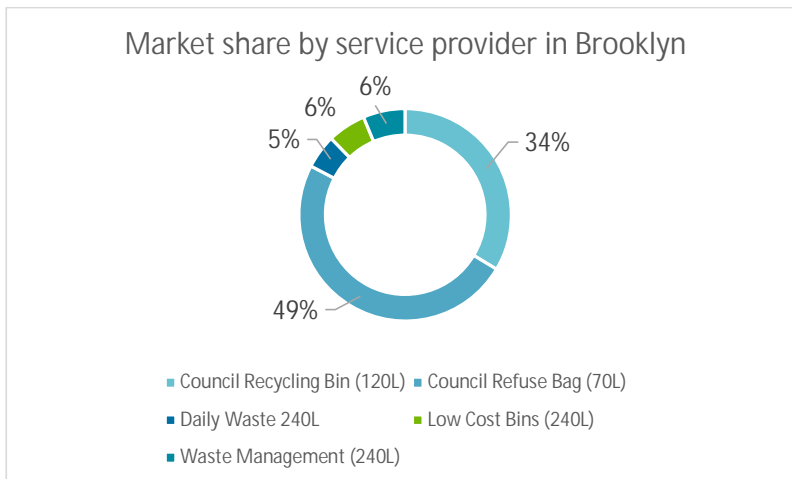


Brooklyn North

The sample area surveyed is shown in the image below.

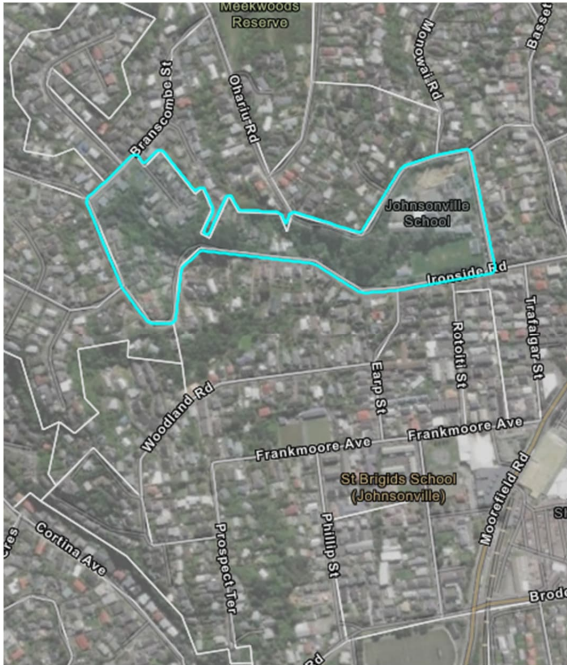


A total of 158 bins and bags was seen in the sample area across the week, covering Council services, as well as bins for Daily Waste, Low Cost Bins, and Waste Management. Of a total of 131 Council bins and bags, only three were put out incorrectly, giving an adjusted total of 128 for Council services, and 155 overall. For the sample area, the split in service provision between the three private contractors is fairly even, as shown in the graph below.

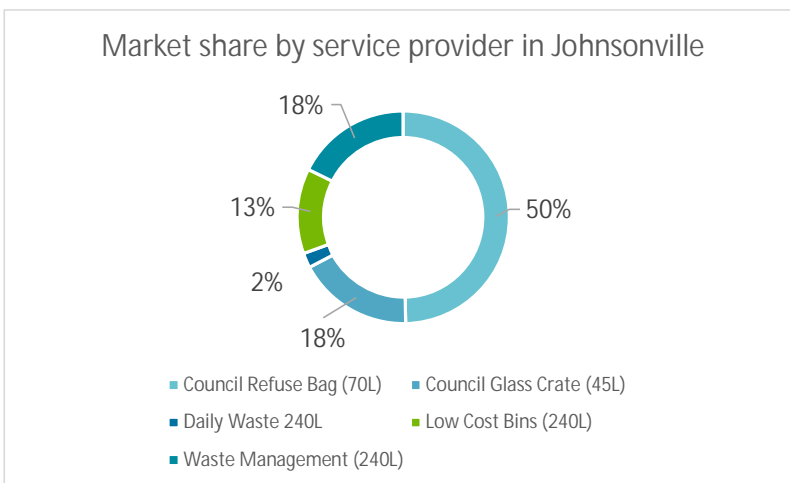


Johnsonville North

The sample area surveyed is shown in the image below.



A total of 181 bins and bags was seen in the sample area across the week, covering Council services, as well as bins for Daily Waste, Low Cost Bins, and Waste Management. However, a total of 50 Council bins or bags were incorrectly put out across the week, giving an adjusted total of 131 bins and bags, of which, 79 were for Council services. Within the sample area, this means that Council services only account for 65% of all services, which represents the lowest market share of all sample areas surveyed. As shown in the graph below, Waste Management holds the second largest market share in the sampled area, closely followed by Low Cost Bins. However, this is the only area where numbers for private contractor services may be incorrect: bins were left out on all days of the week for the Low Cost Bins service, with the largest number out on Thursday 11 May. If Low Cost Bins only collect in the area on a Thursday, then seven out of 17 bins should not be tallied, significantly reducing Low Cost Bins' perceived market share in the sample area.



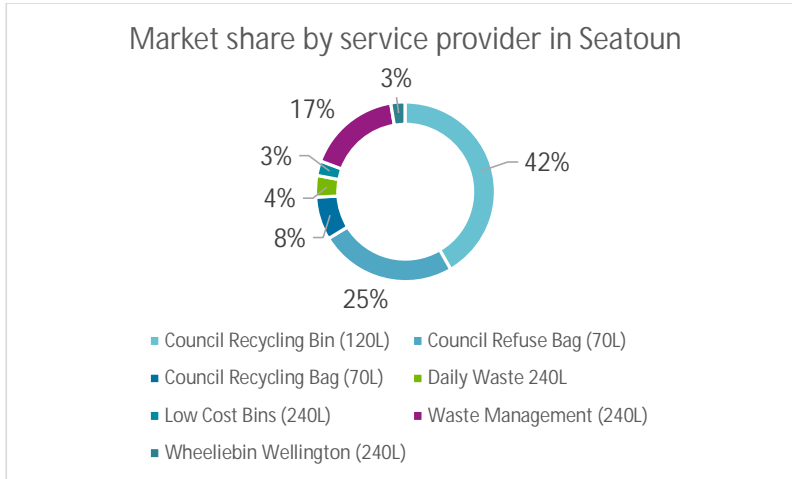
As a final note, within the sample area, there appears to be some confusion about which Council service is scheduled each week. The week of the survey was a glass recycling crate collection week. However, only 23 Council-provided glass crates were put out on the correct day, while 25 Council-provided recycling bins were also put out that day, with seven remaining out the following day. Further community education about the Council-provided service may help reduce this phenomenon.

Seatoun

The sample area surveyed is shown in the image below.

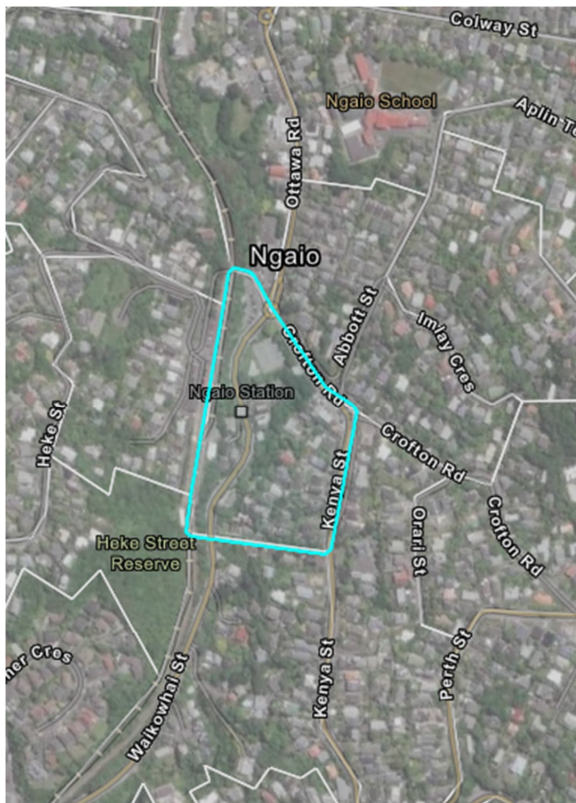


A total of 77 bins and bags was seen in the sample area across the week, covering Council services, as well as bins for Daily Waste, Low Cost Bins, Waste Management, and Wheeliebin Wellington. Of these, 57 were for Council services, with no Council bins or bags put out incorrectly within the sample area. Waste Management is the most significant alternative service provider, with the other three private contractors combined totalling about half the number of bins as collected by Waste Management.



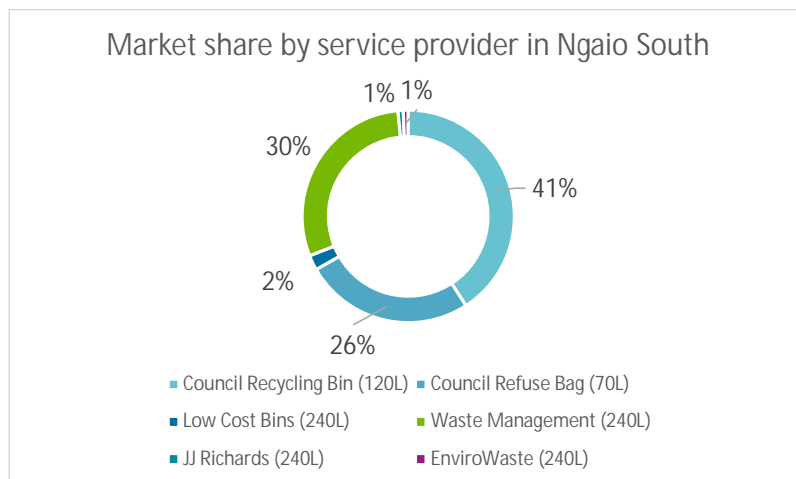
Ngaio South

The sample area surveyed is shown in the image below.



A total of 140 bins and bags was seen in the sample area across the week, covering Council services, as well as bins for Low Cost Bins, Waste Management, JJ Richards, and EnviroWaste. However, eight Council bins or bags were incorrectly put out for collection across the week, reducing the overall total to 132 bins and bags. Of the remainder, 88 were for Council services. As with other sample

areas, Waste Management had the largest number of collections among private contractors, at 39 bins.



Other information received from property managers

During phone calls to solicit survey responses, several property and facilities managers provided information over the phone, and one supplied through relevant body corporate information via email. While this information is not as complete as requested in the survey, it still provides some details about waste management practices in these buildings and is therefore summarised here.

All those spoken to were positive and supportive of Council's intention to refine waste management services, with several identifying this as a real issue particularly in MUDs. All noted, however, that services vary considerably across MUDs.

Smaller MUDs of 10-20 individual units were noted as being more problematic for waste management than larger units by one property manager.

Furniture dumping was identified as a problem in an apartment setting: people will just leave furniture in the general rubbish collection area and expect waste contractors to remove it. However, collection contracts are not typically established to encompass this.

One property manager commented that, while specific waste management arrangements vary from building to building, waste management for the entire company's property portfolio was being handled by the same private contractor.

Several property managers noted that private contractors collect rubbish for specific buildings, however, a recycling service was not available. One commented that this was due to lack of space for storage: most available space in the rubbish collection area was taken up by a skip bin.

5. Industry engagement

The engagement plan proposed a series of 1:1 interviews with private contractors and composting service providers collecting in the Wellington City area, to build understanding of current waste management operations and issues, and what changes might be beneficial from the perspective of these companies. From an initial list of eight companies, five interviews were conducted either face-to-face or via Teams. The interviews included four private contractors and one composting service provider, as identified below:

- Current WCC contractors Enviro NZ (formally EnviroWaste), meeting with Branch Manager Richard Mackenzie and Lower North Island Head of Operations Mike Downer.
- JJ Richards, meeting with Regional Manager Thomas McDougal.
- Composting service provider Kaicycle, meeting with Composting Managers Liam Prince and Kate Walmsley.
- Northland Waste, trading as Low Cost Bins, meeting with Regional Manager Hugh Wiffen, Chief Operating Officer Andrew Sclater, and Project Manager April Peters.
- Waste Management, meeting with Regional Manager Sarah Whiteman and Contract Manager Tracy Reuben.

Currently, the companies interviewed are typically operating across all areas of Wellington City, rather than in pockets of the city. These collectors tend to offer services to all types of property/customers – residential, MUDs, and commercial customers. Some private contracts also offer more complex services such as hazardous waste.

Overall, the following key challenges were identified by those interviewed:

- Collecting around traffic.
- Issues with density, including narrow streets and steep terrain.
- Health and safety, particularly with regard to manual collections. This was also identified as a barrier to maintaining a stable workforce.
- Obtaining access to suitable infrastructure.

When asked to consider the future of collections for Wellington City, there was no consistent response to what a 'gold standard' of service would look like for the CBD. However, the following points of consideration were discussed:

- Use of a range of tools to optimise collections, from regulatory tools such as bylaws, through to new technology such as Radio Frequency Identification (RFID) and automation.
- Protection of and investment in the workforce is of key importance.
- A need for innovation and flexibility was mentioned, however, tension between the need for standardisation and need for bespoke solutions was also identified.

Interviews are further summarised below by company.

Enviro NZ

Enviro NZ holds the contract for waste collection with WCC until 2026. It noted the following challenges with collections:

- Accessibility:
 - Smaller vehicles are required to access narrow streets, increasing turnaround time and cost of the service.
 - As more people are working from home than previously, more cars are being left on the street. Already narrow accessways become even narrower.
 - With other contractors operating in the same areas, doubling up can occur on the road.
- Existing recycling capacity is too small, and drivers often collect additional cardboard that will not fit in bags or bins.

In terms of creating a 'gold standard' Wellington CBD offering, particularly for MUDs, Enviro NZ suggested offering a bespoke service for each MUD, noting that servicing from kerbside rather than

entering the property would be easier. Enviro NZ suggested that a multi-chamber collection vehicle could be considered for these collections.

Enviro NZ also indicated that public education is an area that they would be interested in supporting.

JJ Richards

JJ Richards (JJ's) predominantly collects from commercial properties but has some MUD collections in its portfolio. Its service offering includes waste and cardboard collection.

During collections, its most notable challenges include the following:

- Accessibility:
 - In terms of property access, this means using smaller bins, and making multiple collections.
 - Traffic congestions. While collections are run early, the drop off facility does not open until 7:00am.
 - Narrow street size.
- Noise complaints as residential moves into CBD commercial areas.
- Manual collections:
 - Present a challenge in maintaining drivers, as there are issues with temperature and repeat work.
 - Represent a HSW risk.
- Issues with space for collecting 660L or 1100L bins, and that these are more likely to cause injury and present collections issues due to the heavier weights.

JJ's identified following features of its operations as providing a 'gold standard' of service offering:

- On time collections.
- Complexity of routing, for example, avoiding school times, and accounting for congestion.
- Focusing on automation.

To create a 'gold standard' Wellington CBD offering, and to improve collection services more broadly, JJ's made the following suggestions:

- Use of mini transfer stations.
- Use of cages to be able to visually gauge contamination.
- Provision of a collect and return model.

KaicycleAs a provider of composting services, Kaicycle currently serves a residential and commercial customer base of approximately 60 businesses and 175 households. This latter includes approximately 30 households across five MUDs. However, there is a scale barrier to providing services to larger MUDs.

Operating at a smaller scale and on a different business model to commercial service providers, identified collection challenges differ slightly to those providers. The most notable challenges during collections include:

- Collections are normally done using a bicycle and trailer, however, during bad weather a van is used. This is a slower method of collecting.
- Bikes and trailers are less efficient for collecting from MUDs.
- The weight being carried, especially from MUD collections, can be considerable.

- Office cleaners for commercial premises can be confused about the service and add plastic liners to bins.
- There are different collection spots and notes for each customer, adding complexity.
- Customer distribution is inefficient for collections.

In terms of providing a 'gold standard' of service offering, Kaicycle identified the following features as part of its business model:

- Provision of clean buckets to customers.
- Adaptability of the service, and the flexibility to put the service on hold.
- Community education – in particular, following up with customers, and providing information about contamination.
- The story behind the service: customers appreciate understanding how their food scraps are being used.

Kaicycle's suggestions for a 'gold standard' Wellington CBD offering, and to improve collection services more broadly, were as follows:

- Provision of a network of drop-off points, with New York cited as an example, for more accessible and cost effective collection.
- Use of nearby processing options, which could be hosted by the private sector.
- Use of low carbon transport options, such as bikes and small electric vehicles.
- Supporting or incentivising waste prevention and reduction.
- Providing areas for separation and collection of waste and recycling.
- Requiring separation of food waste, with incentives for better sorting such as kitchen caddies.

Northland Waste, trading as Low Cost Bins

Low Cost Bins provide waste collection services for residential and commercial properties, as well as some MUDs. MUDs are not a significant part of the market for Low Cost Bins in Wellington, but Low Cost Bins is looking to increase sales to MUDs, as they are a significant market for the business in Auckland.

Current challenges with collections identified by Low Cost Bins included:

- Accessibility:
 - Bespoke services are required for steep, narrow streets.
 - Density of housing creates issues.
- Weather impacts on collections.

Low Cost Bins identified several features of its service offering that it considered to be 'gold standard':

- Provision of bespoke services, particularly for MUDs.
- Use of PayTech and RFID chips allows customers to pay as they use the service.

To deliver a 'gold standard' Wellington CBD offering, and to improve collection services more broadly, Low Cost Bins made the following suggestions:

- Use of legislation, e.g. bylaws.
- Use of PayTech and weight bands to incentivise waste reduction.
- Offering a flexible service to meet customer needs.

Waste Management

Waste Management provide waste collection services for residential properties including MUDs, commercial properties, and hazardous waste collection across Wellington.

A number of challenges with collections were identified by Waste Management:

- Accessibility:
 - Restricted servicing hours to collect waste.
 - Issues with traffic.
- Glass collections:
 - High contamination rates within WCC areas, compared to Hutt City.
 - Health and safety issues lifting heavy crates. Hutt City has smaller crates, reducing these issues.

In terms of developing a 'gold standard' Wellington CBD offering, and to improve collection services more broadly, Waste Management made the following suggestions:

- Offer bags on an as-needed basis only, and carefully consider types of receptacles.
- Consider where organic material might go when deciding between food or mixed food and green waste.

6. Peer engagement

Waste operations hui

A hui with WCC's operations team was held on 3 May 2023, to discuss what was and was not working well with current Council-operated waste collection services.

Four measures were identified as working well, of which, two involve the collections process itself, and two involve community education measures:

- Rubbish bags were considered faster to service than wheelie bins.
- Glass crates work well, with sorting into the trucks.
- Placing stickers on incorrectly presented glass crates works well.
- The '3 strikes' policy is viewed as a success and is reinforced by ratepayers needing to purchase a new bin if theirs is revoked as a result of the 3 strikes.

Five measures were identified as not working well. Of these, one relates directly to the collections process, three to contamination or enforcement issues, and one to community behaviour:

- Current use of a contractor means that Council has less oversight of health and safety issues associated with collections. It was suggested that any future contracts would need to include additional and/or stronger key performance indicators (KPIs) associated with health and safety.
- There is anecdotal evidence that the contamination in recycling bags is worse than the recycling bins.
- Where contamination or bag dumping has been found, this needs to be manually traced back to properties. It was noted that this issue was particularly relevant for MUDs.
- Gated MUDs were found to be more difficult to service and enforce, as officers are unable to access the property.

- Where bags are used for waste collection, Council has minimal control over waste generation, as users will simply purchase more bags to accommodate greater volumes of waste.

The waste operations team suggested several measures for redesigning collections, and points of consideration for the new service:

- Establishing collection points or hubs for the CBD and private roads or accessways.
- Health and safety of collection staff should be considered for the new service.
- Use of bins in the CBD may not be viable from the perspective of pedestrian health and safety, as the footpath would not be cleared immediately after collection.
- Introducing recycling options for schools would be beneficial.
- While schools can currently apply for a grant for waste services, the new service design could consider how a commercial option provided by Council might be applied to schools.
- Consideration should be given to a regular bulky waste collection service might fit with other collections (e.g. quarterly, biannual).

Peer review workshops

Initial peer review workshop

Following development of the multi criteria analysis, a peer review workshop was held on Wednesday 7 June, with representatives from across WCC's various business units, as follows:

- Adam Dearsley – Zero Waste Program Manager
- Diljinder Uppal – Zero Waste Strategy Manager
- Mike Sammons – Climate Change team
- Alan Davies – Project Manager
- Hannah Hardman – Strategic Projects
- Stefan Borowy – Waste Operations Manager

The review presented a summary of the process taken to shortlist options, as well as an overview of the shortlisted options, with room for discussion around issues to be considered through the approach.

There was some discussion around the timeframes for updating the service, and how WCC might stay ahead of the game. The project was viewed as an opportunity to address waste collection from a long term perspective. A concern was noted that historically, WCC services have lagged compared with other Councils. So, should the project look at current best practice elsewhere, and try to match this, WCC would simply fall behind again within a short timeframe.

Discussion was raised about the driving forces that have led to the current service offering. These included the need to tailor services to the topography, ensure ease of collection, and remain in line with legislative requirements. It was noted that the recycling service is unique, as it is funded from landfill surpluses. However, this may be need to change if the volume of waste going to landfill decreases.

Several issues were raised in relation to collection of services:

- Some contractors have had trouble getting staff. One contractor has resolved the issue by hiring drivers with Class 1 licences and training them to Class 2 standard.
- While wheelie bins may be seen as preferable, not all drivers/collectors prefer these. Wheelie bins were cited as also having handling issues when they need to be wheeled back and forth from trucks.

The options development slide was viewed favourably, particularly around the ability to create bespoke or customisable options, especially for MUDs. However, it was noted as a concern that this would not be easy to implement well, and may raise issues in terms of policy implementation.

After reviewing the shortlisted options, the consensus was to add two further options to the shortlist. Both involved use of a 120 L general rubbish wheelie bin, with 'status quo' for recycling, i.e. use of a 140 L wheelie bin for general recycling, and 45 L crate for glass collection. The extra options then varied by either adding an 80 L food and organic waste wheelie bin, or a 23 L food only bin.

Second peer review workshop

A second peer review workshop was held on 15 June for people who were unable to attend the first workshop. This followed a similar format to the first. Two key questions emerged from the second workshop:

- What research had been conducted on how a potential transition from bags to 240 L bins might increase the amount of rubbish collected?
- What research had been conducted to understand the increase/decrease in contaminated material that needs to be diverted to landfill as a result of moving to larger recycling bins?

These were responded to outside of the workshop

7. Applicability

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

Tonkin & Taylor Ltd
Environmental and Engineering Consultants

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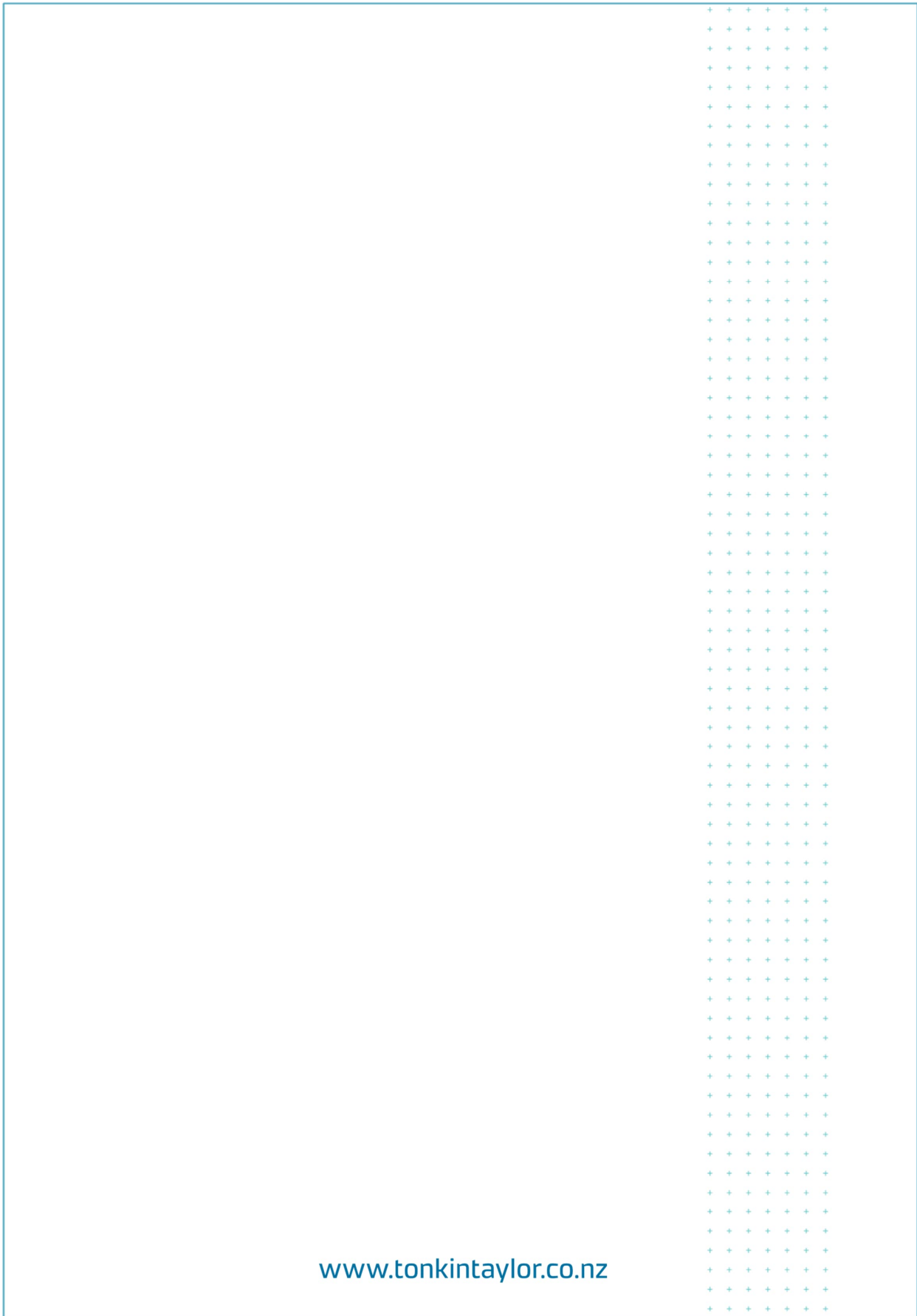
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Engagement Report



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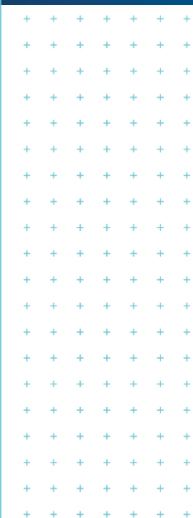
Organic Options Report

Prepared for
Porirua City Council, Hutt City Council, Wellington City Council

Prepared by
Tonkin & Taylor Ltd

Date
August 2023

Job Number
1020245 v1.3



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Document control

Title: Organic Options Report					
Date	Version	Description	Prepared by:	Reviewed by:	Authorised by:
November 2022	0.1	Table of contents for review	C Henson	A Ainsworth	
November 2022	0.2	Draft for client review	C Henson / Z Yandell	A Ainsworth	
November 2022	0.3	Updates following client comments	C Henson / Z Yandell	A Ainsworth	C Purchas
February 2023	1.0	Updates following client comments (Dec 2022)			
May 2023	1.1	Updates following Council decisions	C Henson / Z Yandell	A Ainsworth	C Purchas
July 2023	1.2	Updates following further Council comments	Z Yandell	A Ainsworth	C Purchas
August 2023	1.3	Updates following further Council comments	Z Yandell	A Ainsworth	C Purchas

Distribution:

Porirua City Council, Hutt City Council, Wellington City Council

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Executive Summary

This report summarises options for collections of organic materials for Porirua, Hutt and Wellington City Councils. This report sits within a larger project where the overall project aim is to develop a Business Case that defines, assesses and recommends an option/s for the collection of organic materials from residents and businesses in Porirua, Lower Hutt and Wellington.

The project objectives include:

- Residents and businesses have access to appropriate organic material recovery options.
- Deliver affordable and cost-effective organic materials recovery for residents and businesses.
- Reduce the need for residual waste disposal.
- Deliver a 40% reduction in biogenic methane greenhouse gas emissions by 2035.

When organic material breaks down in an anaerobic environment, such as a landfill, it creates greenhouse gas emissions and leachate. Greenhouse gases created from the breakdown of organic material include carbon dioxide and methane. These gases contribute to climate change (specifically methane given its global warming potential compared to carbon dioxide). Central Government has developed policy interventions in response to these climate impacts including the waste minimisation fund's focus on infrastructure and enabling systems to reduce landfill emissions from organic waste and the strategic direction set out in Te rautaki para I Waste strategy. These policy signals are considered to be key drivers for this project.

The focus of this report is on food waste (including material from hospitality and food processing) and green waste. Only Hutt City Council provides a kerbside collection service that diverts organic material from landfill (an opt-in green waste only collection). Therefore, there is an opportunity for all of the Councils to divert a higher quantity of organic material from landfill.

The approach to this project has firstly focused on collections and providing services to residents and collating enough information to inform the potential processing technology. This is the first stage and focuses on materials to be collected and thus the available collection methods. Once the collection approach is defined, processing options can be considered. Again the focus is on identifying an approach including consideration of processing technologies and potential locations.

The collection options available to the councils based on target materials are:

- Green waste only.
- Food waste only.
- A combined green and food waste collection service.
- Collection of both green waste and food waste, but via separate collections.

The target materials streams are suitable for a range of processing approaches. These include composting (open windrow or in-vessel), vermicomposting and anaerobic digestion. Each processing technology has advantages and disadvantages that are noted in this report.

The focus of collections is for residents, however commercial food and green waste capture is also being considered. Where processing is established for household materials, this will also be able to accept materials from commercial activities. The four collection options and the likely costs and greenhouse gas emissions savings have been presented, with further analysis to be undertaken as part of the Business Case.

1 Introduction

Tonkin + Taylor Ltd (T+T) have been engaged by Porirua City Council (PCC), Hutt City Council (HCC) and Wellington City (WCC) to undertake stakeholder engagement, produce an organic options report (this document) and Business Case for organic collections and processing on behalf of the three Councils.

The overall project aim is to develop a Business Case that defines, assesses and recommends an option/s for the collection of organic materials from residents and businesses in Porirua, Lower Hutt and Wellington.

The approach taken focuses on services to residents and the flow-on implications of these on the potential processing approaches. This project also considers the ability to service small businesses and food processing facilities.

Options presented here will inform decision making by the individual councils as part of considering options for addressing organic material in their area.

The first part of this project is split into stages and this Organic Options Report represents the deliverable for stage 3 (Figure 1-1).

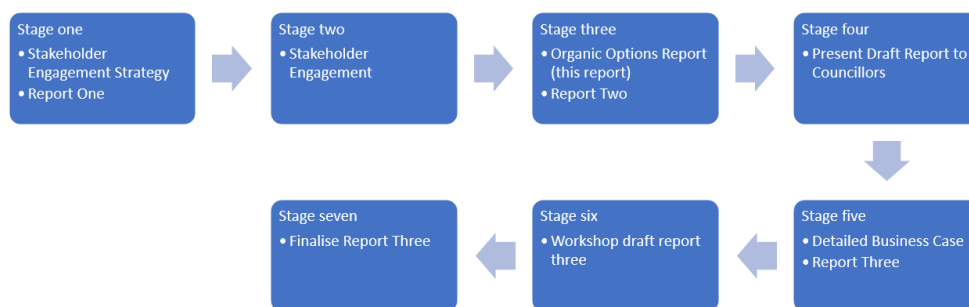


Figure 1-1: Deliverables for project (Stages 1 – 7)

This project considers both household and business (commercial and industrial scale) organic material collection and processing.

Stakeholder engagement has been undertaken to gain an understanding of the key priorities for businesses and community organisations in regards to organic material management, potential solutions (where applicable) and to provide further insight into the challenges and opportunities associated with organic material management.

The scope of work completed for this stage of the project is set out in our response to the RFP dated 14th April 2022 and agreed under contract 101882, signed 1st July 2022. The scope has also been updated through a number of discussions with the councils through May and June 2023.

The scope of work that underlies this report includes:

- A definition of the problem of organic material currently going to landfill (which includes out of district material being disposed of at landfills in the study area).
- Reviewing existing data on organic material streams from across the three council areas and beyond (where applicable), including:
 - Data and reports provided by the three councils.
 - A high-level review of existing weighbridge data (where available) for Spicer Landfill, Silverstream Landfill and Southern Landfill, alongside associated waste composition data.
 - Data shared by businesses through stakeholder engagement (organic material generators and processors of organic materials).
 - T+T knowledge of the sector for the Wellington Region.
- Estimating current and future organic material to be utilised in any organics processing including a forward projection of 10 years of feedstocks covering:
 - Porirua City and Lower Hutt combined.
 - Wellington City.
- Participating in and/or facilitating workshops with stakeholders.
- Provide an analysis of what other councils are doing in this space as part of reviewing options.
- A summary of existing collection and processing options available.
- Identification and evaluation of collection options for the three councils.
- Following on from the identification and evaluation of collection options, identifying the processing options.
- Drafting of this report.

2 Background

2.1 Overview

PCC, HCC and WCC receive over 76,000 tonnes per annum of organic material across the three landfills they operate. These being Spicer Landfill (PCC), Silverstream Landfill (HCC) and Southern Landfill (WCC).

The most recent waste audit data for the three landfills was used to provide the information on organic materials composition:

- Spicer Landfill receives over 81,000 tonnes per annum of waste, of which around 26.4% is organic (est 21,400 tonnes per annum)¹.
- Silverstream Landfill receives around 130,000 tonnes per annum of waste, of which around 23.8% is organic (31,900 tonnes per annum)².
- Southern Landfill receives around 107,000 tonnes per annum of waste, of which around 25.5% is organic (22,800 tonnes per annum)³.

2.2 The issue/opportunity

When organic material breaks down in an anaerobic environment, such as a landfill, it creates leachate and greenhouse gases. Greenhouse gases created from the breakdown of organic material include carbon dioxide and methane. These gases contribute to climate change (specifically methane given its global warming potential compared to carbon dioxide). Landfill gas makes up 4% of New Zealand's overall greenhouse emissions. Methane from landfills makes up 11% of New Zealand's total methane emissions and has an impact on New Zealand's emissions liability⁴. For landfill owners and/or operators, methane emissions create a liability under the New Zealand Emissions Trading Scheme.

The Wellington Region Greenhouse Gas Inventory⁵ details actual gross emissions created from solid waste associated with the open and closed landfills across the region. Porirua, Lower Hutt and Wellington City also have their own inventory for the year 2019-2020. An important action detailed in the Wellington Region Waste Management and Minimisation Plan (WMMP) was a commitment to investigate and develop (if feasible) a region-wide resource recovery network to include organic materials.

In March 2023, the Ministry for the Environment (MfE) released **Te rautaki para | Waste strategy**⁶ which provides strategic direction for New Zealand waste systems from now to 2050. Central Government has also outlined the future direction for organic material management and the need to divert this material from landfills. The collection of food waste from households is likely to become mandatory and there is a clear signal that over the medium term this will also apply to non-households. The Waste Minimisation Fund has invited applications from local authorities to support establishing organic materials collections and processing where these don't currently exist.

¹ WasteNotConsulting. 2023. Composition of Waste at Spicer Landfill

² WasteNotConsulting. 2022. Composition of Solid Waste at Silverstream Landfill (Confidential)

³ WasteNotConsulting. 2018. Composition of Solid Waste at Southern Landfill

⁴ Ministry for the Environment. 2023. New Zealand's Greenhouse Gas Inventory 1990–2021. Wellington: Ministry for the Environment.

⁵ AECOM. 2020. Wellington Region Greenhouse Gas Inventory

⁶ See Te rautaki para | Waste strategy. (Ministry for the Environment, 2023). Available at [Te rautaki para | Waste Strategy](#)

The strategy notes that reducing the amount of organic material that ends up in landfills will have multiple benefits. It will:

- Reduce the amount of methane generated in landfill which will reduce our greenhouse gas emissions.
- Reduce the overall volume of waste going into landfills, so that existing facilities can operate for longer.
- Using organic matter more efficiently and wasting less, in ways that can help regenerate the soil.

Alongside the benefits defined in the Waste Strategy the following have also been identified as relevant to this project.

- The National Emissions Reduction Plan defines a reduction in greenhouse gas emissions resulting in environmental benefits and investment consistent with national direction.
- Waste levy liabilities can be reduced through reduced disposal of waste to levied landfills.

However, these benefits also need to be viewed in the context of additional collection and processing requirements. These investments require funding, but also produce greenhouse gas emissions (for example trucks collecting the waste, emissions from new processing facilities). This underlines the need for a full assessment of all the benefits and costs, as part of a Business Case.

2.3 Our approach

This project will enable the councils to understand the options for collecting and processing organic materials from residents and the potential for businesses at centralised facilities in the districts. The key output will be a Detailed Business Case (Stage 5, Report 3) that will be developed, building upon this report.

A detailed Business Case is a requirement for the development of new facilities and services for each Council. The conclusions drawn from the Business Case undertaken at Stage 5, started in this report, will determine an approach to meet the requirements set out in the Wellington Region Waste Management and Minimisation Action Plans and will be in line with Wellington City Council's Zero Waste Strategy.

This report takes an approach that is consistent with the New Zealand Treasury's 'Better Business Case' approach. Treasury's approach focuses on making sure the issue or opportunity is well defined before considering a range of options to realise the opportunity. Once the right option/s have been identified (at this stage) there is a process of planning for successful delivery, ensuring that timeline and costs reflect what is required for the project to succeed.

This report focuses on the first two stages – the strategic and economic cases, with the Business Case focussing on the completion of the Economic Case as well as the Management, Financial and Commercial cases. The Treasury’s five case model is outlined below.

- **Strategic Case** - what is the reason for the project?
Reflected in Section 5 (the current situation), Section 4 (policy context) and Section 3 (What are we trying to achieve).
- **Economic Case** - what is the best value for money option?
Summarising the options identification process set out in Section 6. The evaluation considers a range of factors for each option in the Business Case.
- **Management Case** - how will the project be delivered?
Discussion around progression of activities to move the options through pilot opportunities, scaled implementation and identification of future expansion options. This will be addressed in the Business Case.
- **Financial Case** - what is it going to cost and what are the options for funding?
Drawing on capital and operating costs. This will be addressed in the Business Case.
- **Commercial Case** - how will the project be procured? This will be addressed in the Business Case.

3 What are we trying to achieve?

3.1 Project objectives

Figure 3-1 provides a summary of the core problems or opportunities addressed by this report. The figure also notes some of the underlying issues and anticipated benefits of addressing the problems and realising the opportunities. These issues, problems and anticipated benefits have been used to guide the development of investment objectives.

The objectives have been defined through a workshop and discussions with project team members from PCC, HCC and WCC. The objectives also address signalled policy from government and shifting costs and markets for the current and future management of organic materials across the council areas.

The project objectives developed with the project team are:

- **Residents and businesses have access to appropriate organic material recovery options.**
- **Deliver affordable and cost-effective organic materials recovery for residents and businesses.**
- **Reduce the need for residual waste disposal.**
- **Deliver a 40% reduction in biogenic methane greenhouse gas emissions by 2035.**

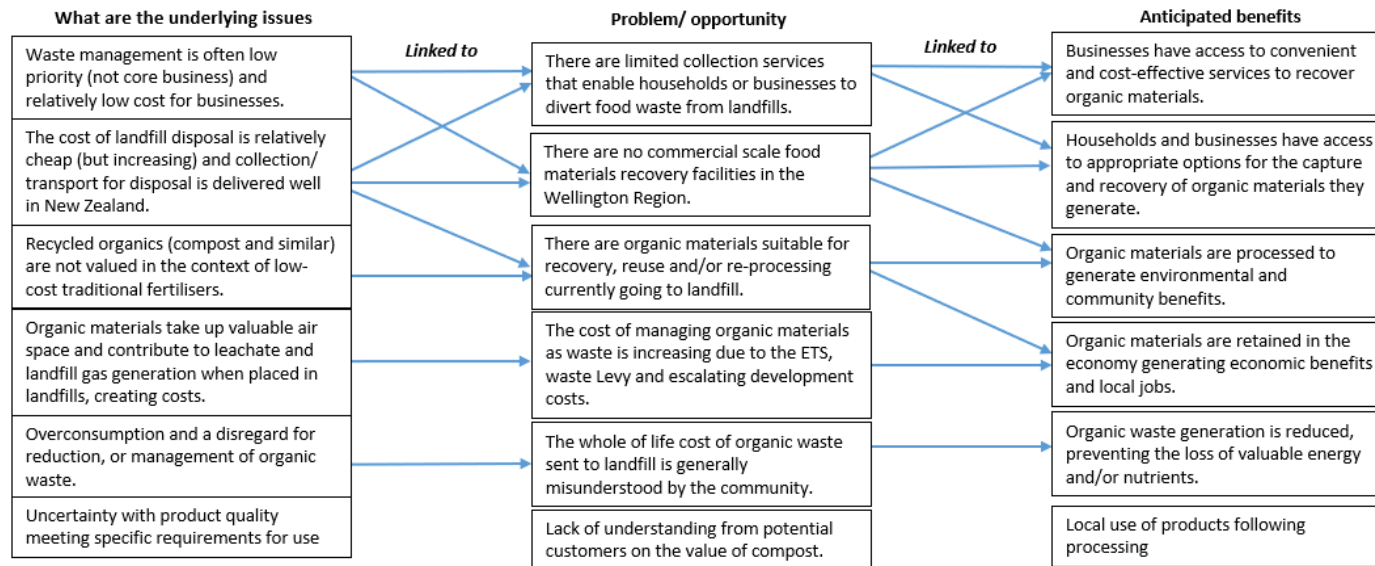


Figure 3-1: Opportunities and benefits summary

3.2 Key considerations

Key considerations were identified with the project team (PCC, HCC and WCC council officers and T+T) on the 27th October 2022. Targeted stakeholder engagement was also undertaken and these discussions were also considered when defining the key considerations for this project.

These key considerations will be important when assessing options and are provided below grouped under the key objectives for this project. Each consideration is relevant for collections, processing or both components.

Residents and businesses have access to appropriate organic material management options

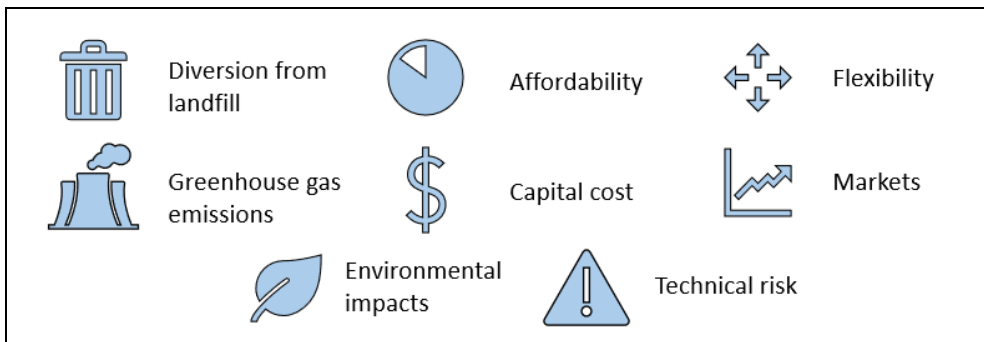
- Technical risk – design, construction and operating confidence and reliability in operation.
- Flexibility - to respond to current, signalled and potential future government policy intervention and action.
- Markets for outputs.

Deliver affordable and cost-effective organic material management for residents and businesses

- Capital cost (relevant to processing and not collections).
- Affordability (Council, ratepayers, businesses) (operating costs).
- Allowing existing diversion opportunities to continue.

Reduce the need for residual waste disposal

- Direct environmental impacts must be acceptable considering air quality (odour, dust, ...), water quality (e.g., healthy harbour, local streams), noise.
- Greenhouse gas emissions must be reduced by 40% by 2035 (operations, transport, off set, ...).



Assessing cultural impacts as part of the project was considered early in the project. Councils have been engaging with Iwi in the context of development of a new Regional Waste Minimisation and Management Plan. The councils will continue discussions with Iwi partners as broader planning and the thinking for this project progresses and once the project is at a stage where there are opportunities for Iwi involvement.

Impacts of options on existing services and community initiatives (e.g., food rescue, community composting) will continue to be considered into the Business Case.

Table 3.1: Summary of key considerations and explanation

Key consideration	Explanation
Affordability (Council, ratepayers, businesses)	Affordability will be defined as a cost range and considers capital and ongoing operational costs reflected in user charges or other funding arrangements.
Capital cost	Capital cost will be defined as a cost range. Note: it is important to consider capital cost for those who are investing in infrastructure. In the context of considering different options, capital costs is also considered as a component of affordability – see above.
Greenhouse gas emissions	The anticipated net greenhouse gas emissions associated with the options assessed.
Technical considerations	The level of risk associated with the options based on track record (NZ and international), complexity and supplier capability. Reliability. Availability of additional process inputs, for example bulking materials for the composting of putrescible materials such as food waste. Pre-processing requirements, for example depackaging of unwanted/expired food products.
Flexibility	The ability of options to adjust to changes in feedstocks, quantity, markets and policy framework.
Markets	The level of confidence in markets for the output(s) from the solution. Product specifications, for specific markets and to meet any relevant regulatory requirements.
Diversion from landfill	The amount of new diversion of organic material from landfill disposal.
Environmental impacts	The risk of adverse environmental impact (air quality, water impacts) for a well-designed and operated solution.
Health and Safety	Health and Safety (integral to any options identified).
Location	Availability and suitability of locations for processing.
Consenting risk	The ability to gain appropriate consents and building permits for specific or potential locations and infrastructure.

4 National policy and regional policy context

4.1 Context overview

Central Government guides the direction of waste and resource management within New Zealand. A range of legislation and policy sets the framework for waste management and resource recovery in New Zealand.

The purpose of specific components vary, but overall the intent, in alignment with the new Waste Strategy, is to transition towards a low-emissions, low-waste society, built upon a circular economy.

Key components of the framework include:

- Legislation, including the Waste Minimisation Act (2008), Litter Act (1979), Resource Management Act (1991), the Climate Change Response Act (2002).
- Policy tools under the Waste Minimisation Act 2008 including the Waste Disposal Levy, the Waste Minimisation Fund and the recently released Te rautaki para Waste Strategy.
- The Emissions Reduction Plan, prepared under the Climate Change Response Act 2002.
- The Local Government Act 2002 is also relevant, setting the framework for local government activity including local government activity related to waste management and resource recovery.

The framework is summarised in Table 4.1 with further details provided in the following sections.

Table 4.1: Relevant policy for waste across PCC, HCC, and WCC

National	Regional	Territorial Authority Specific
The Waste Minimisation Act 2008 (under review)	Regional WMMP as part of The Waste Minimisation Act 2008	HCC Long-term Plan 2021 – 2031 HCC Solid Waste Management and Minimisation Bylaw 2021 HCC local action plan as part of the regional WMMP
The Resource Management Act 1991 (under review)		PCC Long-term Plan 2021 – 2031 PCC Solid Waste Management & Minimisation Bylaw 2021 PCC local action plan as part of the regional WMMP
Climate Change Response Act 2002		WCC Long-term Plan 2021 – 2031 Solid Waste Management and Minimisation Bylaw 2020 Collection and Transportation of Waste 2014 WCC local action plan as part of the regional WMMP
Te rautaki para Waste Strategy 2023		
Emissions Reduction Plan 2022		
The Local Government Act 2002		

4.2 The Waste Minimisation Act 2008 (under review)

The **Waste Minimisation Act 2008** sets a framework to encourage a reduction in the amount of waste generated and disposed of in New Zealand, minimising environmental harm from waste and providing economic, social and cultural benefits⁷. The Act includes provisions related to imposing a waste disposal levy, establishing the Waste Minimisation Fund and enabling voluntary and mandatory product stewardship.

From July 2021 the New Zealand Government has progressively increased the national waste disposal levy at Class 1 landfills from \$10 per tonne, reaching \$60 per tonne in July 2024. Table 4.2 Alongside the increase, the waste disposal levy is also being progressively expanded to apply to waste disposed of at class 2, 3 and 4 landfills. At the time of writing, the waste disposal levy at Class 1 landfills has been \$30 per tonne since July 2023 (refer Table 4.2).

Table 4.2: Timeline for the increase and expansion of the waste levy

Landfill Class	Waste Types	1 July 2021	1 July 2022	1 July 2023	1 July 2024
Municipal Landfill (Class 1)	Mixed municipal wastes from household, commercial, and industrial sources	\$20/t	\$30/t	\$50/t	\$60/t

4.3 The Resource Management Act 1991 (under review)

The **Resource Management Act 1991** promotes sustainable management of natural and physical resources. Although it does not specifically define 'waste', the RMA addresses waste management and minimisation through controls on the environmental effects of waste management. The government is working through a reform of resource management law in New Zealand with a proposed Natural and Built Environments Act, Spatial Planning Act and Climate Adaptation Act.

⁷ See Waste Minimisation Act 2008 (Ministry for the Environment, 2008) available at [Waste Minimisation Act 2008 No 89 \(as at 01 January 2016\), Public Act Contents – New Zealand Legislation](#)

4.4 Climate Change Response Act 2002

The **Climate Change Response Act 2002** puts in place a legal framework to enable New Zealand to meet its international obligations under the United Nations Framework Convention on Climate Change, the Kyoto Protocol and the Paris Agreement. The Act was amended in 2019 to provide a framework by which New Zealand can develop and implement clear and stable climate change policies that:

- Contribute to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5 degrees Celsius above pre-industrial levels.
- Allow New Zealand to prepare for, and adapt to, the effects of climate change.

4.5 The Local Government Act 2002

The **Local Government Act 2002** covers a wide range of local government activities, all with the purpose of promoting social, economic, environmental and circular wellbeing both now and in the future. Of particular relevance to waste management and resource recovery is the requirement to develop a Long Term Plan, setting out Council priorities and budgets over a 10 year timeframe. The Long Term Plans are where spending that has been set out in the Councils' WMMPs are actually committed.

4.6 New Zealand Waste Strategy

In March 2023 the MfE released **Te rautaki para | Waste strategy**⁶. The vision for Te rautaki para is that “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”.

Te rautaki para sets the direction over the next three decades for work on waste by central and local government, the waste management sector, individual industries and businesses, and residents and communities. At the time of issuing this report, Te rautaki para is not considered statutory, beyond territorial local authorities needing to have regard of it in the preparation of their WMMP.

This strategy is focused on directing a collective journey towards a circular economy for New Zealand. The strategy vision is guided by a set of principles:

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

The priorities of Te rautaki para are aligned with the report Ināia tonu nei: a low emissions future for Aotearoa⁸ released by the Climate Change Commission in June 2021. These include:

- Reducing waste.
- Diverting organic materials from landfill to recycling or composting.
- Improving and extending landfill gas capture systems.

⁸ Ināia tonu nei: a low emissions future for Aotearoa (Climate Change Commission, 2021) Available at [Ināia tonu nei: a low emissions future for Aotearoa \(climatecommission.govt.nz\)](https://www.climatecommission.govt.nz/ināia-tonu-nei-a-low-emissions-future-for-aotearoa)

Together these priorities provide direction as to how New Zealand could meet its international emissions reduction commitments and its obligations under the Climate Change Response Act 2002 and actions that relate to waste. The Emissions Reduction Plan (see below) responds to the analysis and suggestions including actions addressing the disposal of organic materials to landfill.

The New Zealand Waste Strategy is a key implementation mechanism for the waste and resource recovery components of the Emissions Reduction Plan. The New Zealand Waste Strategy has set targets for organic materials recovery.

4.7 Emissions Reduction Plan 2022

The **Emissions Reduction Plan** was released in 2022 and is a mechanism to allow New Zealand to prepare for the effects of climate change, transitioning towards a more resilient low emissions economy. The plan sets out policies, strategies and actions for the decarbonisation of every sector. In terms of waste, organic materials are a key focus at both a household and business level alongside exploration of bans or limits for the diversion of organics from landfill. The plan outlines the following:

- Improve household kerbside collections of food scraps and garden waste.
- Invest in 2050 targets in line with the National Emissions Reduction Plan for biogenic methane in organic material processing.
- Resource recovery infrastructure.
- Require the separation of organic materials.
- Has a target of a 40 per cent reduction in biogenic methane by 2035 (relative to 2017 levels).

As noted above, the Emissions Reduction Plan relies on the New Zealand Waste Strategy to address waste and resource recovery related activities. In developing target emissions reductions, the ERP notes that:

... [the target] assumes 40 per cent of food waste diverted to composting (20 per cent windrow and 20 per cent in-vessel composting, or IVC) and 60 per cent to anaerobic digestion. It also assumes 100 per cent of diverted green waste to composting (60 per cent compost and 40 per cent IVC). In practice the best processing option should be selected based on availability of waste types and markets for potential products.

4.8 Regional policy and priorities

At a regional level, the key policy relates to the management of the impacts of organic materials collection and processing. In the Wellington Region this is addressed in the Regional Policy Statement (currently under review) and the Natural Resource Plan. Any proposals for processing will need to meet the policy intent and operate under the relevant rules in these documents.

4.9 Territorial authorities responsibilities

Territorial authorities have responsibilities under the Local Government Act 2002, Waste Minimisation Act 2008, and the Resource Management Act 1991.

WMMPs are developed in accordance with the requirements of the Waste Minimisation Act 2008. The Wellington region has a joint WMMP, which sets out the priorities and strategic framework for the minimisation and management of waste across the region. Reviews are completed every six years to ensure relevance and continual improvement.

The Wellington Region WMMP (2017-2023) has a regional action to develop a Resource recovery network. The network is to include 'facilities to divert more material including food and/or biosolids and other organic waste'.

Each of the Councils work to a Long-term Plan (LTP), prepared in accordance with the requirements of the Local Government Act 2002. These are the PCC Long-term Plan 2021-31, HCC Long-term Plan 2021-2031, and WCC Long-term Plan 2021–2031.

Each LTP provides an overview of the Council's overall strategy beyond the term of their Joint WMMP. With this, funding is committed to the implementation of the Councils' respective WMMPs.

Key themes across the 3 LTPs are:

- Resource recovery and diversion of waste as a means to mitigate climate change.
- Continuation and expansion of Council services including kerbside rubbish and recycling, transfer station and landfill operations.
- Commitment to investment in infrastructure for resource recovery and waste diversion.

WCC is also carrying out a significant body of work that intersects these three themes – the diversion of wastewater sludge from the Southern Landfill. This work is expected to significantly divert/decrease the volume of organic materials WCC sends to landfill, increase the lifespan of the Southern Landfill and significantly invest in WCC's waste management infrastructure.

The Council has received approval through their LTP to establish the processing facility that is due to be operational by 2026.

5 Current situation (where are we now?)

5.1 Data collection and analysis

A desktop-based assessment was completed using reports and data provided by PCC, HCC and WCC, that summarise information on organic material in each region. Information was also provided by commercial/industrial stakeholders.

Existing information on organic material reviewed included:

- PCC Annual Economic Profile 2021.
- PCC Waste Audit Project Report 2020.
- PCC Internal Recycling Systems Project.
- PCC Solid Waste Management Reporting 2018 – 2021.
- PCC Solid Waste Analysis Protocol (SWAP) Report 2022.
- Spicer Landfill Organics Drop Offs 2022.
- Silverstream Landfill (HCC) SWAP 2022.
- Audit of Kerbside Rubbish and Recycling Lower Hutt 2022.
- WCC Para Kai Trial Lessons Learned 2022.
- WCC SWAP Survey 2018.

Where necessary, this information was supplemented by:

- Information provided by Council staff.
- Information provided by commercial/industry waste generators and operators in the region.
- T+T knowledge of the sector in the Wellington Region.
- T+T knowledge of waste composition from similar regions in New Zealand.

A Situation Review Report has been prepared as part of the Wellington Region Waste Minimisation and Management Plan review and Waste Assessment. Information compiled in this report will be considered in the Business Case including noting any significant differences from the data presented here.

5.2 Defining organic materials

The organic materials considered in this Options Report are defined as:

- **Food waste (FO):** Food waste comes from food that is not eaten. This includes household kitchen scraps and food that is produced but not consumed. It also includes commercial waste created during production, processing, distribution and the sale of food.
- **Green waste (GO):** Green waste includes grass cuttings, hedge clippings, tree trimmings and other vegetation. This is sometimes also referred to as garden waste.
- **Organic material:** This type of material includes green or garden waste and food waste as well as other degradable materials such as biological sludges (from wastewater treatment), paper, cardboard and timber.
- **Food and garden combined (FOGO):** a collection which involves both food and green waste being collected together.

5.3 Waste management systems

5.3.1 Council services and facilities

5.3.1.1 Collections

Council kerbside collection services for landfill waste (incorporating organics) and separated organics (where relevant) only are shown in Table 5.1. These services are provided to households only.

Table 5.1: Council services (landfill and separate organic collections only) provided to residents and businesses capturing organic materials

District Council	Rubbish		Green waste		Food waste
	Size and collection period	Funding and pricing	Size and collection period	Funding and pricing	
Porirua City Council	60L bags – weekly	User pays, \$3.50 per bag	No separate collection provided	n/a	No separate collection provided
Hutt City Council	80L, 120L, 240L bins – weekly	Targeted rate \$105, \$148, \$296	240L (optional), 4 weekly collection	Rates, \$103/year	No separate collection provided
Wellington City Council	70L bags ⁹ – weekly except in central business district where collection is daily ¹⁰	User pays, \$3.29 per bag, \$16.45 for 5 bags (recommended pricing)	No separate collection provided. Rubbish bags must have less than 10% green waste		No separate collection provided

While WCC do not currently collect organic materials they have conducted trials that indicate organic kerbside collection is the most effective method to divert food waste from landfill¹¹.

⁹ Rubbish collection is for residential only and excludes multi-unit developments of 10 or more units.

¹⁰ Inner city collection between 5.30pm and 10pm on a daily basis.

¹¹ Para Kai Miramar Peninsula Trial, accessed on 21 October 2022 at <https://wellington.govt.nz/rubbish-recycling-and-waste/reducing-your-waste/miramar-food-waste-trial>.

5.3.1.2 Transfer stations

Transfer stations in the three participating districts are summarised in Table 5.2.

Table 5.2: Transfer stations in HCC, PCC and WCC

Transfer Station	Council Area	Location	Organics accepted
Seaview Recycling and Transfer Station	Lower Hutt	27 Seaview Road, Seaview, Lower Hutt 5010	Green waste stockpiled on site, awaiting transport to composting site
Recycling area, The Tip Shop and Transfer Station (Southern Landfill Tip Shop and Recycle Centre)	Wellington City	Landfill Road, Ōwhiro Bay, Wellington 6023, New Zealand	Green waste accepted for processing by Capital Compost
Spicer Landfill transfer station, Trash Palace Porirua	Porirua City	20 Broken Hill Road, Kenepuru, Porirua 5022, New Zealand	Green waste accepted as a single stream ¹² .
Silverstream Transfer Station	Lower Hutt	Reynolds Bach Drive, Stokes Valley, Lower Hutt 5019	Green waste accepted as a single stream ¹²

5.3.2 Private services including community scale initiatives

There are several private services operating across the three participating districts. These can be separated as private waste operators who provide bins to residents and businesses, and those that have collection schedules or drop off locations. There are also several food banks, wellbeing support and composting facilities in the region. These either accept edible food, accept green waste for composting, or use compost in their processes. It should be noted that the acceptance criteria of materials for green waste differs by provider.

There is one private transfer station that operates in Lower Hutt which uses Silverstream landfill to dispose of residual waste. Private services have been summarised below.

¹² Transported to an offsite composting facility

Table 5.3: Summary of private organic services

Council area	Name	Location	Type of containment and destination facility	Service	Frequency
Private operators					
PCC, Lower Hutt, WCC	EnviroNZ	127R Gracefield Road, Gracefield, Lower Hutt	Provider for home and business waste (Kai to compost) pickup (120L to 30 m ³).	Household/commercial	Dependant on location
PCC	McMud	36 Aruba Grove, Grenada Village, Wellington	Green waste from Spicer Landfill and local disposal. Waste is mulched at the landfill and windrow composted at McMud.	Household	Drop off only
PCC	Composting NZ (Otaihanga facility)	25 Ulric Street, Plimmerton, Porirua	Composting facility, accept green waste disposal. Do not accept food.	Household/commercial	Drop off only
PCC	LowCost Bins	4-6 Jepsen Grove, Wallaceville, Upper Hutt 5018	Wheeler bins, skip bins and recycling bin providers and collections.	Household	Weekly collections
Lower Hutt, PCC	Owyak Bin Hire Ltd	111 Parkside Road, Gracefield, Lower Hutt	Skip bin hire. Includes skip bins for organics.	Household/commercial	On request
Lower Hutt, PCC, WCC	Waste Management	27 Seaview Road, Seaview Lower Hutt	Offer 80L, 140L, 240L bins – varies across districts on availability. Skip bins (2m ³ , 3.5m ³ , 7.5m ³), FlexBins (1m ³ , 2m ³ , 3m ³). Green waste collection. Green waste sent to Composting NZ in Kapiti.	Household/commercial	Weekly and on demand
WCC	Capital Compost	Landfill Road, Ōwhiro Bay, Wellington	Composting facility, process green waste and food organics from business collections.	Household	Drop off only
PCC, Lower Hutt, WCC	Organic Waste Management Limited	PO Box 14 085 Kilbirnie Wellington	Provide food waste wheeler bins in 120L or 240L.	Commercial collection	Daily, weekly or seasonally
WCC	Kai to Compost	N/A	Bin service using 120 L or 240 L wheeler bins for food waste.	Commercial	Scheduled collection Monday to Saturday

Council area	Name	Location	Type of containment and destination facility	Service	Frequency
Food banks, wellbeing support and composting facilities					
PCC	Wesley Community Centre	6 Hagley Street, Porirua City Centre, Porirua	Community garden and compost.		Drop off, trial of urban farm (Porirua East School)
PCC	Edible Earth/ WELLfed	54 Hampshire Street, Cannons Creek, Porirua	Composting, accept green waste, provide household collections in Porirua City.		Not stated
PCC	Kiwi Community Assistance	Grenada North	Providing food rescue to Porirua supermarkets. Accepts edible food donations.		N/A
WCC	Kaicycle Composting	5 Hospital Rd, Newtown, Wellington]	Takes compostable scraps from homes, offices and small businesses (20 L bucket collection).		Weekly collection and weekly drop off options
Lower Hutt	Remakery	310 Waiwhetū Road, Fairfield, Lower Hutt	Grocer, kitchen and café using locally grown produce.		N/A
WCC	Kaibosh Food Rescue	11 Hopper Street, Mount Cook, Wellington	Food rescue supporting communities in need. Accepts edible food donations.		N/A
WCC	FoodPrint	N/A	Mobile app for customers looking for leftover food at discounted prices.		N/A

5.3.3 Material view

5.3.3.1 Food waste

Food waste is not currently separately collected in the participating districts by the respective councils. Private operators offer the following food waste collections:

- Collection of source segregated food waste from businesses (for example Kai to Compost, Organic Waste Management).
- Household and commercial compostable scraps collected in buckets or self-hauled to collection points (Kaicycle).
- Edible food donations can be made for communities in need (for example WELLFED, Kiwi Community assistance, Kaibosh).
- Some businesses and homes will self-compost (including vermicomposting) their food waste.
- Piggeries use (some) food waste as stock feed.

An overview of key food waste sources and destinations is provided in Table 5.4.

Table 5.4: Food waste collection operators and disposal destinations across the three participating districts

Food waste collection operators	Destination
Kaicycle Composting	Kaicycle composting facility, Newtown
Organic Waste Management	Capital Compost, Southern Landfill
EnviroNZ (Kai to Compost)	Capital Compost, Southern Landfill
Component of Transfer Station general waste (three Councils combined)	Landfill
Component of kerbside general waste collection (three Councils combined)	Landfill
Commercial/industrial food waste (pre and post-consumer)	Stock food Compost Landfill (combined with other landfill waste)
Private green waste collection operators	Compost (Composting NZ, Capital Compost)

5.3.3.2 Green waste

Major origins of green waste in the three participating council areas include:

- Collection of source-separated garden and green waste via the HCC household green waste bin collection service.
- Collection of household waste from Lower Hutt, PCC and WCC collected in bins that contain garden and green waste.
- Household garden waste that is collected via a privately serviced green waste bin.
- Household garden waste that is self-hauled by residents to a transfer station.
- Household general waste that is self-hauled by residents to a transfer station and contains garden waste.
- General waste generated by the commercial/industrial sector that contains significant portions of garden waste, for example from landscaping activities. This general waste is then collected for disposal (in wheelie bins, commercial/industrial waste bins or skip bins) or self-hauled to transfer stations.
- Commercial garden waste that is self-hauled by businesses to a transfer station.

A summary of garden waste collections across the three Council areas is shown in Table 5.5.

Table 5.5: Green waste generation in the three participating districts

Source	Average quantity (estimated tonnes per annum)	Destination
HCC household green waste collection service	2,000	Composting New Zealand
Seaview Transfer Station	Not available	Composting New Zealand
Spicer Landfill self-drop-off	3,300	McMud
Silverstream Transfer Station self-drop-off	2,000	Composting New Zealand
Southern Landfill drop off	1,000	Capital Compost
Component of general waste defined as compostable green waste being sent to landfill (three Councils combined) ¹³	27,300	Landfill
Other garden waste recovered (not through transfer stations) including private contractors i.e. Waste Management New Zealand	Commercially sensitive	Various private processing operations

¹³ SWAP Waste Composition Surveys for Southern, Spicer and Silverstream Landfills. Audit of kerbside rubbish and recycling in Lower Hutt. SWAP for Silverstream – data also includes green waste for Upper Hutt City Council. Spicer includes kerbside green waste from outside of the district.

5.4 Landfills across the council areas

There is one landfill in each city. These are summarised in Table 5.6 and presented in Figure 5-1. Southern Landfill also runs a transfer station, composting centre (Capital Compost) and The Tip Shop and Recycling Centre. Bagged compost produced at Capital Compost is sold from The Tip Shop.

There are transfer stations at Spicer Landfill and Silverstream Landfill with provision for green waste drop off.

Table 5.6: Summary of PCC, HCC and WCC landfills

Landfill	Council	Location	Consent Expiry/ Fill Date ¹⁴
Silverstream	Hutt City Council	Reynolds Bach Drive, Stokes Valley, Lower Hutt	Consented to 2055
Spicer	Porirua City Council	Broken Hill Road, Broken Hill, Porirua	Consented to 2030, capacity to 2045
Southern	Wellington City Council	Landfill Road, Ōwhiro Bay, Wellington	Current cell capacity to approximately June 2026. Planned extension to at least 2047.

At the time of writing (June 2023), the charges for green waste drop off at each landfill are:

- Spicer Landfill - \$15 per car and \$145.60 per tonne¹⁵.
- Silverstream Landfill - \$126.50 per tonne with a minimum charge of \$15 per vehicle¹⁶.
- Southern Landfill - \$80.50 per tonne, with minimum charges applied to private and commercial vehicles or trucks¹⁷.

¹⁴ Information from Wellington Region Waste Assessment 2016, accessed 20/12/22 at <https://mstn.govt.nz/wp-content/uploads/2017/02/Wellington-Region-Waste-Assessment-2016.pdf>.

¹⁵ Charges at Spicer Landfill at time of writing accessed 20/12/22 at: <https://poriruacity.govt.nz/services/rubbish-and-recycling/spicer-landfill/>

¹⁶ Charges at Spicer Landfill at time of writing accessed 20/12/22 at: <https://www.huttcity.govt.nz/services/rubbish-and-recycling/rubbish-and-recycling-fees-and-charges>.

¹⁷ Charges at Southern Landfill at time of writing accessed 20/12/22 at: <https://wellington.govt.nz/rubbish-recycling-and-waste/southern-landfill-tip-shop-and-recycle-centre/landfill-charges>

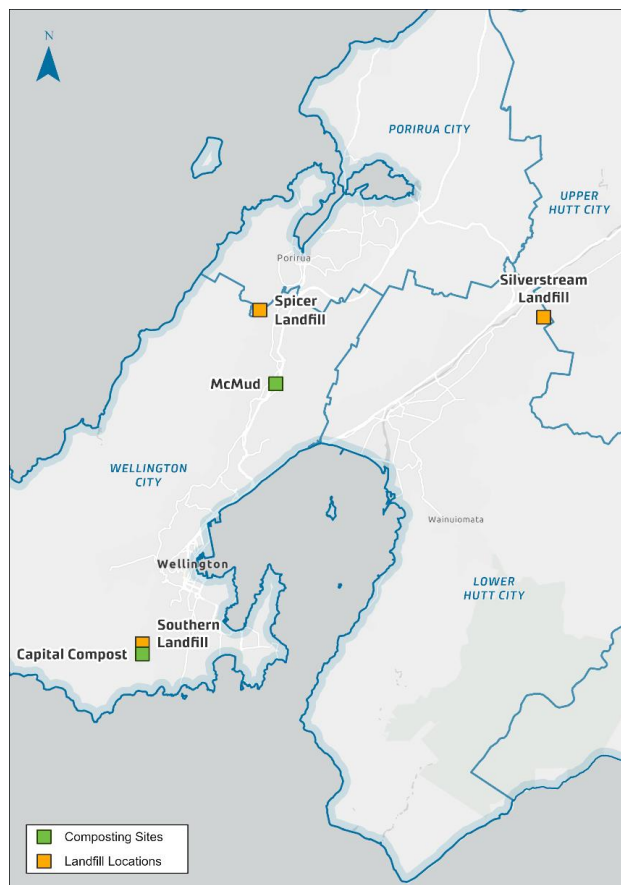


Figure 5-1: Landfill and composting site locations¹⁸

5.5 Waste quantity and composition projections

A key aim of this project is targeting food and green waste. This includes projecting the likely quantities to be created over the next 10+ years. Population growth is accounted for, and is likely to increase the volumes of organic material generated over this time. Population growth needs to be considered alongside the current government policy signals (as detailed in Section 2.3), which will likely require diversion of organics away from landfills from both residents and businesses.

¹⁸ Note: Spicer Landfill accepts drop off of green waste and sales of compost only. All green waste dropped off at Spicer Landfill is transported to McMud for processing. Composting NZ, located in Kapiti is located outside of the region and is included as it receives green waste collected from HCC green waste collections and Silverstream Transfer Station.

It is also worth noting that some already difficult to manage organic streams are becoming increasingly difficult to divert away from landfill. For example, composting of 'other' organic streams such as biological treatment sludges and food processing residues from commercial scale food manufacturing processes. Previously these organic material streams have been processed (composting) outside of the Wellington region¹⁹, however this option is no longer available, and these organic streams are sent to landfill.

With processing options limited there is potential for these materials to seek management/processing options within the Wellington Region.

5.6 Initial stakeholder engagement

The councils undertook preliminary engagement (mid 2022) with a number of business and community organisations in order to better understand the current barriers and opportunities that these organisations face in dealing with organic materials.

The discussions provided some insight into organic materials generated across the council areas, existing processing options, identification of barriers and opportunities for managing organic materials and attitudes towards organic materials management and collections.

Due to local body elections, stakeholder engagement was not extended to residents.

The key themes and considerations established throughout the conversations held with a number of organisations (mostly those organisations already involved in waste minimisation) are provided in Appendix A.

¹⁹ Examples include DAF sludge from meat processing and municipal biosolids. Challenges including managing odorous materials and limited end markets for products containing biosolids.

6 Options development

6.1 Overview

When considering the activities that occur for organic material management the key components are collection, processing and markets. These key components cannot be considered in isolation. Further detail can be found in Appendix B on the different options available and considerations for collections. This options assessment has been completed in a number of stages, which have been laid out below.

This project has considered options for organic material from two perspectives:

- Collections – providing services to residents and collating enough information to inform processing options. This is the first stage and focuses on materials to be collected and thus the available collection methods.
- Once collection options have been defined, this will inform the options available for processing, which will be considered in terms of the different technologies and location considerations.

Following on from the above, there are a number of flow on implications, which require consideration by the three councils as part of this report:

- Level of service that is provided to their customers – i.e. services that ratepayers receive.
- The councils are seeking information as part of this report and also the Business Case to support them in seeking funding from the Waste Minimisation Fund.
 - At this stage the councils are working together to collate information to feed into two Expression of Interest applications for submission to MfE.
 - o One application for collections, focussed on capital investment (collection containers).
 - o One application for processing (effectively assuming that councils will co-invest in establishing organic materials processing with grant funding support from the WMF).

6.2 Material available for collection

There are a range of materials ‘available’ in the currently landfilled material stream. As noted previously, the focus of this analysis is on food waste (including material from hospitality and food processing) and garden waste. These materials can be targeted as discrete materials or as mixed streams. Other degradable materials, such as untreated timber and paper/carboard are not considered further but could potentially provide additional feedstock.

Additional material streams that are not typically part of the mixed landfill waste stream include: waste treatment residues such as oils/fats/greases from grease traps, sludges from biological waste treatment processes and bedding from animal housing (poultry sheds, Wellington Zoo, aviaries). While these are unlikely to be targeted by collection or processing systems, some processing options may be able to accommodate these materials.

Note that the scope of this project does not include biosolids (solids from mixed household and commercial wastewater treatment).

The acceptance or not of **compostable packaging** is an important consideration²⁰. Compostable plastics are sold in New Zealand and have the potential to be present in food and green waste

²⁰ Some collections provide or allow for bin liners including compostable plastic liners. The ability of the selected processing option to handle these materials will be an important consideration in determining whether they will be used.

streams. Compostable, fibre based packaging (cardboard, bamboo) is also marketed in New Zealand. In general these materials can be challenging to process and may be indistinguishable from non-compostable materials. In this context targeting compostable packaging is **not recommended**.

6.3 Collection options

When considering the collection of organic materials, the receptacle used and methodology are important. These will vary depending on the target material, collection frequency and anticipated quantity of material handled. A summary of the available container options suitable for various target materials and collection approaches has been provided in B5.1.

The preferred collection container and collection approach will be defined by target materials. Anticipated material quantities and the distance to be travelled to the processing facility are also important considerations.

The collection options based on target material are:

- Green waste only.
- Food waste only.
- A combined green and food waste collection service.
- Collection of both green waste and food waste, but via separate collections.

The focus is collections from residents, however commercial food and green waste capture is also being considered. With regards to the options defined above, Table 6.1 provides further information on the collection options available – starting with defining the material to be collected. Other key information provided below includes:

- Customer group – who will receive the collection – households and potentially commercial activities.
- Projected quantity of material diverted based on an assume capture rate – (T) household and commercial.
- Collection bin type.
- Collection frequency.
- Rubbish collection frequency following implementation of the organics collection.

Anticipated cost and greenhouse gas emissions associated with the options have been considered and are provided in Table 6.1. Costs are based on publicly available information about collection systems and processing facilities across New Zealand. Costs are presented as:

- Total cost (anticipated tonnes processed multiplied by the cost per tonne).
- Cost per tonne.
- Cost per household each year (likely to be levied as a targeted rate).

When calculating emissions from the collection options, we have considered indicative emissions using the assumptions set out in Appendix C.

All kerbside service options above are suitable to operate alongside home composting and community scale composting.

The decision has been made to defer a decision on the collection bin type and vehicle type that will be adopted to be defined as part of the procurement process. The collection options considered have typical bin and collection vehicles and these have been noted where relevant.

6.3.1 Other considerations for collections

As well as assessing costs (affordability and capital cost) and greenhouse gas emissions, diversion from landfill and flexibility are also relevant when thinking about collections.

Diversion from landfill as part of a collection considers the amount of material which can be captured at the kerbside. This depends on a number of factors including:

- The type/s of organic materials being targeted (for example food only or food and green waste collected together).
- Container size for both the organic materials and rubbish bin.
- How many households participate in the organic materials collection service.
- How effectively the participating households use the service i.e. is all of the targeted material placed in the organic materials bin.

6.3.1.1 Diversion from landfill

Collection of both food and green waste will capture²¹ a larger volume of material, compared to a green only or food only collection for example. This is reflected in the tonnage diverted from landfill noted in the tables below. There is some evidence that collections targeting food only or green waste only capture a higher proportion of available material, but for this analysis we have assumed a target 50%²² capture of target materials in all cases for residential collections.

Participation of users in the collection service will need to be closely supported by a behaviour change campaign. This should begin prior to the roll out of the organic materials collection and run through roll out. Ongoing education and information is a critical part of service delivery, informing residents on how to use the system correctly and ensuring that money spent on service delivery delivers the best possible return.

Reducing the size of rubbish waste bins and collection frequency has been used around New Zealand to actively encourage diversion of recycling out of the rubbish bin. This should also be considered when rolling out an organic materials collection and the ability to encourage the correct participation (i.e. putting the right waste in the right bin).

Table 6.1 and Table 6.3 show tonnage collected at the kerbside and tonnage diverted from landfill. The data provided in Table 6.1 is for Wellington, Hutt and Porirua City councils only. However, in Table 6.3 (processing) we have included these volumes of organic material from outside of the districts, which includes Upper Hutt City Council areas contributing waste to Spicer and Silverstream Landfills.

6.3.1.2 Flexibility

Flexibility considerations for collections refers to the ability to adjust to changes, whether this is the type and quantity of organic materials targeted for collection at the kerbside or regulatory changes. For example a food only collection, which would likely use a 23L caddy, would not allow for the addition of green waste i.e. another bin would be required. Flexibility in terms of material collected is more relevant to processing technology considerations – to allow for both quantity and material type changes.

²¹ The 'capture' of organic materials from households is a function of how many households 'participate' and how much of the organic materials available from participating households is placed in the organic materials container.

²² Note: there is a range in capture rates reported across New Zealand from 38.8% reduction in food waste to landfill per household recorded as part of the Para Kai Miramar Peninsula trial, MfE estimates an average capture of between 45-55% as 'good' and over 55% has been recorded in Timaru.

6.3.1.3 New Zealand collection examples

Examples of organic materials collection from households in New Zealand include Tauranga (food only and optional green waste), Timaru (food and garden combined) and Hamilton (food only). Key metrics for these systems are noted in Figure 6-1.

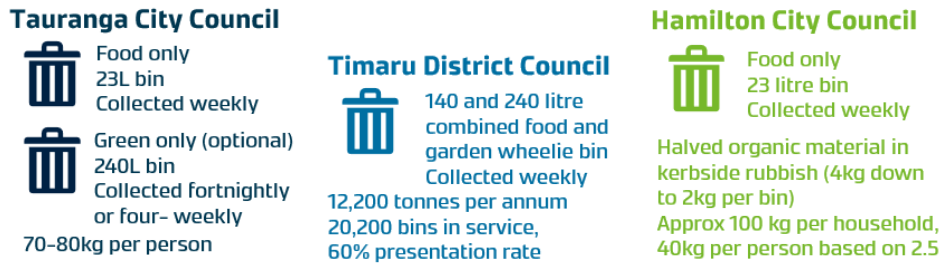


Figure 6-1 Example organic materials collection in New Zealand

It is worth noting that these are just three examples from around New Zealand. The volume of materials captured varies both between different collection types, but also even where the same service is in place.

6.3.2 Collection options summary

Table 6.1 summarises the collection options identified. The configuration of the collection approach (bins used, vehicle, collection frequency) for each option has some flexibility and will be determined in detail through detailed system design and procurement. The project materials captured (on an annual basis) make assumptions regarding households serviced and capture rate.

Table 6.1: Collection option information

Kerbside service option	Description	Customer group	Tonnage collected at kerbside per annum (three councils only) ²³	Tonnage diverted from landfill per annum (commercial)	Collection bin type /s (typical)	Collection vehicle type (typical)	Collection frequency ²⁴	Rubbish collection frequency	Collection emissions (kg/CO2/annum), range (see Appendix C for further details)
A	Green waste only	Household	5,070	0	>80L	Side-lifter	Four-weekly	Weekly	Electric: 550 – 800 Hybrid: 4,400 – 5,900 Diesel: 5,500 – 7,350
B	Food waste	Household and commercial	12,560	5,130	23L food waste (household) 80L+ food waste (commercial)	Low entry vehicle (manual)	Weekly	Fortnightly	Electric: 4,540 – 8,100 Hybrid: 34,000 – 61,250 Diesel: 42,700 – 76,800
C	Green waste, food waste (mixed collection)	Household and commercial	17,630	7,760	>80L	Side-lifter	Weekly	Fortnightly	Electric: 2,910 – 3,880 Hybrid: 22,000 – 29,350 Diesel: 27,580 – 36,780
D	Green waste, food waste (separate collections)	Household and commercial	17,630	7,760	240L green waste, 23L food waste	Side-lifter	Weekly – food waste Four-weekly – green waste	Fortnightly	Electric: 5,420 – 9,290 Hybrid: 40,760 – 70,170 Diesel: 51,100 – 87,960

²³ Excludes Upper Hutt City Council controlled organic waste as part of the rubbish collection. Excludes the organic material portion of waste received at Spicer Landfill from collections outside of Porirua.

²⁴ Collection frequency may vary and will be determined through procurement.

6.4 Processing options

6.4.1 Processing options identified

As mentioned prior, once a collection option(s) has been chosen, the options for processing can then be considered (demonstrated in Table 6.2). The processing options discussed below are suited to various combinations of feedstock. In some cases feedstock will be collected together, in others separately collected feedstocks (and supplementary materials) are combined prior to, or during processing. Processing options are further explored in the Business Case.

The purpose of this section is to highlight processing options and provide information to inform any future procurement process. It is likely that procurement will allow respondents to nominate a range of processing solutions subject to achieving key outcomes and addressing the considerations noted in this report.

Table 6.2: Processing options and suitable feedstocks

Processing options	Food waste	Green waste	Food and green	Other materials	Comment
Food rescue	✓	✗	✗	✗	Protecting food quality is important.
Stock feed	✓	✗	✗	✗	
Community composting	✓	✓	✓	✗	Limited scale and careful management of food waste component would be required.
Vermicomposting	✓	'Soft' green waste	'Soft' green waste	✓	Some green waste can be processed. Pre-processing is important.
Aerated static pile composting	✓	✓	✓	May be suitable	Getting the mix right and pre-processing are critical to producing a quality product.
Windrow composting	✗	✓	Subject to location	✗	
In-vessel composting	✓	✓	✓	May be suitable	Getting the mix right and pre-processing are important. Post processing maturation required.
Wet anaerobic digestion	✓	May be suitable for 'soft' green waste	May be suitable for 'soft' green waste	May be suitable	Getting the mix right and pre-processing is important. Digestate may require dewatering or other processing.
Dry anaerobic digestion	✓	May be suitable for 'soft' green waste	✓	May be suitable	Getting the mix right and pre-processing are important. Post processing maturation of digestate required.

Note: soft – green waste which excludes branches/ twigs.

Processing options cannot be considered alone without thinking about markets and the ability to have a guaranteed outlet for products following processing.

Table 6.3: Processing option information

Kerbside service option	Processing options	Customer group	Tonnage diverted from landfill per annum (household) ^{25,26}	Tonnage diverted from landfill per annum (commercial)	Total cost per annum (tonnage diverted x cost per tonne) ²⁷	Cost per tonne	Cost per household	Greenhouse gas emission savings – tonne CO ₂ -e) ²⁸
A	Green waste only <ul style="list-style-type: none"> • Windrow composting 	Household	8,750	0	\$700k-\$890k	\$80-\$100	\$70-\$101	Up to 3,100
B	Food waste <ul style="list-style-type: none"> • Wet digestion • Aerated static pile composting • In vessel composting • Vermicomposting • Dry digestion 	Household and commercial	17,730	5,680	\$2.3M-\$3.6M	\$100-\$150	\$71-\$106	9,050 – 12,600
C	Green waste, food waste (mixed collection) <ul style="list-style-type: none"> • Aerated static pile composting • In vessel composting • Dry digestion 	Household and commercial	26,560	7,760	\$4.4M- \$5.3M	\$125-\$150	\$86-\$190	12,950 – 18,250
D	Green waste, food waste (separate collections) <ul style="list-style-type: none"> • As for A and B 	Household and commercial	26,560	7,760	\$3.0M-\$5.3M	Green: \$80-\$100 Food or combined: \$100-\$150	\$140-\$210	12,950 – 18,250 (note collection emissions for two collections not included)

²⁵ Projected tonnage based on population growth for the three council areas to 2033. Capture rate of materials applied – 50% for all households, 70% for commercial.

²⁶ Includes food and green waste from households including out of District material to Spicer Landfill and material from Upper Hutt.

²⁷ Costs based on projected tonnages for 2033, cost range presented at present day (2023). Cost based on tonnage of household and commercial tonnage.

²⁸ Emission savings based on household and commercial organics processing tonnages for 2033.

6.4.2 Other considerations for processing

Aside from cost and greenhouse gas emissions the following must also be considered with regards to processing technologies: diversion from landfill, technical risk, flexibility, markets and environmental impacts. The Business Case will further explore the processing technology options.

6.4.2.1 Diversion from landfill

The amount of new diversion of organic material from landfill disposal. Material captured at the kerbside and also the ability to capture other organic material dropped off at transfer stations or directly at the tipface that is not currently being diverted away from landfill.

It is worth noting that there is the ability to capture organic materials from other sources for example: non-council controlled materials from privately collected rubbish collections within the three council areas and rubbish collections undertaken outside of the councils areas but with the waste ending up at one of the three council owned landfills.

6.4.2.2 Technical risk

The level of risk associated with a processing technology is based on track record and its application both internationally and within New Zealand. Lower technical risk is generally assigned to proven technologies already in operation within New Zealand. Technical risk also considers how technical the process is, for example: windrow composting has a lower complexity to anaerobic digestion for example.

6.4.2.3 Flexibility

The ability of the technology to adjust to changes in incoming material type and quantity, for example seasonal changes in green waste. Flexibility can also be considered in regard to output products from processing technologies. For example the ability to adjust products to suit market demand.

6.4.2.4 Markets

Further work is required to understand the availability of markets suitable for products produced from the processing technologies. It is recommended to leave the selection of the processing technology to a procurement process. At that stage, the ability to identify and secure suitable markets will be a key component for respondents.

Access to markets will be a function of a number of factors including:

- Ease of use (transport, application, any approvals required for use).
- Nutrient value.
- Cost.

6.4.2.5 Environmental impacts

The impact of the processing technology on the surrounding environment through the potential impacts to air and water. For example, enclosed systems, where there is containment of odour and water (leachate) from processing are likely to be preferred when compared with processing of uncontained organic materials. This is given the potential for uncontained organic material to cause adverse environmental impacts where effective mitigations are not in place.

6.4.3 Location

When the location of a new facility is being considered, a number of questions need to be answered and depending on the technology, the answer may be different. These questions include:

- Area required for processing.
- Existing location options available in/ just outside of the region.
- Land characteristics – i.e. slope, nearby receptors.
- Buffer distances.
- Distance from collection areas.
- Consenting and building requirements.
- Layout possibilities – enclosed etc – links into the above.
- Proximity to markets.

It may be possible to establish new or additional processing activities at an existing organic materials processing facility. Examples may include:

- Other existing windrow composting operations.
- Composting New Zealand – existing windrow composting in Kapiti (Otaihanga) and Wairarapa (Masterton).
- Paranui Organics – existing windrow composting in Horowhenua (Foxton).
- McMud Earthworks – existing windrow composting in Wellington (Grenada).

A new facility would require significant space (to allow for suitable buffer from neighbouring activities) and ideally be located close to areas where materials are collected and/or to markets for products and energy (from anaerobic digestion). Where significant transport of collected materials or product are required, consolidation or other measures to optimise transport costs may be required.

6.4.4 Consenting and building permits

Each processing technology option (for example vermicomposting or in-vessel composting) needs to be considered within the context of the relevant rules and requirements of the applicable regional and district plans.

Consenting implications are highly dependent on the location of the site as well as the design of the processing technology and a comprehensive analysis of consenting requirements will need to be undertaken upon final site selection. The potential consenting requirements are considered for the purpose of processing technology comparison and analysis only.

Key matters to consider will include:

- Odour, particularly for food waste and other high nutrient feedstock.
- Storage and stockpiling of compost.
- Water management, to avoid the discharge of high nutrient or sediment loads.
- Material logistics – heavy traffic movements to/from the site.
- Management of potential contaminants in feedstock.
 - Physical contaminants like plastics.
 - Noxious weeds in green waste.
 - Chemical contaminants.

Table 6.4 provides an overview of some of the consenting requirements that different processing technologies are likely to require and will be further considered as part of the Business Case.

Table 6.4: Summary of consenting and building permit requirements for each processing option

#	Option	Potential consenting requirement
1	Open Windrow	<ul style="list-style-type: none"> • Land use consent • Discharge consent (to air, land and/or water) • Cultural impact assessment • Water permit (potential)
2	In-vessel composting	<ul style="list-style-type: none"> • Land use consent • Discharge consent (to air, land and/or water) • Cultural impact assessment
3	Anaerobic digestion (dry)	<ul style="list-style-type: none"> • Land use consent • Discharge consent (to air, land and/or water) • Cultural impact assessment
4	Anaerobic digestion (wet or dry)	<ul style="list-style-type: none"> • Land use consent • Discharge consent (to air, land and/or water) • Cultural impact assessment

Note: consenting implications are dependent on location

7 Next steps

The next steps following this report are to take forward the four collection options below into the Business Case for evaluation:

- Green waste only.
- Food waste only.
- A combined green and food waste collection service.
- Collection of both green waste and food waste, but via separate collections.

Glossary

Term	Definition
Anaerobic digestion	The process through which bacteria break down organic matter without oxygen.
Buffer distance	The distance between the processing facility and people or property that may detect odour.
Bulking agent	Carbon rich material that provides a food source for bacteria to aid in the breakdown of organic materials.
Business case	Detailed assessment that defines, assesses, and recommends an option/s.
Circular economy	The circular economy is an alternative to our traditional linear economy based on three principles: eliminate waste and pollution, circulate products and materials, and regenerate nature.
Community scale composting	Includes provision of composting facilities (generally processing, not collection or sale of compost) tending to take place at community gardens, public facilities including schools, marae, community centres. Usually compost processing is provided as an ancillary activity to the primary activity or purpose, or it is an internally funded in-house system exclusively for processing the organic materials generated on-site.
Compost	The processing of organic materials through an aerated pile system to produce a nutrient rich soil amendment. Compost also refers to the end product of this process.
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.
Feedstock	Raw material to supply a process including but not limited to vermicomposting, composting, and anaerobic digestion.
Food and garden combined (FOGO)	A collection which involves both food and green waste being collected together.
Food waste (FO)	Food waste comes from food that is not eaten. This includes household kitchen scraps and food that is produced but not consumed. It also includes commercial waste created during production, processing, distribution, and the sale of food.
Green waste (GO)	Green waste includes grass cuttings, hedge clippings, tree trimmings and other vegetation. This is sometimes also referred to as garden waste.
Greenhouse gas emissions	Gases that trap heat in the atmosphere and contribute toward the effects of global warming including carbon dioxide, methane, nitrous oxide, and fluorinated gases.
Key considerations	Considerations employed in the evaluation of options including technical risk, capital cost and greenhouse gas emissions.
Landfill	Facility for the final controlled disposal of waste in or onto land.
Level of service	The ability of Council to deliver 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 in a cost-effective manner.
Long term plan (LTP)	Sets the direction for the next 10 years of Council activities, outlining investment and funding of these.
Material stream	A subset of waste e.g., commercial waste, green waste etc.
Organic material	This type of material includes green or garden waste and food waste as well as other degradable materials such as biological sludges (from wastewater treatment), paper, cardboard, and timber.
Organics processing	Processing of any organic waste, including but not limited to composting, anaerobic digestion, and vermicomposting.

Term	Definition
Product stewardship	Taking responsibility for the products we use e.g., responsible disposal or recycling of a product and/or designing a product which can be broken down into recyclable or reusable components.
Recovery rate	Percentage of extraction of materials or energy from waste or diverted material for further use or processing including making waste or diverted material into compost.
Recycling	The reprocessing of waste or diverted material to produce new materials.
Refuse	An alternative name for rubbish. Material with little other management options other than landfill.
Requirements	A necessary condition. In this context relative to consenting, legislation and processing.
Rubbish	Waste, that currently has little other management options other than disposal to landfill.
SWAP	Solid Waste Analysis Protocol. Captures a snapshot of waste composition at a single point in time across a small subset of the larger population.
Technology	Methods for processing organic waste e.g., composting, anaerobic digestion or vermicomposting.
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 discarded.
Waste audit	A snapshot of waste composition at a single point in time across a small subset of the larger population. This term may be used interchangeably with SWAP in the context of this report.
Waste hierarchy	A guide to prioritising activity, focussing on reducing waste before recycling or recovery of materials. Where materials cannot be recycled or recovered the focus is on safe treatment and disposal.
Waste levy	A charge of \$50 per tonne of mixed municipal waste disposed of at a class 1 landfill. The waste disposal levy raises revenue for initiatives to reduce waste and encourage resource recovery (e.g., composting and recycling).
Waste levy funding	Funding Council receives through the Waste Minimisation Fund.
Waste minimisation fund	A fund administered by the Ministry for the Environment which is generated through the waste levy (a charge added per tonne of waste that raises revenue for initiatives to reduce waste and encourage resource recovery).

9 Applicability

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

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Appendix A Preliminary stakeholder engagement

Please note that the below is a reflection of the discussions held with a number of organisations and may not be a reflection of all organisations.

Appendix A Table 1: Key stakeholder engagement themes

	Businesses	Community Groups	Waste Processors
Barriers	<p>Collections are not frequent enough (waste becomes odorous/ a nuisance).</p> <p>Collections are too costly.</p> <p>Bin sizes do not suit the needs of the business.</p>	<p>Behaviour change is required in order to encourage the right behaviours to enable waste reduction.</p> <p>The demand for compost exceeds the quantity of compost produced from the organics materials currently accepted for processing.</p> <p>Requirements to ensure compliance with health and safety legislation.</p>	<p>Lack of storage for organic materials before processing. Especially during summer months due to larger quantities of garden waste.</p> <p>Difficulty in securing appropriate land for organics waste management and also gaining the required consents.</p> <p>Increases in waste levy (cost for landfill) may drive contamination (for example garden waste collections being used for the disposal of unaccepted materials for organic material processing) and devalue compost.</p>
Opportunities	<p>A need for behaviour change to reduce waste</p> <p>Support responsible waste management and minimisation.</p> <p>Would support/ continue to support a community scale initiative relative to organic materials (food rescue, community compost etc).</p> <p>Request for exemptions and/ or opt in services for those businesses already close to zero.</p> <p>New services would need to be cost effective to compete with existing services.</p>	<p>See a need for behaviour change to reduce waste.</p> <p>Encouraging of greater connection and coordination between groups and Councils.</p>	<p>See a need for behaviour change to reduce waste.</p> <p>Have capacity to process more organic material.</p> <p>Would like to work with Council regarding organic material management.</p>

Appendix B Organic material management approaches

B1 Waste Hierarchy

One of the six guiding principles of Te rautaki para Waste Strategy (2023) is to *apply the waste hierarchy preferences to how we manage materials*.

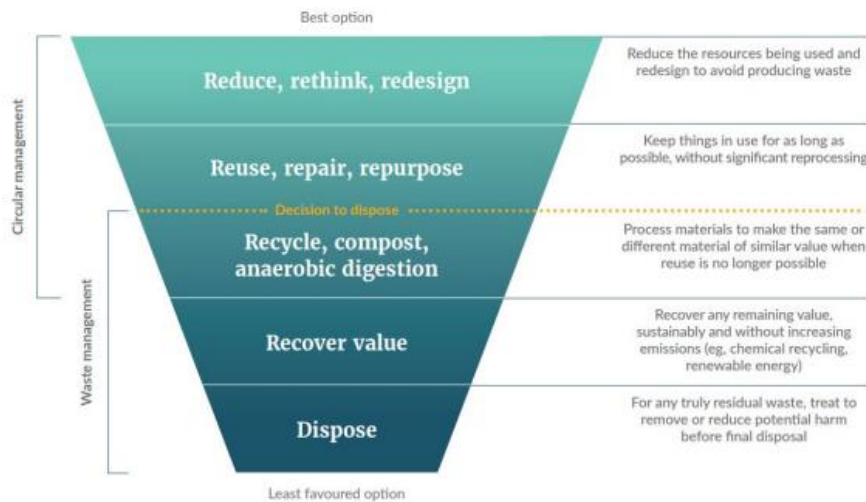


Figure 1 9-1: Waste Hierarchy, MfE (2023), Te rautaki para Waste Strategy.

The hierarchy included in Te rautaki para is separated into two sections; those options that occur prior to deciding to dispose of a material, and those that occur post. Options higher up the hierarchy tend to provide the best overall social, environmental and economic gains.

Using the waste hierarchy framework, the approach to managing organic material in order of preference include:

- Reducing the resources being used and redesign to avoid producing waste.
- Keeping things in use for as long as possible, without significant reprocessing.
- Processing materials to make the same or different material of similar value when reuse is no longer possible.
- Recover any remaining value, sustainably and without increasing emissions (e.g. chemical recycling, renewable energy).
- Treating to remove or reduce potential harm before disposal of any truly residual waste.

B2 Option development overview

Once produced, organic material in many cases is included as part of the residual waste stream and sent to landfill. This reflects the lack of convenient alternatives available to residents and businesses beyond source reduction and community diversion initiatives as advised by a number of territorial authorities.

For the purposes of this options analysis, we have considered a range of options for managing food and green waste generated across the three council areas from residents and businesses.

Options have been considered with respect to its ability to handle current and likely future waste quantity and composition. The organic material recovery and disposal options discussed in the following sections are presented in order of waste hierarchy preference, noting that not all levels of the waste hierarchy are examined in detail in this report.

Using the hierarchy presents an opportunity to address an issue particular to organics: high water content mean materials can be heavy for a given volume. The typical high water (almost 70% of average organic material) means that options with no or minimal transportation of organic material are often attractive options for organic materials management.

In some cases, organic material can be managed at household or business level through small scale approaches such as composting or worm farming. Employing these options will create a material of value when reuse is no longer an option.

In most cases (but not all) where onsite management is not an option, before materials can be processed they need to be 'collected' in some way. There are a number of options for the 'collection' of organic material from residents and businesses. These include:

- Council or private collections - garden waste and/or food organics.
- Local collection points e.g. organics collection point for apartment buildings or for communities.
- Centralised collection points, for example Council or private sector transfer stations/recycling facilities.

A functioning 'system' requires collection, processing and markets with one or more activity under each heading.

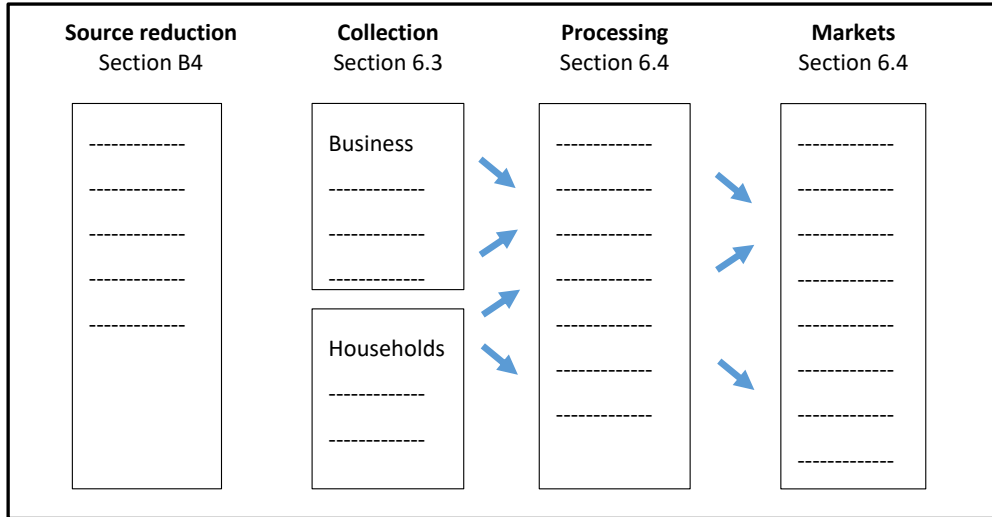


Figure 2 9-2: Organic materials recovery system components

B3 Consideration of circular economy

The Ellen MacArthur Foundation circular economy system diagram (see below), known as the butterfly diagram, illustrates how continual flow of materials look in a circular economy. This diagram explores the technical cycle (in blue) and biological cycle (in green) where the value from materials or nutrients are extracted and the principles of the waste hierarchy are implemented.

The ideal scenario reflects the concept of a circular economy where nutrients and organic matter in the organic material is used to maintain soil health and becomes incorporated into a product/s. This may include the recovery of energy as part of re-processing of materials, for example via utilisation of biogas produced through anaerobic digestion. Alternative scenarios that do not attempt to extract value from organic material represent a linear approach, where organic materials are disposed alongside other waste types in a landfill.

The nutritional content, structure, moisture retention and other key soil properties differ depending on the inputs, collection approach and processes used, and therefore the most suitable end market applications differ.

The overarching theme is that quality and uncontaminated inputs make the best quality outputs for end market reuse. This means that the way that materials are collected is a critical component of securing sustainable markets for organic material derived products.

Processing approaches produce end products of varying physical characteristics, quality and potential end market use. Organic materials processing outputs can be thought of as a range of soil improvers. Many processing system outputs require processing, transportation, maturation, blending and screening prior to reaching appropriate standards for application. As is the case for collection, processing has a critical role in enabling sustainable end markets.

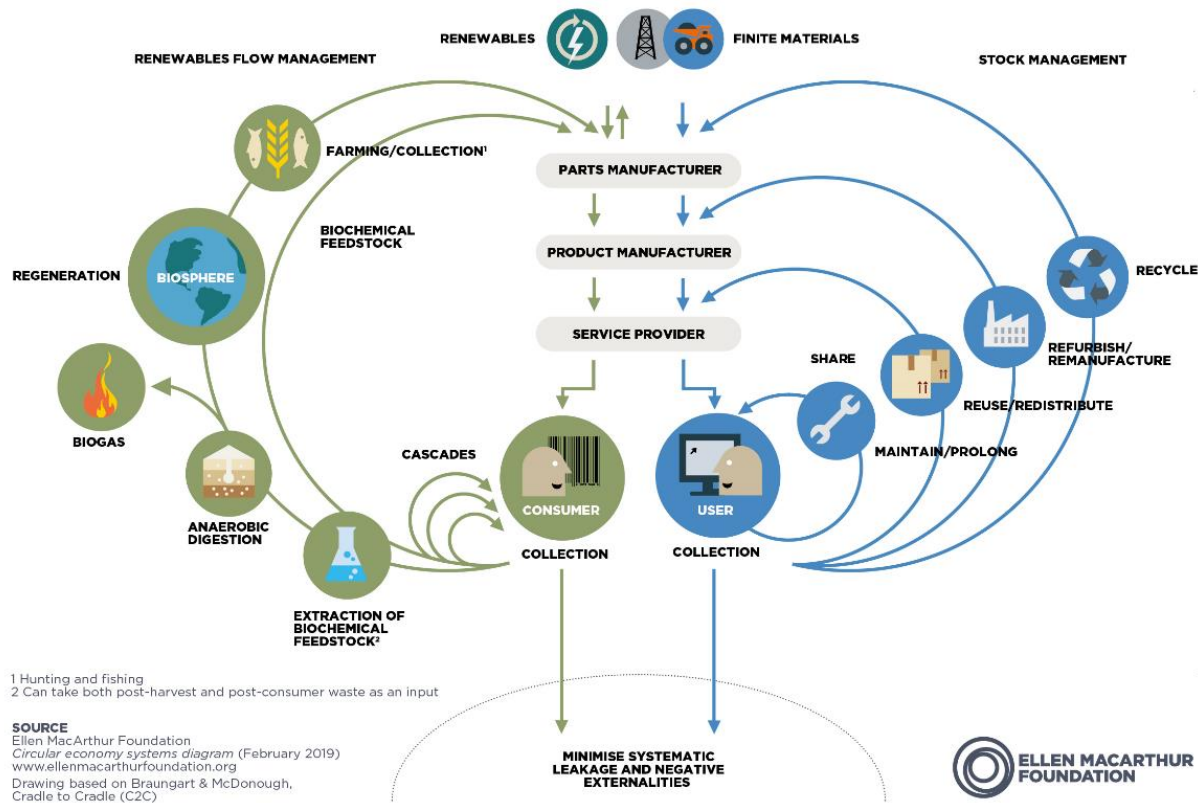


Figure 3 9-3: Ellen MacArthur Foundation, Circular Economy system (Butterfly diagram)

The organic material recovery and disposal options discussed in the following section are presented in the order options are considered in the waste hierarchy, starting with reduction, then reuse, recycling/recovery and then disposal. Not all levels of the waste hierarchy are examined in detail in this report.

B4 Source Reduction

B4.1 Reducing organic materials generation

The Love Food, Hate Waste campaign being run at a national level and supported by the three councils is a good example of this approach. Other examples are referenced in the relevant sections below.

Nationally, there are a number of behaviour change campaigns that encourage source reduction. These include, but are not limited to, Love Food Hate Waste NZ and Zero Food Waste Challenge. Love Food Hate Waste NZ provide recipes, tips, and storage advice that equip people to reduce the food waste they create. They have also partnered with New World supermarkets to produce seasonal meal plans designed to be zero food waste. People may engage with these meal plans on the basis of cost-reduction, reducing waste inadvertently.

The Zero Food Waste Challenge provide similar resources via their pocket guide. These resources may be beneficial to supplement any behaviour change initiatives driven by the councils.

At a national level, businesses are encouraged to reduce food waste via voluntary commitments including the 'Kai Commitment', driven by NZ Food Waste Champions 12.3. This space continues to evolve and is less developed when compared to behaviour change campaigns for individuals and households.

The councils provide a range of their own behaviour change resources including online videos (WCC). The majority of these resources focus on managing organic materials, rather than source reduction. There is an opportunity for the councils to develop upon these resources independently, or collectively, depending on resourcing and budget requirements.

The councils also provide resources to businesses that may enable them to reduce organic materials. For example, WCC has the dedicated webpage "Reduce your business food waste".

The councils are actively working with residents and businesses to reduce the generation of organic material. For the purposes of this Options Report, it is assumed that ***this activity will continue***.

B4.2 Managing organic material at its place of creation/on site

While not reducing the generation of organic material, encouraging residents or businesses to manage organic material on site or within their operation appropriately (if and where appropriate) avoids the need for council or a third party to collect, process and/or dispose of the material.

Home composting initiatives take the onus away from councils to provide infrastructure and staff to process organic materials. Instead, favouring a more circular, local approach utilising education and engagement programs.

Home composting involves the accumulation of food and other organic material that is then processed into a compost, worm farm, or bokashi system at the household where the waste was created. The type of system the household employs will be dependent on the amount of available space, the number of people in the home, and how involved the household would like to be in managing their food waste.

While each system produces a unique output, each is beneficial to the soil and can be used by the household, providing a circular solution to managing organic material. The quality and amount of output these systems create will be dependent on the level of activity, inputs, rainfall, season, and engagement and knowledge of those running the system.

While the councils cannot control many factors, they can increase knowledge and engagement with these systems. In some cases, participation is encouraged by councils by subsidising the required equipment or providing free or low cost training.

For individuals not able to engage in their own compost system, online networks such as ShareWaste NZ allow for small scale local networks to be established. These online networks connect individuals wanting to divert their own organics to those with capacity in their own home or community composts. These networks are well suited for urban environments where individuals may not be able to establish compost systems of their own and transport distances are short.

The councils already encourage residents and businesses to manage organic materials on their own sites. For the purposes of this Options Report, it is assumed that **this activity will continue**.

B5 Collection of organic materials

B5.1 Collection options

In New Zealand, Australia, the UK and Europe, a variety of collection arrangements exist to capture organics at the kerbside from households and commercial properties. Larger generators of organic materials have access to on premise collection systems, for example bins in commercial kitchens or bulk containers at large scale food processors.

In New Zealand, the most common model used across all kerbside collections, including larger councils, is via wheeled bins ranging from 240 L to 23 L containers (see below). Larger bins are predominantly collected via semi or fully automated side loader vehicles while smaller containers may be manually emptied.

In New Zealand, organic materials at a household and commercial scale are generally collected via

- Food only (FO) from households 23L bins (may or may not include liners and/or caddies).
- Food only from commercial kitchens in larger bins (80-240L).
- Food processing waste in sealed bulk containers (up to several m³ capacity).
- Food and garden organics (FOGO) in 80-240L bin options.
- Green waste only (GO) typically in 240L bins (see below).



Figure 4 9-4: 23L bin (left). 80, 140, and 240 L bins (right).

Where large quantities of materials are generated, for example at large processing sites, organic materials are typically moved in sealed bulk containers. Where materials are processed on site, conveyors or pumping may also be used if appropriate.

Collection frequencies vary depending on the type of organic material being collected and also the nature of the source. In some cases, separate collection of organic materials are accompanied by reduced collection frequency for residual waste.

Kitchen caddies are often provided where collections target food waste from households. The provision of a small bin for capturing and transferring food waste to the collection container improves convenience and therefore material capture.

Wheelie bins and Front load bins (FLB) are available in a range of sizes. Smaller wheelie bins are suitable for kerbside collections. Large wheelie bins are suitable for multi-unit dwellings and commercial quantities of materials including from areas with restricted heavy vehicle access. FLB are suitable for commercial quantities of waste, in some cases including multi-unit residential buildings. Front load vehicles require suitable access including height for emptying bins over the vehicle cab.





Appendix B Table 1: Collection options

Container	Target material				Collection approach		
	Food waste	Green waste	Food and green	Other materials	Manual empty	Automated empty	Multi-point/bin swap
Kitchen caddy (e.g. 5L)	✓	✗	✗	✗	NA, for transfer to collection container		
Small bin (23L)	✓	✗	✗	✗	✓	~	✓
Wheelie bin (80-360L)	~	✓	✓	~	✓	✓	~
Wheelie (>360L), FLB (1.5 – 4.5 m ³)	~	~	~	~	✓ (rear load)	✓ (front load)	✗
Bulk bin	✓ (large scale)	✓	✗	✓	✗	✓ (gantry truck)	✓
Frequency	Weekly	Various	Weekly or fortnightly	Various	As required		

All collection options are considered potentially relevant, in various combinations.

- Kitchen caddies are suitable for combination with household food and food and green waste collections.
- Small bins (80L) are suitable for food waste collections from households and small businesses.
- Wheelie bins (80 – 240L) are suitable for green waste and food and green waste collections from households and small collections. They are also suitable for food waste collection from hospitality businesses.
- Larger wheelie bins and FLB are suitable for food waste collections from large food waste generators.
- Bulk bins (skip bins) are suitable for large scale food waste (and other organic materials) and bulk green waste collection.

Appendix B Table 2: Household and commercial organic materials collection systems




Containment	Collection method/ vehicle examples	Description	Collection frequency	Examples
<p>Multi-point collection (“Milk run”)</p> 		<p>Small collection vehicle, such as a bikes or a van.</p> <p>A key characteristic is the swapping of containers rather than emptying containers into a larger container on the vehicle. This operation is often utilised for collection of smaller multiple loads which are some distance away from each other.</p> <p>It may be necessary to have more than one crew member, depending on the type, weight and size of the containers being used.</p> <p>This option offers flexibility to suit the scale of the operation.</p>	<p>Collection occurs between 9am and 5pm, days vary between hubs and customers.</p> <p>Drop-offs available at least once per week.</p>	<p>Kaicycle, Wellington City.</p> <p>Community Compost, Nelson.</p>
<p>23 litre bin²⁹, Wheelie bin 55-65 litres³⁰</p>  <p>Larger bins (up to 660 litres for commercial kitchens or similar operations³¹)</p> 		<p>In New Zealand, the 23 litre FO bin is the predominant system for food organics collection from households.</p> <p>Household FO collections are generally collected in a dedicated truck and the small bins are loaded on to the truck by hand. This system is not suitable for combined food and green collections.</p> <p>This system can be applied to areas of high-density properties, where little to no garden waste is requiring capture, or the collection is focused on food organics only.</p> <p>Commercial food organics (in larger bins) may be collected using side or rear load vehicles.</p> <p>Bin liners are used for some collections – to avoid or reduce the need for cleaning of bins. These are typically compostable plastics but in some cases system users are encouraged to use newspaper or similar materials. Acceptance of these materials varies by processing facility with compostable materials typically not suitable as inputs for organics certified products.</p>	<p>Weekly collection from households reduces material becoming anaerobic (smelly) through bacteria using up available oxygen. In addition to odour, anaerobic conditions create a poorer quality output of soil improver.</p> <p>A plastic kitchen caddy (pictured in column 1) is often used in the kitchen and is emptied into a larger container (23 litre bin) for collection.</p> <p>More frequent collections for larger bins from commercial kitchens.</p>	<p>Hamilton, Auckland, New Plymouth, Tauranga</p>
<p>80 – 240 litre food and garden organics (FOGO) for household properties³²</p>  <p>Garden organics (GO) in 240 litre wheelie bins</p> 	<p>Side loader wheeled bin collection</p> 	<p>Wheeled bins are usually collected using automated/remote lifting systems and the system is most commonly operated by a single operative.</p> <p>This approach is not suitable where there are height restrictions because the bins are lifted over the truck for emptying. For areas where access is restricted (due to height or narrow streets), rear load vehicles may be used.</p> <p>Organic materials left for more than a week are more likely to enter the anaerobic state, which compromises the quality of any resultant composted materials produced for reuse.</p> <p>Green and food waste can be compacted providing transport efficiencies. Side and rear load vehicles typically provide for the material to be compacted in the vehicle, giving higher collection round efficiency than the stillage type operation.</p> <p>Kitchen caddies for use inside the home can also be procured with aerated lids and or/bodies, which can further assist by starting the dewatering process earlier than where a non-aerated caddy is used. There are additional gains to the approach when transport and logistics is factored in. Put simply, the least water that needs to be picked up in bins and transported, the better.</p>	<p>Commercial properties may have daily collections, or multiple collections per week.</p> <p>Weekly or fortnightly basis (household collections).</p> <p>Weekly collection of food organics for households is recommended as it reduces the chance of odour, maggots and related complaints, and gives rise to better nutrient content in any resulting composted materials.</p>	<p>Garden waste and mixed food and garden waste collections in Whakatane, South Taranaki, Christchurch, Selwyn, Timaru, Waimakariri.</p>


²⁹ <https://www.officeworks.com.au/shop/officeworks/p/source-separation-systems-organics-caddy-23l-ssorgc23b>

³⁰ <https://www.dicksmith.com.au/da/buy/cheap-as-chips-eco-wheelie-bin-55l-black-w-coloured-lid-kb216/>

³¹ <https://www.paramountbrowns.com.au/products/wheelie-bin-660ltr-green/>

³² https://www.equip2go.com.au/80l-plastic-wheelie-bin-mgb80-colour-green?gclid=Cj0KCQiAveebBhD_ARIsAFaAvrH1ByV1385-mTVLFGJfsIKJBvTHRYZ_gZlIV-Myr9Gi3ExE6vdH0aArYKEALw_wcB

Containment	Collection method/ vehicle examples	Description	Collection frequency	Examples
		<p>Bins can be procured which include aeration vents, which in turn helps to remove water from the contents (reducing weight) and keep the material aerobic. Aeration can also help to prevent unpleasant odours.</p> <p>The provision of aerated bins and caddies is a consideration for the councils.</p> <p>This is an opportunity for the industry sectors which produce high water content waste for processing.</p> <p>Small wheeled bins can suit the needs of apartments where there is generally less space for storage of bins or containers within the property. In this case emptying of a kitchen caddy of around 7 L size can often mean service users need to take the caddy to the larger individual or shared bins at ground level.</p> <p>In low-to-medium rise developments, this can mean traversing flights of stairs to navigate the 1-4 floor journey.</p>		
<p>This configuration is most appropriate for commercial applications as it can lift the larger 660 L and 1,100 L bins and/or where there are height restrictions.</p> 	<p>Rear loader bin collection</p> 	<p>This operation involves using a collection truck with combs fixed to the rear and a lifting mechanism for emptying bins into a hopper for transfer into the body of the truck. This system is used in relatively few organic kerbside collections due to the need for two or three operatives (driver and one or two 'runners'). Rear loaders are suitable for difficult access scenarios as noted above.</p> <p>Other issues include safety risk (manual handling and multiple truck entry and exit events every day) and the slow speed of the operation (a risk falling on the contractor through the delivery of the service contract).</p> <p>The larger bins are commonly used in multi-unit residential developments, mixed use developments, and commercial applications. AS for smaller bins, aerated configurations are available.</p> <p>This type of system is suited to collecting source separated organics on a larger scale.</p>	<p>Commercial properties may have daily collections, or multiple collections per week.</p>	<p>Commercial collections across New Zealand for food waste (Kai to Compost), mixed waste and recycling</p>
<p>Bins of 1.5 m³ - 4.5 m³ capacity</p>	<p>Front loader collections</p> 	<p>This is a system that can be operated by one operative and is most commonly used in larger commercial applications. Front loader vehicles are utilised with bins emptied by the vehicle picking up the bin and lifting it over the top of the cab in order to place the contents in a hopper.</p> <p>Due to efficiency for larger scale waste streams, front load collections are most suited to large scale services such as schools, hotels, hospitals, larger commercial premises, and waste transfer stations. They require space for bin storage and access for collection vehicles with significant height clearance for emptying of bins.</p>	<p>Commercial properties may have daily collections, or multiple collections per week.</p>	<p>Commercial collections across New Zealand for mixed waste and recycling</p>

Containment	Collection method/ vehicle examples	Description	Collection frequency	Examples
<p>Transport to the processing site – bulk haulage</p>		<p>Direct haul refers to the practice of each individual side loader, rear loader, front lift vehicles taking their load directly to the processing site as soon as they are fully loaded. The loads are not agglomerated therefore this arrangement tends to offer less logistics efficiencies than bulk haulage. However, direct haul is often utilised where there is no transfer station available, the processing site is nearby and/or and it is necessary for the trucks to directly transport the materials to the facility on demand.</p> <p>Bulk hauling refers to the practice of all collection vehicles returning to their single depot once full, and the material then being lifted via a front-end loader, standard build packing machinery, or custom build packing machinery, into a larger truck for bulk transport. Depending on start and end point rail transport could also be employed.</p>	<p>For bulk haulage of materials after consolidation at transfer station or similar bulking facility.</p>	<p>Transport of food waste from New Plymouth to north Waikato (Hampton Downs Organics Facility) for processing.</p>

B5.2 Collection implementation considerations

Introducing an organic materials collection for businesses and/or residents provides an opportunity to consider arrangements for the removal of general waste. A well designed collection approach should reduce waste requiring removal of around 30% or more, presenting an opportunity to adjust capacity and or collection frequency.

Key collection system design considerations include:

- Capacity and collection frequency for organic materials and residual waste.
- Arrangements for multi-unit developments.
- Supporting features:
 - Kitchen caddies for food waste.
 - Caddy and bin liners.
 - Education and information for system users.
 - Enforcement.
- Charging models:
 - Rates funded.
 - Opt in/opt out.
 - User pays.

If the councils decide to introduce a household organic material collection, planning the system roll out will be a critical task. At this early stage, making adequate provision for planning and executing a system roll out is a critical factor in overall system success.

Appendix C Cost assumptions and greenhouse gas emissions assumptions

C1 Cost Assumptions

C1.1 Total quantity household and commercial organic waste

SWAP reports:

- WasteNotConsulting. 2023. Composition of Waste at Spicer Landfill
- WasteNotConsulting. 2022. Composition of Solid Waste at Silverstream Landfill (Confidential)
- WasteNotConsulting. 2018. Composition of Solid Waste at Southern Landfill
- Sunshine Yates Consulting. 2022. Audit of Kerbside Rubbish and Recycling in Lower Hutt
- Weighbridge data provided for Spicer Landfill

Capture rates applied:

- Household – GO, FO, FOGO – 50%, commercial – 70%

C1.2 Total cost range (cost per annum)

- Total quantity in tonnes x cost per tonne
- Cost range provided.
- Example facilities including charges at sites in Wellington.

C1.3 Cost per household per year

- Example costs across New Zealand data points used.

Appendix C Table 1: Option A assumptions (collected tonnes reported for the three councils)

	Option A - green waste, household only	Data source
Quantity – households	5,070 tonnes per annum	SWAP – includes council controlled and private controlled green waste.
Quantity – commercial	0 tonnes per annum	SWAP, Weighbridge data
Total cost per annum (tonnage diverted and cost per tonne)	\$700k-\$890k	Quantity x cost per tonne
Cost per tonne range	\$80-\$100	Benchmarks
Cost per household range	\$70-\$101	Benchmarks
Emissions kg CO2-e/unit	Up to 3,150 Household – up to 3,150 Commercial - 0	Emissions Factors – Composting and Anaerobic Digestion – 0.172 kg CO2-e/unit and 0.02 kg CO2-e/unit respectively ³³ . Calculation: baseline emissions minus projected emissions. Quantity based on processing tonnages. Note – collection emissions not included.

Appendix C Table 2: Option B assumptions (collected tonnes reported for the three councils)

	Option B – food only, household and commercial	Data source
Quantity – households	12,560	SWAP, Weighbridge data
Quantity – commercial	5,130	SWAP, Weighbridge data
Total cost per annum (tonnage diverted and cost per tonne)	\$2.3M-\$3.6M	Quantity x cost per tonne
Cost per tonne range	\$100-\$150	Benchmarks
Cost per household range	\$71-\$106	Benchmarks
Emissions kg CO2-e/unit	9,050 – 12,600 Household – 3,100 – 6,900 Commercial – 2,150 – 3,050	Emissions Factors – Composting and Anaerobic Digestion – 0.172 kg CO2-e/unit and 0.02 kg CO2-e/unit respectively ³⁴ . Calculation: baseline emissions minus projected emissions. Quantity based on processing tonnages. Note – collection emissions not included.

³³ [Measuring emissions: A guide for organisations: 2022 summary of emission factors | Ministry for the Environment](#)

³⁴ [Measuring emissions: A guide for organisations: 2022 summary of emission factors | Ministry for the Environment](#)

Appendix C Table 3: Option C assumptions (collected tonnes reported for the three councils)

	Option C – food and green collected together, household and commercial	Data source
Quantity – households	17,630	SWAP, Weighbridge data
Quantity – commercial	7,760	SWAP, Weighbridge data
Total cost per annum (tonnage diverted and cost per tonne)	\$4.4M- \$5.3M	Quantity x cost per tonne
Cost per tonne range	\$125-\$150	Benchmarks
Cost per household range	\$86-\$190	Benchmarks
Emissions kg CO ₂ -e/unit	12,950 – 18,250 Household – 10,000 – 14,000 Commercial – 2,950 – 4,250	Emissions Factors – Composting and Anaerobic Digestion – 0.172 kg CO ₂ -e/unit and 0.02 kg CO ₂ -e/unit respectively ³⁵ . Calculation: baseline emissions minus projected emissions. Quantity based on processing tonnages. Note – collection emissions not included.

Appendix C Table 4: Option D (collected tonnes reported for the three councils)

	Option D – food and green collected separately. Household and commercial	Data source
Quantity – households	17,630	SWAP, Weighbridge data
Quantity – commercial	7,760	SWAP, Weighbridge data
Total cost per annum (tonnage diverted and cost per tonne)	\$3.0M-\$5.3M	Quantity x cost per tonne
Cost per tonne range	Green: \$80-\$100 Food or combined: \$100-\$150	Benchmarks
Cost per household range	\$140-\$210	Benchmarks
Emissions kg CO ₂ -e/unit	12,950 – 18,250 Household – 10,000 – 14,000 Commercial – 2,950 – 4,250	Emissions Factors – Composting and Anaerobic Digestion – 0.172 kg CO ₂ -e/unit and 0.02 kg CO ₂ -e/unit respectively ³⁶ . Calculation: baseline emissions minus projected emissions. Quantity based on processing tonnages. Note – collection emissions not included and there would be 2 x collection vehicles likely to be required.

³⁵ [Measuring emissions: A guide for organisations: 2022 summary of emission factors | Ministry for the Environment](#)

³⁶ [Measuring emissions: A guide for organisations: 2022 summary of emission factors | Ministry for the Environment](#)

C2 Processing emissions:

C2.1 Base Case

Annual tonnes summarised for food, garden, and FOGO waste categories for households and commercial.

Organic material tonnages are for Silverstream, Spicer and Southern landfills.

The kg CO₂-e was calculated by multiplying the annual kilogram of waste to each landfill by that landfills unique emission factor where available, and the 2022 MfE emissions factors (Table 34, <https://environment.govt.nz/publications/measuring-emissions-a-guide-for-organisations-2022-summary-of-emission-factors/>) where not.

The MfE emissions factor for food was used when calculating FOGO emissions to be conservative.

All of HCC green & food waste is processed at Silverstream Landfill.

All of PCC's green & food waste is processed at Spicer Landfill.

All of WCC's green & food waste is processed at Southern Landfill.

Transport emissions have not been included in this assessment.

UEF's applied for each landfill. Spicer Landfill – 0.525, Southern Landfill – 0.89, Silverstream landfill – 0.091.

C2.2 Future scenario

Future scenario calculated using the same tonnages as the base case.

Emissions Factors for composting and anaerobic digestion were used from the 2022 MfE emissions factors guide (Table 35).

C2.3 Difference

The difference between base case and future scenario was calculated by subtracting the projected emissions from the base case.

- Where FO + GO was collected, the emissions for each FO and GO were summed, as opposed to using the FOGO emissions.

C2.4 Additional assumptions

It was assumed that the composting, anaerobic digestion and landfilling would all occur at the same location, so there were no calculations based on distance and transport emissions differences between the processing sites.

It is noted that there may be additional emissions released from more trucks being used for the different services. In this model these emissions were assumed to be 0.

C3 Transportation emissions

Comparison between fully electric, hybrid and diesel vehicles provided.

C3.1 Vehicle assumptions

Minimum distance – 15km and maximum distance 20km.

No empty truck movements have been accounted at this stage.

All vehicle emissions have been taken from Table 58: Emissions factors for heavy good vehicles manufactured post 2015. [Measuring Emissions Detailed Guide 2020 FINAL.docx \(environment.govt.nz\)](#)

C3.1.1 Gross Vehicle Mass:

Small – 8.5 tonne

Large – 15 tonne

C3.1.2 Truck payload:

Small – 4 tonne

Large – 12 tonne

C3.1.3 Emission source

Electric vehicles – HGV BEV

Hybrid vehicles – HGV diesel hybrid

Diesel – HGV Diesel

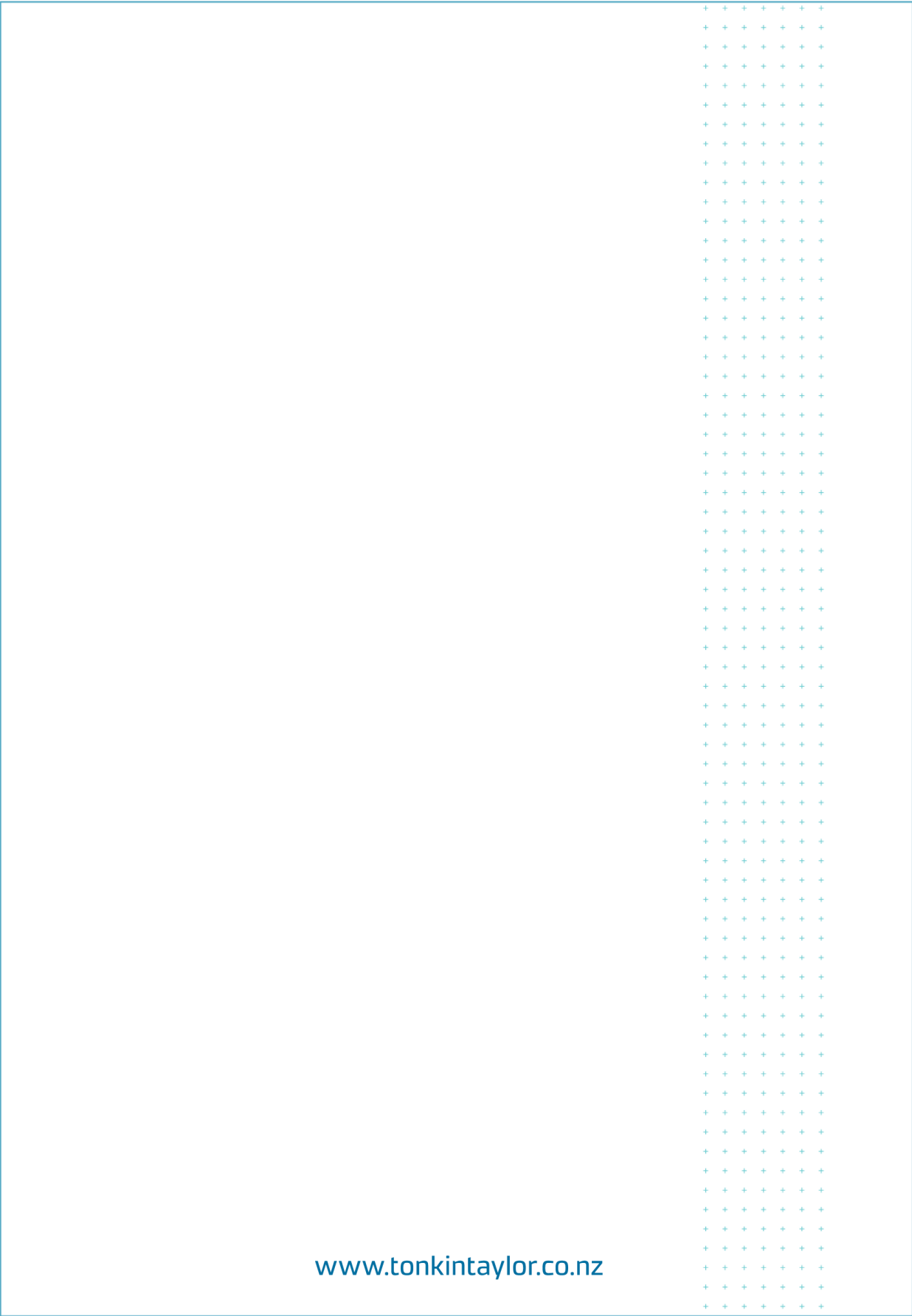
C3.1.4 Vehicle sizes selected

Option A – large vehicles for all

Options B – small vehicles for all

Option C – large vehicles for all

Option D – GO only – large vehicle, FO – small vehicle



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Zero Waste Programme Landfill Tonnage and Revenue Forecasts

Ver. 1.0 Final: 6th September 2023

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Approver	Chris Mathews, Zero Waste Programme Business Owner

Introduction

Landfill gate fee revenue is used to cover the operational expenses associated with running the landfill. Regulatory costs such as the waste levy and carbon liability also support funding of the recycling collection services, as well as waste minimisation initiatives. To inform the financial cases of the Zero Waste Programme Priority Business Cases we need to forecast our revenue.

Landfill gate fee revenue is determined by the prices set by councillors for different types of waste at the Southern Landfill. Officers forecast future tonnages and associated costs to determine the level of gate fee required under the current user-pays funding model.

This report will explain the assumptions behind the landfill tonnage forecasts and revenue forecasts included in the financial cases of the waste business cases.

Composition of Landfill Fees

Landfill fees have multiple components that are considered when setting the fees. These components are:

- Base1: this component of the fee is to fund the operating costs of the landfill itself.
- Base2: this component funds waste minimisation projects with Council.
- ETS: this component funds the cost of carbon credits that are needed for the emissions produced by the Southern Landfill.
- Recycling levy: this component supports the funding of recycling collections in the suburbs and CBD
- Waste levy: this is a levy imposed by the Ministry for the Environment (MfE). The levy is paid to MfE on a monthly basis. Half is retained to fund their Waste Minimisation grant funding and half is redistributed to councils based on population.

Base2 is applied to fees for commercial general rubbish, domestic general rubbish, and contaminated soil. Recycling levy is applied to fees for those waste streams, plus sewage sludge and special waste (including asbestos). Cleanfill and green waste fees do not include either a recycling levy or Base2 components in their fees.

Table 1: Fee schedule for waste to landfill in 2023/24:

Waste type	Price per tonne
Domestic General Waste	\$264
Commercial General Waste	\$225.98
Green waste	\$92
Special waste - other	\$262.20
Special waste - asbestos	\$304.75
Contaminated soil	\$225.98
Sludge	

The components of the fee for commercial general rubbish are shown in the table below to illustrate how this works in practice.

Table 2: Commercial general rubbish fee breakdown

Components	\$
Base Rate1	72.80
Base2	2.88
ETS	25.30
Recycling Levy	67.50
Waste Min Levy	57.50

Landfill Tonnage Forecasts

To forecast future revenue, we need to estimate future tonnages we expect to receive at the Southern Landfill. We need separate line-item forecasts for each waste type to allow the appropriate fee to be applied.

Table 3: Tonnages of each waste type received in the past four years:

Waste Type	2019/20	2020/21	2021/22	2022/23
Cleanfill	1,042	1,261	1,117	2,392
Contaminated Soil	45,748	49,490	74,653	56,915
Domestic to Transfer Station	6,558	9,287	8,892	8,996
Green	3,787	5,482	5,295	4,861
Kai to Compost	1,229	2,042	1,695	1,108
Mixed Commercial	44,758	54,721	54,791	67,809
Sludge / Screenings to Tip Face	9,530	15,846	14,578	14,465
Special waste - asbestos	12,792	5,840	0	6,257
Special waste - other	10,794	2,268	5,757	1,423
TOTAL	136,238	14,6237	16,6778	16,4225

N.B. Data reported for 2021/22 did not separate asbestos from other special waste.

Contaminated soil is highly variable from year to year, depending on the number and size of construction projects happening in the city. Most construction projects in the CBD require the disposal of contaminated soil when carrying out earthworks prior to laying foundations. For example, the Arlington Apartments redevelopment by Kāinga Ora resulted in 15,394 tonnes of contaminated soil coming to Southern Landfill in 2021/22¹.

Mixed commercial waste increased by around 10,000 tonnes in 2022/23 compared to the previous year. This was an increase in construction and demolition waste coming to the Southern Landfill as the nearby class 2 landfills are both nearing capacity and have had shorter operating hours and restrictions on material that will be accepted.

¹ Monthly Report to Management, Waste Operations, June 2022

Sludge volumes have increased in the past several years under the new Veolia contract for managing the Moa Point Wastewater Treatment Plant. Sludge is coming to the Southern Landfill with less water removed resulting in higher total tonnages.

The following table shows the tonnage forecasts for the ten years from 2024/25. Tonnages of cleanfill, green waste, kai to compost, and special waste, are expected to be consistent in future years. Domestic general rubbish and green waste have been increased to allow for household growth in future years. Contaminated soil, mixed commercial waste, and sewage sludge have more judgment involved in their estimates, and these will be described below.

Table 4: Landfill tonnage forecast, 2024 - 2035

Waste Type	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35
Cleanfill	2,400	2,400	2,400	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300
Contaminated Soil	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Domestic to Transfer Station	9,000	9,103	9,205	9,303	9,399	9,489	9,588	9,681	9,774	9,855	9,923
Green	5,000	5,057	5,114	5,169	5,222	5,272	5,326	5,378	5,430	5,475	5,513
Kai to Compost	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Mixed Commercial	67,000	67,628	66,253	56,854	57,440	57,990	58,591	59,162	59,729	60,227	60,641
Sludge / Screenings to Tip Face	15,000	15,171	1,662	1,540	1,415	1,287	1,156	1,022	886	745	602
Special waste - asbestos	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Special waste - other	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
TOTAL	137,100	138,060	123,334	112,866	113,476	114,037	114,662	115,243	115,818	116,302	116,679

Sewage Sludge

Sewage sludge tonnages are expected to stay fairly consistent until the new Sludge Minimisation Facility opens in 2026. When this facility begins operating, sludge volumes will fall significantly.

The Sludge Minimisation Facility project estimates that in future years 1380 tonnes of dried biosolid material will be produced. Because they estimate the drier will require 4 weeks of maintenance each year, they also forecast 420 tonnes of dewatered sewage sludge will continue to come to the Southern Landfill for disposal. These estimates have then been increased to allow for future household growth.

Dried biosolid material can be used as fertiliser and other product uses. There is currently an ongoing project within the Zero Waste Programme investigating potential uses for this material and the end markets for those. Ideally in the future, none of the dried biosolid material will be disposed of in landfill.

However, given the end market for this material is currently uncertain, the forecast allows for a gradual decrease in the amount of this material coming to landfill.

Table 5: Tonnes of biosolids to landfill, 2024 - 2035

Biosolid type	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35
sludge	15,000	15,171									
dewatered sludge to landfill			420	424	429	433	437	442	446	450	453
dried biosolids from SMF			1,380	1,395	1,409	1,423	1,437	1,451	1,465	1,477	1,488
dried biosolids going to end markets			138	279	423	569	719	871	1,026	1,182	1,339
dried biosolids to landfill			1,242	1,116	986	854	719	581	440	295	149
total biosolids to landfill	15,000	15,171	1,662	1,540	1,415	1,287	1,156	1,022	886	745	602

Mixed Commercial Waste

2020/21 and 2021/22 both saw relatively consistent amounts of mixed commercial waste coming to the Southern Landfill annually at 55,000 tonnes. This amount is considered the baseline for future forecasts of mixed commercial waste and has been adjusted for household growth.

As discussed above, there was a 10,000 tonne increase in mixed commercial waste in 2022/23 due to an increase in construction and demolition waste coming to the Southern Landfill. This is expected to continue to be an issue over the next three years while the nearby class 2 landfills work to open new tip faces. Year to date in 2023/24, there have been even higher amounts of construction and demolition waste coming to the Southern Landfill, so for 2024/25 this has been increased to 12,000 tonnes. This is assumed to be a short-term increase in volume and return to baseline in 2027/28.

Table 6: Tonnes of mixed commercial to landfill, 2024 - 2035

Mixed Commercial Type	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35
mixed commercial adjusted for household growth - baseline	55,000	55,628	56,253	56,854	57,440	57,990	58,591	59,162	59,729	60,227	60,641
extra until C&D operational	12,000	12,000	10,000								
mixed commercial total	67,000	67,628	66,253	56,854	57,440	57,990	58,591	59,162	59,729	60,227	60,641

Contaminated Soil

The data from previous years shows how volatile the tonnages of contaminated soil can be, ranging from 46,000 tonnes to 76,000 tonnes in the past four years. This volatility is expected to continue in future.

Regulations require that contaminated soil be disposed of at a class A landfill. In the Wellington region those are either the Southern Landfill or Silverstream Landfill. As the existing tip face at Southern Landfill nears capacity, the landfill manager has started turning away contaminated soil that is from out-of-region. The operational goal is to reduce the tonnages of contaminated soil coming to landfill.

However, there continues to be strong construction activity in the city, and we expect there will continue to be considerable pressure on these tonnages. The forecast estimates 30,000 tonnes of

contaminated soil in 2024/25. This reflects a compromise between the operational goal to turn away contaminated soil where possible and the expected demand for contaminated soil disposal.

Recommended Future Projects

The forecasts in the table above only reflect already approved projects such as the Sludge Minimisation Facility. They do not include any of the projects included in the business cases.

The estimated diversion associated with the recommended options for new collection services, new resource recovery spokes, and the resource recovery hub expansion are shown in the table below:

Table 7: Estimated diversion from recommended future projects, 2024 - 2035

Options	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35
Option F diversion			7,263	7,338	7,408	7,485	7,558	7,631	7,694	7,747	7,819
Reduced mixed commercial	67,000	67,628	58,990	49,516	50,032	50,505	51,033	51,531	52,035	52,480	52,822
Resource recovery spokes	260	520	780	780	780	780	780	780	780	780	780
Resource recovery hub Tip Shop option C			2,040	2,040	2,040	2,040	2,040	2,040	2,040	2,040	2,040
Reduced domestic to Transfer Station	8,740	8,583	6,385	6,483	6,579	6,669	6,768	6,861	6,954	7,035	7,103

Considering these, the overall forecast is as follows:

Table 8: Overall landfill tonnage forecast by waste type

Waste type	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	34/35
Cleanfill	2,400	2,400	2,400	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,300
Contaminated Soil	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Domestic to Transfer Station	8,740	8,583	6,385	6,483	6,579	6,669	6,768	6,861	6,954	7,035	7,103
Green	5,000	5,057	5,114	5,169	5,222	5,272	5,326	5,378	5,430	5,475	5,513
Kai to Compost	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Mixed Commercial	67,000	67,628	58,990	49,516	50,032	50,505	51,033	51,531	52,035	52,480	52,822
Sludge / Screenings to Tip Face	15,000	15,171	1,662	1,540	1,415	1,287	1,156	1,022	886	745	602
Special waste - asbestos	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Special waste - other	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
TOTAL	136,840	137,540	113,251	102,708	103,248	103,732	104,284	104,792	105,304	105,735	106,040

Kaicycle Composting: Current state and strategic direction

Prepared for use by Wellington City Council
7 August 2023



This document provides a brief outline of Kaicycle Composting's existing services, our current thinking on strategic direction, and some suggestions for how Kaicycle could more formally work with WCC to deliver services to divert organic materials from landfill. Please note this document should not be read as official Kaicycle strategy, but rather a snapshot of our current thinking to help inform WCC's planning and decision-making on organics diversion services for Wellington.

Overview of Kaicycle

Kaicycle is a nonprofit enterprise working to build community and ecological resilience through regenerative local food systems, based in Pōneke Wellington. We offer food scrap collection and composting services for businesses (mainly offices) and households, and run an urban farm in Newtown that acts as a community and education hub. We want to see local compost hubs and urban farms in every suburb of Wellington.

We want localised composting in Wellington to be supported and scaled in the coming years, as a key part of an integrated organics management strategy. While we don't see ourselves as wanting to be the sole organics diversion service provider for Wellington, Kaicycle is keen to play a central role. Inspired by cities like New York, we see localised composting as complementary to citywide kerbside collections and a large-scale regional processing facility: we can deliver important outcomes that centralised systems typically can't or don't, while also helping to maximise the diversion of organics from landfill, help increase participation in diversion services, and reduce costs and emissions from transporting organics to processors. The outcomes Kaicycle can help deliver are well aligned with a range of Wellington City Council's goals/policies/action plans, including Our City's Food Future, the Economic Wellbeing Strategy, Te Atakura - First to Zero and the Zero Waste Strategy, among others.

We believe the most significant outcomes Kaicycle achieves are wellbeing, resilience and equity outcomes, although we also support outcomes in areas such as soil remediation and carbon drawdown, avoided emissions and waste across the food chain, biodiversity, water management, and more. By tapping into the valuable organic materials currently going to landfill, Kaicycle can play a leading role, in collaboration with many small initiatives across Wellington, to support a broad range of beneficial outcomes.



Some key aspects of our current composting services:

- User-pays subscription services for low-level producers of food scraps: offices, small cafes, households, shared services for MUD residents
- Collection and drop-off options (drop-off only available to households)
- ~240 businesses and households served
- A large waitlist (mainly residential) despite minimal active marketing
- Divert 40 tonnes of food scraps per year
- One main composting hub in Newtown, and two small satellite hubs in Te Aro and Berhampore, all with secure drop-off points
- Medium-scale composting facility (~100 tonnes food and green waste per year) being set up in Rongotai, aiming to be operational by the end of 2023.
- Service costs cover operating expenses; compost produced is used by Kaicycle or donated

Kaicycle's future and our role in Wellington's organics diversion ecosystem

Kaicycle recently engaged Martin Jenkins to conduct a strategic review. This review provides some useful ideas for our strategic planning going forward, which encompasses our core activities of farming/food production, community outreach and education, and composting. We are also keeping in mind the wider context of the Government's signals, particularly those related to food waste and the rollout of kerbside collections, while developing our strategic plan.

The Martin Jenkins review provided some useful considerations and recommendations for our composting services in particular. Chief of these was the short term recommendation to focus on growing our business/corporate customer base (and potentially high-density MUDs), recognising the good alignment for Kaicycle's collection service with this sector:

- high density (over 500 businesses with 50+ employees and 780 businesses with 20-50 employees in the city) means collections can be cost-efficient
- businesses are already serviced by the private sector and thus are much more willing to pay (and at higher rates) than residential customers
- our service supports businesses and organisations to achieve sustainability, emissions reduction and social responsibility goals

In response to this review, and in light of our current situation and the fact that Kaicycle is not well placed nor wanting to become the/a main provider for a citywide residential food scrap collection service, we see ourselves moving in the following directions:

Short term: 2023-25

- **Get our new Rongotai composting facility operational:** This hub will test a model with an in-vessel composting unit (using 'Hotrot' technology), designed to process higher volumes on a smaller footprint with minimal impacts, compared to our current methods. This facility will serve our business customer base, which we are working to expand to 200 businesses by April 2024. We will also develop compost sales to provide a high quality local product and increase revenue as well as continuing to reserve a portion for donations
- **Change residential service offerings:** Phase out residential collection service, replace with drop-off options. We are investigating expanding our current network of drop-off points. We see this as an interim solution to continue to service residents until the citywide kerbside collection is rolled out, and could potentially complement the kerbside

collection (e.g. for households and communities that are hard to service with a standardised collection model). We will also continue to investigate other ways Kaicycle can continue residential engagement, e.g. delivering food waste behaviour change programmes

Medium term: 2025-2030

- **Proximity principle:** Continue investigating and piloting options for diverting a significant portion of Wgtn's organic materials for localised composting and compost use, as part of Wgtn's overall strategy for organics and the food waste collection service mandated to be in place by 2030. For example:
 - Replicate and scale our Rongotai in-vessel composting facility model across the city
 - Partner with other organisations/businesses focused on organics diversion to set up and operate processing facilities in Wellington City
 - Specialise toward providing services to businesses, households that can't be reached by individualised collection services (e.g. drop-off options), and more isolated suburbs; supporting/managing onsite composting for MUDs/institutions
 - Accepting and composting a portion of organics collected by another party (however, contamination risk is a major potential issue for us)
- **Innovation:** Continue to test and develop models of localised urban composting, including onsite composting, e.g. for MUDs, institutions, large businesses
 - Kaicycle could play more of a consulting role in this
- **Partnership and engagement:** Support uptake of home and community composting, e.g. through training and education (e.g. support development of a 'Master Composter' training programme like those commonly found internationally), building on the WCC Community Compost Hubs trial. Work with Zero Waste Network, Para Kore, Te Waka Kai Ora and the Aotearoa Composters Network on a coordinated national-level project supporting small/medium-scale composting
- **Zero waste:** Support progress up the waste hierarchy, e.g. by participating in education/behaviour change work, such as the MfE-funded programmes to be delivered by WasteMINZ and ZWN. Expand collaborations with local food rescue organisations (e.g. Kaibosh, The Free Store). Continue advocacy work as a member of Waste-Free Welly.
- **Food systems change:** Support local food systems, kai security and sovereignty. Help deliver the WCC Food Network Plan, advocate and demonstrate Hua Parakore kai production, develop an urban farming education centre in collaboration with Papa Taiao, schools/Garden to Table and others in the region

Ideas for formally working with WCC

Partnering with WCC and having a formalised role(s) for Kaicycle in WCC's organics strategy will be critical to achieve many of these outcomes. Partnership could also provide an important foundation for financial security for Kaicycle in a precarious funding environment.

Formalising a relationship with WCC could take the form of dedicated contracts, or building localised and community activities into wider contracts. These could include:

- Developing specialised collection services (e.g. business collections, MUDs and central city residents). This could begin in the short-term with smaller-scale pilot schemes to test

and refine systems, with the opportunity to develop into a multi-year contract to roll out the service widely.

- Providing leases to use public land for small/medium-scale composting operations (e.g. parks, reserves, future resource recovery centres).
- Including a role for local small/medium-scale processing/composting in a contract for citywide organics collection services, e.g:
 - at least X tonnes of organic materials collected must be reserved/distributed for local processing
 - require the main provider to partner with local social enterprise/community organisations on local processing and engagement
- Dedicated services for education, training, behaviour change and consulting, to support the uptake of any and all organics diversion services.

Kaicycle is a nimble organisation that is constantly evolving and responding to our context. The suggestions in this document are thus an indication of our future direction rather than concrete plans. We welcome the opportunity to continue discussing how Kaicycle can support WCC to achieve its broader strategic goals.

Cost Benefit Analysis for new Collections Services at Wellington City Council

This report presents a cost benefit analysis of the six package options for new collection services at Wellington City Council, prepared by Tonkin+Taylor.

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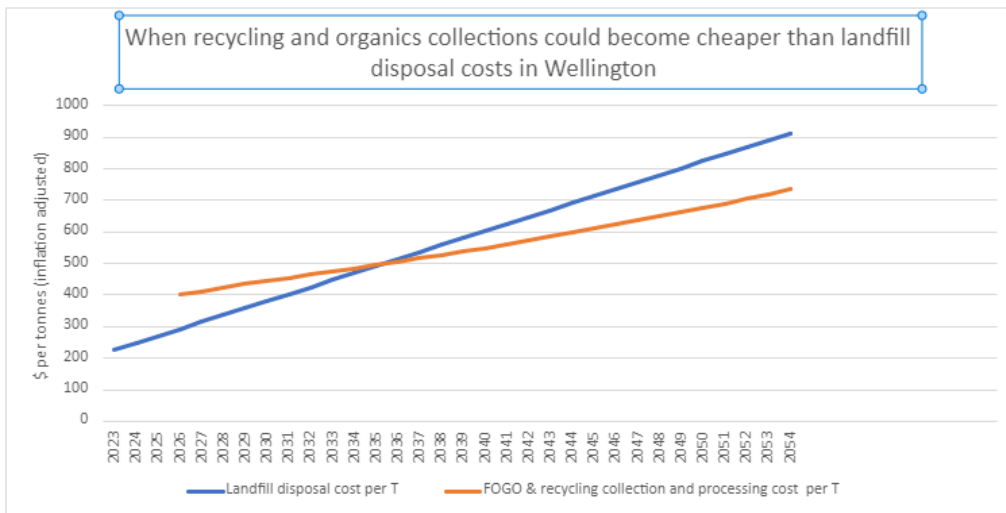
Introduction

Wellington City Council have requested a business case to consider changes to the waste collection services we provide. This cost benefit analysis has been prepared to support the analysis of different options in the business case. Given the early stages of these potential changes, this assessment should be considered preliminary. The primary intent of this analysis is to enable the comparison of different options using a value for money lens, not to determine the final costs and benefits anticipated for whichever new service is implemented.

The introduction to the Collections and Processing business case describes why landfill fees are going to increase over the coming decades. In the simplest terms, when recycling and organics collections are cheaper per tonne than disposing of waste to landfill then they are clearly a good investment.

Estimates based on the current cost of these services at Christchurch City Council can give us an indication of when these collection services could become economically viable in Wellington. The graph below shows that recycling and organics collections could become cheaper than landfill disposal costs in the mid-2030s.

Graph 1



Different assumptions would deliver different estimates of when these collections could become economically viable, however this analysis demonstrates that these services will become viable at some point in the future, likely within the 30-year assessment period.

The cost benefit analysis in this report does not attempt to forecast future landfill prices beyond a standard increase for inflation. However, councillors should consider that changes in landfill prices on the scale expected in the next few decades would significantly alter the results.

Based on the assumptions contained in the baseline cost benefit analysis, none of the six collection service options shortlisted in the business case deliver a benefit cost ratio above one. Given the rising

trend for landfill prices, new organics and improved recycling collection services will become a worthwhile investment in the future.

Councillors can use the cost benefit analysis in this report to decide if the potential benefits of these service improvements are worth the additional cost of these services, until such time as organics and recycling collections become cheaper than landfill. This will be considered as part of the sensitivity analysis.

The cost benefit analysis can also help to illustrate the differences between different service configuration options, to inform a decision about which option to implement.

Framework for Analysis

A cost benefit analysis evaluates whether the benefits delivered by a project are likely to be greater than the costs. If a financial value can be estimated for a specific benefit this will be included in the analysis. This analysis can be used to compare the value for money delivered by different options. Benefits that cannot be measured will also be discussed in this report. These analysis results should be considered alongside intangible benefits, risks, constraints and other relevant factors when making a decision.

This report will briefly describe the options for analysis based on multi-criteria analysis performed by Tonkin + Taylor. Then the current baseline will be identified for comparison. Estimated costs, benefits, and disbenefits will be identified and where possible, financial estimates will be prepared for each item over a 30-year period.

A 30-year period was chosen because:

- This aligns with the LTP Infrastructure Strategy which covers a 30-year period,
- It is the same time period used for the cost benefit analysis prepared for Auckland Council evaluating organics collection and processing, and
- While collections contracts are generally 10-15 years, processing facilities will have longer life spans meaning a longer time period is appropriate.

A discount rate will then be applied to convert these future amounts into current dollars. Net benefits (or costs) for each option will be identified and a cost benefit ratio calculated for each option. These results will then be included as part of a multi-criteria analysis of the different options within the Collections and Processing business case.

There are several different potential funding sources for parts of the investments being considered. For example, Ministry for the Environment has grant funding available specifically to support the purchase of new bins, as well as a wider fund to support other waste minimisation projects. It is also possible that some capital investments may be funded jointly with other councils or private sector partners. These alternative funding sources will be a key consideration in the Financial Case section of the Collections and Processing business case but are irrelevant to the preparation of a cost benefit analysis. This is because the analysis is intended to consider the value for money proposition of the project to society, not simply to the finances of Wellington City Council. Only including partial costs would bias the calculated cost benefit ratio.

Cost benefit analysis is subject to limitations. A review of cost-benefit studies in the electricity industry¹ provided the following generalisable insights:

- Assessments often overemphasised the benefits with little discussion of the costs of restructuring proposals.
- Models are gross simplifications of the complexity of markets and make simple and at times misleading assumptions about market behaviour.
- There are often data limitations necessitating assumptions, which can drive the results of the modelling. Sensitivity analysis of assumptions made is important. Often some of the most significant benefits are difficult to quantify (and monetise) and are therefore omitted from the studies (and reported results).

This analysis will attempt to mitigate these limitations by considering costs before moving on to benefits, keeping assumptions as clear and simple as possible where they are unavoidable, dedicating a section to intangible and unmeasurable benefits, and conducting sensitivity analysis.

Given these potential limitations the results of a cost benefit analysis should be viewed as a useful input into decision making, but it must be considered alongside other factors including intangible benefits and the relative priorities of the decision makers.

Options under consideration

The Collections and Processing business case considers introducing a new organics collection service, changes to the collection of recycling and rubbish, and extending collection services to new users.

The goal of these changes is to achieve the targets in the Zero Waste Strategy to reduce the volume of waste to landfill and the accompanying biogenic methane emissions.

The following table sets out the options identified for further consideration based on the multi criteria analysis prepared by Tonkin + Taylor² (see Appendix D, p. 17).

Table 6-8: 2022/23 Kerbside collection cost estimates (per rated unit)

Shortlisted option	Service	Data points	Adopted range per household
A	120 L rubbish + 240L recycle + 23 L food only	Auckland \$384 (rubbish transport is high)	\$300 - \$350
B	120L rubbish + 240L recycle + 80L glass + 23 L food only	Timaru additional services = rubbish 85+ recycle 88 with Auckland food 70 = \$240 – 250. Timaru figures excluded overhead costs.	\$250 - \$300
C	120L rubbish + 240L recycle + 80 L food and garden	Christchurch \$190 + rubbish Waimakariri = \$363 Selwyn (weekly rubbish, 240L FOGO) = \$449 Timaru rubbish 85 + Auckland recycle 127 + Timaru FOGO 70 = \$285	\$250 - \$350
D	120L rubbish + 240L recycle + 80L glass + 80L food and garden	Timaru \$176 additional services cost (own MRF and composting)	\$200 - \$250
E	120L rubbish + 240L recycle + 45L glass + 23 L food only	Hamilton \$187 (low disposal costs) New Plymouth \$182 (low disposal costs) Dunedin \$270 (2024) Tauranga \$220 Western Bay of Plenty \$250	\$200 - \$270
F	120L rubbish + 240L recycle + 45L glass + 80 L food and garden	Timaru 85 + Tauranga 90 + Timaru 70 = \$245 i.e. Timaru + Tauranga + Waimak = \$292	\$250 - \$300

¹ Electric Energy Market Competition Task Force (2006) reference from Auckland Council organics CBA

² Wellington City Council Redesigning Rubbish and Recycling Collections Report, Tonkin + Taylor, August 2023

More detailed descriptions of these options and how they were selected for the shortlist is available in the Collections & Processing business case and the T+T Collections report.

Taxonomy of costs and benefits

There are a variety of costs and benefits that could be included in the analysis. The level of costs and benefits vary across options. Many benefits of the services under consideration are intangible and therefore difficult to measure. This analysis will note these benefits but will not attempt to include them in the calculation of costs and benefits as this would introduce an over-reliance on assumptions and estimation.

Table 1: Overview descriptions and comments on the main cost and benefit components outlined

Costs	Description
Collection and processing	<ul style="list-style-type: none"> Estimates for each option are based on the targeted rates of eleven other councils Targeted rates are net costs of both collection and processing - they include direct and indirect costs less any revenue from end products.
Implementation	<ul style="list-style-type: none"> Project management and transition costs
Communication	<ul style="list-style-type: none"> Costs of communicating with residents about changes to collection services, including education such as what to put in each bin
Intangible Benefits	<ul style="list-style-type: none">
Social	<ul style="list-style-type: none"> Taking responsibility for our own waste within our own rohe Welfare benefits based on estimates of residents' willingness to pay for organics and recycling collections
Cultural	<ul style="list-style-type: none"> Uplifting the mauri of te taiao, te whenua, te wai Re-use of resources is consistent with mātauranga Māori Re-use of resources is consistent with kaitiakitanga and passing on valued tāonga to future generations
Environmental	<ul style="list-style-type: none"> Improving soil quality with compost Improving water quality as we reduce our reliance on landfill Greater re-use of resources means fewer virgin resources need to be taken from the environment
Health and safety improvements	<ul style="list-style-type: none"> Moving from rubbish bags to wheelie bins reduces the risk faced by collections workers and the public. Reducing manual handling by collection workers reduces the risk faced by them.
Measurable benefits	
Waste levy savings	<ul style="list-style-type: none"> The government charges a waste levy on every tonne of waste that goes to landfill. The charge is currently \$50 per

Costs	Description
	tonne and will rise to \$60 per tonne in 2024/25. Diverting waste from landfill will avoid these charges.
Landfill extension costs avoided	<ul style="list-style-type: none"> Landfill capacity is expensive to provide. Every tonne of waste diverted from landfill preserves the capacity for future years.
Emissions reduction	<ul style="list-style-type: none"> Reducing the amount of organic material going to landfill will reduce the amount of methane gas that is produced by the landfill in future
Revenue from end products	<ul style="list-style-type: none"> End products such as compost and recycled materials have value and will be sold to offset the costs of collection and processing. (Current revenue is already offset against costs within the collection and processing cost line item. Including this as a separate benefit is not double counting because we are only considering changes to current revenue.)
Disbenefits	
Loss of landfill gate revenue	<ul style="list-style-type: none"> WCC charges fees per tonne for dumping waste to landfill which generates revenue. As the volume of waste to landfill declines this revenue will also decline.
Loss of end product revenue	<ul style="list-style-type: none"> WCC earns revenue from the sale of recycled end products. Some options would lower the price received for existing tonnes of end product, creating a loss of revenue compared to the status quo.

Table 2: Which costs, benefits and disbenefits are in scope for the baseline analysis:

Included in baseline	Measured but not in baseline	Unmeasured
Costs of collection, processing, implementation & communication Disbenefits of lost landfill gate revenue and lost end product revenue Benefits of additional end product revenue, waste levy avoided, landfill capacity retained, and emissions reduction.	Consumer surplus benefits based on willingness to pay for organics collection (welfare benefits) Safety benefits for collection workers	Safety benefits and disbenefits for residents Improvements to soil quality and lower reliance on chemical fertiliser Improvement to water quality from reduced reliance on landfill Reduction in virgin materials taken from the environment Taking responsibility for our waste within our rohe Cultural benefits from aligning waste practices more closely with mātauranga Māori, and values of kaitiakitanga for te taiao

As is common for cost benefit analysis the majority of costs and disbenefits are measurable and included in the baseline analysis, whereas many benefits are difficult to measure and are therefore excluded. Benefits related to residents' willingness to pay for organics collection service and safety benefits for collection workers are possible to measure, but not with enough reliability to include in the baseline analysis.

Baseline for Comparison

In any CBA a strong understanding of the 'counterfactual' is required. This is what would happen in the absence of any changes to collection services. It can be thought of as the status quo or baseline option. Incremental effects (both costs and benefits) of the proposed service are measured against this baseline. Therefore, when evaluating each option only the additional costs and additional benefits above baseline are included.

At present there is no council-provided organics collection service in Wellington service to provide a baseline for comparison. This means that the full cost of an organic collection service is included in the cost benefit analysis, as the baseline is zero. The baseline for benefits includes organic material that is currently captured by home composting, green waste drop off to Southern Landfill, and private organics collection. Therefore, the benefits for organics collection include only the additional material capture and diversion a new service would deliver.

The baseline service for recycling is:

- 42,000³ households receive fortnightly collection of a 140L recycling wheelie bin for plastic, paper, cans
- 24,000⁴ households receive 26 recycling bags per year for plastic, paper, cans
- All 66,000 households may receive fortnightly collection of a 45L glass crate that is colour sorted by collections staff at the kerb
- The remaining 10,000 households either use the CBD recycling collection service, a private collection service or no recycling service.

Net costs of recycling collection services in 2022/23 were \$7.36 million⁵. This includes direct and indirect costs less end product revenue for both suburban and CBD collection services.

Costs included in this analysis will be the difference between the current costs of recycling collections and the estimated costs of a new recycling collection service.

The baseline benefits of recycling collections include all the material that is currently captured and recycled.

³ [Recycling Database Analysis .xlsx](#)

⁴ [Recycling Database Analysis .xlsx](#)

⁵ Total costs included in 1037 Suburban Refuse Collection and 1038 Domestic Recycling cost centres for 2022/23 (unaudited)

The total volume of material sent for recycling in 2022/23 was 9,745 tonnes⁶, with 3,864 tonnes of glass and 5,881 tonnes of other recyclable materials.

This analysis will only consider the additional recyclable materials expected to be captured due to providing collection services to additional households, providing improved collection services to CBD households, providing additional bin capacity, and the improved participation that will result from the communication and education that will accompany the rollout of a new service.

The baseline service for rubbish collection is:

- Estimated 40%⁷ of households use the \$3.50 council rubbish bag for collection
- The remaining 60% of households use a private wheelie bin collection service

The direct and indirect costs of council provided rubbish collection in 2022/23 was \$4.56 million⁸. This includes both suburban and CBD collections.

Costs included in this analysis will only be the change in cost estimated for a new service. Where the rubbish collection frequency reduces from weekly to fortnightly this may be a reduction in cost compared to baseline.

The benefits of providing rubbish collections and sending residual waste to landfill are primarily public health benefits. These benefits are not expected to change under any of the new service options.

There are several different ways to estimate the current number of households in Wellington city, including using StatsNZ data, SensePartners data, and the number of rateable residential units.

Given that any new collection service could be funded using a targeted rate for each residential unit it was decided to use the number of rateable residential units to estimate the number of households.

The experience of other councils who have switched to a targeted rate funded collection system is that during the implementation of a new service some households will be identified that should be separate rateable residential units but are currently rated as a single unit. Therefore, using the rateable residential unit may be a conservative estimate of the number of households that will receive a new collection service.

The number of rateable residential units used to strike the 2023/24 rate was 76,367.

Estimated costs

There are three groups of costs relating to the service redesign options being considered:

- Collection and processing costs
- Implementation costs
- Communication and education costs

⁶ Statement from Oji on WCC recycling prices, volumes and revenues for the 12 months from June 2022 to May 2023

⁷ SWAP 2018 page 23

⁸ Total costs included in 1037 and 1038

All cost estimates are adjusted for inflation over the 30-year evaluation period. The inflation rates used are from the Local Government Cost Index prepared by BERL⁹.

The CPI tracks the prices of a basket of goods and services purchased by the average household for example food, power, fuel, and rent. In contrast, the Local Government Cost Index tracks the prices of goods and services purchased by the average local authority for example staff labour, contractors, physical infrastructure components, and maintenance services.

Water and waste services have seen higher inflation than other local government sectors in recent years. Therefore, the inflation rate used in this analysis is the Water & Environment rate which is on average 0.9% higher than the broader Local Government rate.

Table 6.6 Local Government Cost Adjuster pa % changes

Year	Pa % changes				
	Planning & regulation	Roading	Transport	Community	Water & environment
2019	2.6	2.8	2.8	2.0	3.1
2020	1.3	1.3	1.3	1.6	2.3
2021	2.5	2.0	2.1	1.7	3.0
2022	7.3	7.5	7.0	6.5	9.2
2023	5.0	6.9	5.5	6.0	6.7
2024	3.5	5.1	4.0	4.8	4.8
2025	2.8	3.9	3.1	3.6	3.7
2026	2.6	3.2	2.7	2.8	3.2
2027	2.6	2.8	2.6	2.4	3.0
2028	2.3	2.3	2.2	2.1	2.8
2029	2.2	1.9	2.0	1.8	2.6
2030	2.1	1.6	1.8	1.5	2.4
2031	2.0	1.3	1.6	1.3	2.3
2032	1.9	1.0	1.5	1.2	2.2
2033	1.9	0.8	1.4	1.0	2.1
20 year average % pa	4.2	4.5	4.2	3.9	5.3

The baseline analysis uses these BERL inflation rates. After 2033 when the BERL forecasts end, a rate of 2.1% is used.

Note that these inflation rates are higher than the historical average for 2022 and 2023 and are then forecast to return toward a 2-3% range. Given the 20-year historical rate of inflation for Waste & Environment has been 5.3% this may be an overly optimistic forecast.

Sensitivity analysis will consider the effect of using the historical inflation rate for this analysis.

⁹ BERL report Cost Adjusters 2022 Update prepared for WCC

Collection and Processing costs

These cost estimates are based on the service cost charged via an annual targeted rate to eligible households by other councils in New Zealand. Targeted rates generally cover the full net cost of these collections services, including:

- The cost of collections contracts,
- Operating costs to council such as contract management,
- The cost of processing collected material including transport to the processing facility,
- The annualised cost of new bins provided to households,
- Revenue from end products that offset these costs of collection and processing.

These costs are based on actual service contracts across New Zealand, they are not estimates based on the design of a specific service. Tonkin+Taylor used the available information to estimate cost ranges for each option under consideration. These cost ranges consider the targeted rate data, inflation adjustments for older service contracts, and other adjustments as explained in the Tonkin+Taylor report¹⁰.

Shortlisted option	Service	Data points	Adopted range per household
A	120 L rubbish + 240L recycle + 23 L food only	Auckland 384 (rubbish is high)	\$300 - \$350
B	120L rubbish + 240L recycle + 80L glass + 23 L food only	Timaru/Auckland = 85+88+70 = \$240 - 250	\$250 - \$300
C	120L rubbish + 240L recycle + 80 L food and garden	Christchurch 190 + rubbish, Waimakariri 363, Selwyn (weekly rubbish, 240L FOGO) 449 Timaru 85 + AKL 127 + Timaru 70 = \$285	\$250 - \$350
D	120L rubbish + 240L recycle + 80L glass + 80L food and garden	Timaru 176 (own MRF and composting)	\$200 - \$250
E	120L rubbish + 240L recycle + 45L glass + 23 L food only	Hamilton 187, New Plymouth 182, Dunedin 270 (2024) Tauranga 220, WBOP 250 i.e. 190 - 270	\$200 - \$270
F	120L rubbish + 240L recycle + 45L glass + 80 L food and garden	Timaru 85 + Tauranga 90 + Timaru 70 = \$245 i.e. Timaru + Tauranga + Waimak = 292	\$250 - \$300

For detailed explanation of how these cost ranges were estimated from the existing data refer to the Collections & Processing business case or the T+T Collections report.

For future years, these costs have been adjusted to allow for a growth of households. SensePartners developed forecasts of household growth¹¹ in Wellington to support the development of the new District Plan. The median scenario estimates have been used to estimate a household growth rate for each of the next 30 years¹². This growth rate was applied to the current rateable residential units to estimate the future numbers of rateable residential units.

Collections and Processing costs have been calculated as two separate line items: one for households receiving standard service and another for households receiving bespoke service. This allows sensitivity analysis to evaluate different percentages of households receiving standard service and different average costs for standard and bespoke services.

¹⁰ Wellington City Council Redesigning Rubbish and Recycling Collections Report, Tonkin + Taylor, August 2023, Appendix D, table 6-7, p.71

¹¹ <https://wrlc.org.nz/regional-housing-business-development-capacity-assessment-2022>

¹² SensePartners http://www.demographics.sensepartners.nz/downloads/households_number_quartiles.csv

In 2026 it is estimated that there will be 78,768 rateable residential units.

It is possible that households that currently do not have a recycling wheelie bin could have one in a future roll out. The criteria for whether a property has appropriate access for a wheelie bin will be reviewed as part of the roll out of a new service. Some properties cannot currently use a wheelie bin because their kerbside has broken yellow lines, parallel parking, or high traffic volumes. With new collection trucks that have automated lift robotic arms cycle times for emptying a wheelie bin will be significantly reduced, enabling the use of wheelie bins in areas where it is currently not permitted.

Given the lack of data on what percentage of households this might apply to, it has been assumed that 25% of households that currently cannot have a wheelie bin would be able to have one under a future service. This is in addition to the 55% of households that currently use a wheelie bin.

Overall, it is estimated that 50,590 households would receive standard service in 2026. The remaining 28,974 households in 2026 are assumed to receive bespoke service.

The cost of standard service has been estimated using the midpoint of the cost range for each option. The cost of bespoke service has been estimated as the high end of the cost range for each option. This acknowledges the fact that bespoke services are more complex to implement and may cost more on average.

When Hutt City Council reviewed its service provision to multiple unit developments, they found that 27% needed alternative collection services using larger communal bins. For these properties the cost of rubbish collection was significantly higher than for those receiving the standard service. The scenario analysis later in this report will consider the effects of a similarly high-cost difference between standard and bespoke service.

Implementation and communication costs

Rolling out a new service will require significant planning and implementation support. WCC staff estimated these costs based on their experience with previous service changes at other councils. These costs are assumed to be the same across each option.

Implementation costs includes the cost of:

- distributing new bins to all households receiving standard service
- designing the bespoke service
- creating a database to support the rollout of standard and bespoke services
- project management and implementation support, such as additional call centre staff and administration support during the transition
- Additional costs for transporting organic waste to the Waikato assuming a new regional processing facility will not be operational by June 2026

Table 3: Implementation costs

Project management / opex costs	2024/25	2025	2026	2027	2028	2029
Collections implementation costs	\$553,000	\$828,000	\$868,000			
Organics processing facility implementation costs	\$425,000	\$383,000	\$284,000	\$91,000	\$91,000	

Project management / opex costs	2024/25	2025	2026	2027	2028	2029
Additional transport cost to Waikato				\$700,000	\$700,000	
Total Implementation Costs	\$978,000	\$1,211,000	\$1,152,000	\$791,000	\$791,000	\$-

Investment in communication and education to support the rollout of new collection services is essential for a smooth transition and to support participation.

Estimated communication costs include:

- Communications and marketing designs
- Printed marketing collateral, for example signs, posters, banners, brochures
- Printed stickers for bins that show what can and can't go in each bin type
- Campaign costs such as social media ads, radio ads, billboards
- Ongoing communication and education after implementation

Evidence from other cities is that communication and education must be ongoing otherwise there is a drop in participation and an increase in contamination over time.

Spending on communication and education increases participation which has a significant effect on the benefits that are realised by a new service. The effect on estimated benefits from higher and lower spending on communication will be considered as part of scenario analysis.

Table 4: Communications Costs

Communications and marketing	2025 / 26FY	2026 / 27FY	2027 / 28FY	2028 / 29FY	2029 / 30FY
Communications and marketing for roll out	\$300,000	\$300,000			
Ongoing campaign costs after roll-out			\$50,000	\$50,000	\$50,000
Total Communication Costs	\$300,000.00	\$300,000	\$50,000	\$50,000	\$50,000

Estimated benefits

Benefits are any improvements that occur as a result of the project. Many of these benefits will be intangible and therefore difficult to measure, however these benefits should still be taken into account when deciding whether to invest in a project. Few benefits lend themselves to being measured and having a dollar value assigned to them.

The majority of measurable benefits for the projects under consideration are driven by the amount of material that is successfully diverted from landfill. Estimating participation rates, diversion rates, and total diversion volumes is a critical issue for this analysis.

Intangible or Non-measurable benefits

In addition to benefits related to waste minimisation, new collection services would also provide social, environmental and cultural benefits. While these benefits are not measurable, they are real and important. They should be considered when evaluating the proposed investments, in line with local government's legislated role of enhancing the four wellbeings. Some examples of these benefits include:

- Cultural benefits of aligning our municipal waste management approach more closely with mātauranga Māori, including kaitiakitanga o Te Taiao (guardianship of the environment) and supporting treasured resources to be passed from one generation to the next with an uplifted state of mauri of the environment, providing for the cultural practices that previous generations enjoyed.
- Environmental and cultural benefits of regenerating our soils via processing organic waste instead of chemical fertiliser, which often needs to be mined and then processed at high temperatures. The UN Environmental Programme have launched a global campaign to halve nitrogen waste, which has been estimated to have a potential benefit of US\$100 billion annually¹³.
- Environmental and cultural benefits of reduction in ground water pollution as landfill is used less over time. These benefits will take decades to be fully realised.
- Environmental benefits of resources that remain “in the ground” because of the greater reuse of already circulating materials. For example, the United State Environmental Protection Agency estimates that one tonne of recycled paper saves 3,000-4,000 kilowatt hours and 15 – 17 mature trees compared to virgin paper¹⁴.
- Social and cultural benefits of knowing that we are taking responsibility for our own waste in our own backyard, not outsourcing the issue to another rohe or another country
- Safety benefits and disbenefits for residents. Residents face different safety risks than collection workers. Safety risks for residents include injury from handling waste material for sorting, injury from moving waste from their home to the collection point, and injury caused by bins on the footpath.

Welfare gains and willingness to pay

The cost benefit analysis prepared for Auckland Council in 2019 considering a new organic collection service estimated the welfare benefits households would receive from this service. This is based on the idea of a consumer surplus, which is the benefit someone receives from a service above the price they were willing to pay.

That analysis used available data from a survey done in New Zealand in 2007. In this survey participants were asked to say how much they would be willing to pay for an organics collections service and how much additional time they were willing to spend on recycling. They also took into account the cost of time spent on food waste collection. In 2019 dollars they estimated that:

- 92% of households were willing to pay for an organics collection service,
- The amount those households would be willing to pay was \$102.57,
- The cost of participation would be \$24.54,
- Resulting in a net consumer surplus benefit of \$78.03 for those households.

If we apply the same estimate to the 76,367 residential rateable units that would be an annual benefit of \$7 million per year (in 2026 adjusted for inflation). Over the 30 years of the cost benefit analysis this would total \$180 million, with a present value of \$45 million.

¹³ [Fertilizers: challenges and solutions \(unep.org\)](https://www.unep.org/news-and-stories/story/fertilizers-challenges-and-solutions)

¹⁴ [Environmental Factoids | WasteWise | US EPA](#)

This estimate has not been included in this cost benefit analysis as willingness to pay surveys have been brought into question for producing over-stated benefits. The information has been provided here so that decision makers can take it into account as they see fit.

Health and Safety Improvements

The safety of collection workers is a priority for both the industry and the public. There has been a fatality of a collection worker in Wellington City in the past decade.

Suburban rubbish and recycling collections are provided by EnviroWaste on behalf of WCC. They provided the following information about their injury rates while providing WCC collection services since 2016.

Table 5: Injury data from EnviroWaste

	2016	2017	2018	2019	2020	2021	2022	2023	average per year
Lost time injury		1			2	1	6	3	2.6
Medical treatment/first aid (includes physio)	7	27	40	32	31	37	39	39	31.5

The waste industry has studied the rate of injuries associated with different collection methods. They found that collections where the bin is automatically lifted and emptied by the truck while the driver stays inside the vehicle is the safest collection method, as it protects workers from traffic hazards and manual handling risks. The following table shows the injury rates for different collection methods¹⁵.

Table 6: Injury rates

Collection Method	Injury Rate
Bag	381 per 1,000,000 hrs.
Manual bin	251 per 1,000,000 hrs.
Auto bin	41 per 1,000,000 hrs.

Using the actual injury data from EnviroWaste, the injury rates for different collection types and the NZTA costs of different injuries it is possible to estimate the value of health and safety improvements for different options.

These calculations require some significant assumptions in order to make these three different data sets compatible and therefore these values are included here for information but are not included in the baseline cost benefit analysis.

Health and Safety benefits of options are shown in the table below. (Note these figures are not adjusted for inflation or present value.)

¹⁵ Solid Waste and Recoverable Resources Industry Injury Causation 2008, cited by T+T report

Table 7: H&S Benefits by Option

Option	Total <i>Estimated benefit value over 30 years</i>	2026 <i>Estimated benefit value for this year</i>
A food/no separate glass	\$104,693,679	\$2,941,154
B food/glass 80L	\$102,048,309	\$2,866,838
C FOGO/no separate glass	\$158,891,486	\$4,463,730
D FOGO/glass wheelie bin	\$156,246,116	\$4,389,414
E food/glass crate	\$72,304,037	\$2,031,234
F FOGO/glass crate	\$126,501,844	\$3,553,810

Measurable benefits

Many of the measurable benefits are dependent on the amount of material captured and diverted away from landfill. As such, estimating the amount of material likely to be captured under each option is a critical element of calculating the benefits.

Material diversion

T+T have estimated the following capture rates for each type of material and each option:

Table 6-11: New capture rates for material from proposed service elements

Collection Type	Participation	Recognition	Capture
Comingle recycling	85%	85%*	75%
Comingle recycling excluding glass*****	79%**	85%*	75%
Glass only wheelie bin	85%	95%*	85%
Glass only crate*****	90%	95%*	85%
Manually collected food only container	42%***	60%	25%
Food and green wheelie bin	58%****	60%	35%

Wellington City Council, Redesigning Rubbish and Recycling Collections Report, Tonkin + Taylor, August 2023, Appendix D, p.81

A capture rate is calculated considering both the participation rate (the percentage of households that regularly put their bin out) and the recognition rate (the percentage of eligible material that is put in the bin).

The estimate of a 25% capture rate for food only collection is lower than the capture rate achieved in the Miramar food scraps trial¹⁶ of kerbside collection. The waste audit found that 1.37kg of food waste was captured by the collection service, over a baseline of 3.53kg of food waste going to landfill, a capture rate of 38.8%. The capture rates for organics collection are fairly conservative. The effect of higher capture rates on overall benefits will be considered in the sensitivity analysis.

Capture rates may vary over time. The T+T estimates are a forecast of a long run, steady state of participation and are relatively conservative. T+T advice is that assuming good communication and education support for the rollout these capture rates can be achieved in the first year the service is rolled out.

These estimates of tonnage diverted for each option were then adjusted each year to account for household growth, using SensePartners¹⁷ median scenario for household growth in Wellington City.

Households that live in multi-unit developments are very unlikely to generate garden waste. The estimated garden waste captured per household in the food and garden options is 34.6kg.

An estimate of 14,500 households living in multi-unit developments was made using different council data sets and using the midpoint.

For the options that include food and garden collections, the total amount of garden waste captured has been reduced by 34.6kg per household living in a multi-unit development.

Note that this adjustment retains the higher capture rate for food of 35% in the options that include garden waste, which means the amount of food waste captured is not directly comparable to a food only option which uses a 25% capture rate for food.

Revenue from End Products

Different service options would create different types of end products. For each option estimates have been calculated of the total volume of each product that would be produced. Current prices for these products have been used to estimate potential revenue.

Mixed paper and glass collected together have a lower value than if they are collected separately. Unsorted glass has a lower value than colour sorted glass.

Mixed paper can be contaminated with glass fines when collected together. This reduces the quality of the paper end product and thus reduces the price. Glass that is broken and/or unsorted cannot be reused to make glass bottles. Instead, it is used as a sand replacement in roading aggregate. This is a much lower value product than recycled glass.

¹⁶ Miramar Food Scraps trial report

¹⁷ SensePartners <https://wrlc.org.nz/regional-housing-business-development-capacity-assessment-2022>

The current prices WCC receive for end products from Oji are used for options where glass is collected separately and colour sorted. The prices for mixed paper collected with glass and for unsorted glass have been estimated based on discussions with other materials processing facilities in New Zealand.

These prices are commercially sensitive. Therefore, only the total revenue line for each option is reported here. The detailed calculations including commercial sensitive price information will be provided to councilors on request.

Table 8: Revenue from End Products

	A food/no separate glass	B food/glass wheelie bin	C FOGO/no separate glass	D FOGO/glass wheelie bin	E food/glass crate	F FOGO/glass crate
2026	\$1,019,696	\$1,137,884	\$1,208,712	\$1,326,901	\$1,146,473	\$1,335,490
adjusted for inflation	\$1,220,266	\$1,361,703	\$1,446,462	\$1,587,898	\$1,371,981	\$1,598,176

Waste Levy Avoided

The government sets a waste levy that must be paid for every tonne of waste sent to landfill. This levy is used to fund waste minimisation activities. In the past four years the waste levy has increased from \$10 per tonne to \$50 per tonne for waste sent to Southern landfill and will increase to \$60 per tonne in 2024/25. The cabinet paper that agreed these increases also signaled further increases to the waste levy in future years.

This levy is paid by the owner of the landfill and passed on to those disposing of waste via increases in landfill gate fees.

The \$60 waste levy is paid on every tonne of waste that currently goes to landfill. If that material is instead captured and diverted away from landfill that results in a saving equal to the value of the waste levy.

The waste levy has been adjusted over 30 years to increase at the rate of inflation. Given the government signal of future increases to the waste levy this may be a conservative estimate over a 30-year period.

Table 9: Waste levy savings

	A food/no separate glass	B food/glass wheelie bin	C FOGO/no separate glass	D FOGO/glass wheelie bin	E food/glass crate	F FOGO/glass crate
2026	\$241,296	\$278,104	\$441,431	\$478,239	\$278,104	\$478,239
adjusted for inflation	\$288,758	\$332,806	\$528,259	\$572,308	\$332,806	\$572,308

Landfill Capacity Saved

Any additional diversion of material away from landfill will extend the life of the Southern landfill. The value of extending the life of the landfill is estimated using the value of a cubic tonne of landfill capacity. The Southern Landfill extension is currently estimated to cost \$36 million and will provide 2.2 million cubic metres of capacity.

There is some variation in how many tonnes of waste fill a cubic metre, however 1.1 tonnes per cubic metre is a reasonable estimate. This means that the Southern Landfill extension is estimated to provide disposal capacity for 2.42 million tonnes of waste.

Based on these costs and capacity provided that works out to \$14.88 per tonne of waste.

Table 10: Value of landfill capacity saved

	A food/no separate glass	B food/glass wheelie bin	C FOGO/no separate glass	D FOGO/glass wheelie bin	E food/glass crate	F FOGO/glass crate
2026	\$59,825	\$68,951	\$109,446	\$118,572	\$68,951	\$118,572
adjusted for inflation	\$71,593	\$82,514	\$130,973	\$141,894	\$82,514	\$141,894

Emissions Reduction

The major sources of emissions for waste collection services are transport emissions and landfill emissions generated by the decomposition of organic material.

Transport emissions have not been calculated given that the collection methodology will determine appropriate processing facilities, and therefore the transport requirements for materials. However, generally it can be noted that options that collect glass separately will generate more emissions based on the need for an additional collection vehicle and the associated embodied and operational emissions resulting from this.

The main source of biogenic methane emissions from landfill is from the decomposition of organic material, including food scraps, garden waste, paper products and timber. Other materials such as plastics also produce emissions, but these emissions are minor in comparison and the Ministry for the Environment¹⁸ measure these emissions under the category of general waste.

The reduction of emissions is the difference between the emissions that would be generated if that material went to landfill and the emissions that will be generated by the alternative organic processing method (either composting or digestion).

The estimated tonnes of equivalent CO₂ emissions produced per tonne of waste are calculated using a Unique Emissions Factor. A Unique Emissions Factor is calculated each year for each individual landfill to calculate their emissions including in the Emissions Trading Scheme. Unique Emissions Factors are calculated using a regulated formula from the Ministry for the Environment. The actual Unique Emission Factors for the Southern landfill in the past 3 years was 0.81 in 2021, 0.89 in 2022, and 0.23 in 2023.

The drop in Unique Emissions Factor in 2023 was primarily driven by regulatory changes to the calculation. There were also some reductions due to operational changes, primarily the introduction of an additional flare to the biogas capture operation at the Southern Landfill.

Baseline emissions could be calculated using the current Southern Landfill UEF of 0.23. However, that is a rate that is applied to all waste regardless of composition. Food and garden waste generate more

¹⁸ MfE emissions factors report

emissions per tonne than general waste, so this would result in an underestimate of emissions related to these organic materials.

The Ministry also provide generic Unique Emissions Factors for different types of waste and processing methods for planning purposes in the Measuring Emissions Factors 2022 report¹⁹. Using the appropriate Unique Emissions Factor for each waste stream will generate a more reliable estimate of emissions reduction for each option.

Table 34: Waste disposal with and without landfill gas recovery (LFGR)

Emission source		Unit	With LFGR kg CO ₂ -e/unit	Without LFGR kg CO ₂ -e/unit
Waste (known composition)	Food	kg	0.602	1.881
	Garden	kg	0.492	1.539
	Paper	kg	0.876	2.736
	Wood	kg	0.339	1.060
	Textile	kg	0.438	1.368
	Nappies	kg	0.219	0.684
	Sludge	kg	0.137	0.428
	Other (Inert)	kg	n/a	n/a
Waste (unknown composition)	General waste	kg	0.207	0.647
	Office waste	kg	0.594	1.858

Table 35: Composting

Emission source	Unit	kg CO ₂ -e/unit
Composting	kg	0.172
Anaerobic digestion	kg	0.020

As the Southern Landfill already uses Landfill Gas Recovery the appropriate UEF for food waste going to landfill is 0.602 and for green waste is 0.492.

While a decision on processing methods has not been made, the baseline analysis uses the anaerobic digestion UEF for options with food only collections and the composting UEF for options with food and garden collections. The tonnes of equivalent CO₂ emissions that each option will reduce is set out in the table below:

Table 11: Emissions reduction in tonnes of eqCO₂ using IVC for food and garden and AD for food only in 2026

A	B	C	D	E	F
food/no separate glass	food/glass wheelie bin	FOGO/no separate glass	FOGO/glass wheelie bin	food/glass crate	FOGO/glass crate
1,642	1,642	2,,404	2404	1,642	2,404

¹⁹ [Measuring Emissions Factors Summary 2020 \(environment.govt.nz\)](https://www.environment.govt.nz/our-work/monitoring-and-reporting/2022-measuring-emissions-factors-summary)

To calculate a financial value for these emission reductions the shadow price of carbon is used. This is taken from the NZTA Monetised Benefits and Costs Manual²⁰ which is the most recent whole of government estimate.

The shadow price of carbon is higher than the market price of carbon as it includes the additional social costs of GHG emissions that are not yet included in the price. To manage the transition of introducing the Emissions Trading Scheme the current carbon price does not include the full cost of GHG emissions. Over time the carbon price will rise, meaning it will gradually include a greater percentage of the full costs of GHG emissions.

While the full social cost of emissions does not represent a financial saving to council, it is a benefit that society receives from any emission reduction. As such it is appropriate for it to be included in the estimated benefits because there is an agreed whole of government price to estimate these benefits.

Table 12: Emissions reduction using IVC for food and garden options and AD for food only options, 2026

A	B	C	D	E	F
food/no separate glass	food/glass wheelie bin	FOGO/no separate glass	FOGO/glass wheelie bin	food/glass crate	FOGO/glass crate
\$190,424	\$190,424	\$278,905	\$278,905	\$190,424	\$278,905

N.B. Shadow price of carbon is already adjusted for inflation

Estimating the financial saving that council would realise from these reductions requires estimated the future price of carbon. This is challenging due to an ongoing review of the Emissions Trading Scheme and volatility in recent carbon prices. In the past year the carbon price for New Zealand units has ranged from a high of \$87 to a low of \$34 before rebounding to around \$50. EU carbon credits trading at around NZ\$150 in comparison.

The Climate Change Commission has advised the Government to raise the carbon price lid from \$78 to \$171. At this stage the Government have not followed that advice. In a recent court case, the Crown conceded that they had breached the Climate Change Act in their response to the Commission’s advice.

Measurable Disbenefits

A disbenefit is a negative effect on society from the proposed change in collection services. It is not directly a cost of the project but represents a downside that comes with a new service. Both of the disbenefits in this case come from lost revenue associated with each option compared to the status quo.

Loss of existing end product revenue

Any reduction in end product prices due to changes in collection methods would apply to the existing tonnes of recycling collected as well as any new tonnes collected. This would see a reduction in current revenues from recyclable end products and as such is a disbenefit.

Switching to collecting glass mixed with other recyclables would reduce the end product prices for both paper and glass. Options A and C would both result in this disbenefit.

²⁰ [Monetised benefits and costs manual v1.6 April 2023 \(nzta.govt.nz\)](https://www.nzta.govt.nz/assets/Uploads/Monetised-benefits-and-costs-manual-v1.6-April-2023.pdf)

Collecting glass without colour sorting it also reduce the end product price for glass. Options B and D result in this disbenefit.

Table 13: Reduction in end product revenue

	A food/no separate glass	B food/glass wheelie bin	C FOGO/no separate glass	D FOGO/glass wheelie bin	E food/glass crate	F FOGO/glass crate
2026	\$483,974	\$356,427	\$483,974	\$356,427	\$0	\$0
adjusted for inflation	\$579,170	\$426,535	\$579,170	\$426,535	\$0	\$0

Reduction in Landfill Revenue

Landfill fees provide a revenue stream to fund the operations of the landfill, recycling collections, and waste minimisation projects. A reduction in tonne of waste going to landfill will reduce this revenue stream.

These estimates for reduction in landfill revenue only apply to the reduction in tonnes of waste to landfill attributable to the options in this business case. Other waste minimisation projects could result in additional revenue loss above those estimated here.

The 2023/24 landfill fee for waste collection is \$225.98 per tonne. To calculate this disbenefit the \$60 per tonne waste levy is removed from this fee as avoiding the waste levy is a benefit of increased diversion.

The reduction in landfill revenue is calculated by estimating the reduction in tonnage of waste going to landfill and estimating the future landfill fee per tonne.

Table 14: Reduction in landfill revenue

	A food/no separate glass	B food/glass wheelie bin	C FOGO/no separate glass	D FOGO/glass wheelie bin	E food/glass crate	F FOGO/glass crate
2026	\$589,164	\$679,037	\$1,077,828	\$1,167,701	\$679,037	\$1,167,701
adjusted for inflation	\$705,051	\$812,602	\$1,289,833	\$1,397,384	\$812,602	\$1,397,384

This disbenefit may be overestimated, as up to a certain point any reduction in landfill tonnage would result in an accompanying reduction in operating costs. Therefore, there would be no associated net loss to society.

It is also debatable whether the loss of revenue that is currently used to fund recycling collections and waste minimisation activities is a disbenefit. The reduction in this revenue will require council to change its funding policy for these services, however a change in funding source does not automatically mean that there is an overall disbenefit to society.

Comparison of Options – Net Effects

The analysis shows the different costs, disbenefits and measurable benefits that each option is estimated to have in a year. The year 2029/30 was chosen as this is the first year when implementation costs will have ended.

Table 15: 2029/30 uninflated

	A food/no separate glass	B food/glass wheelie bin	C FOGO/no separate glass	D FOGO/glass wheelie bin	E food/glass crate	F FOGO/glass crate
standard	\$16,682,900	\$14,116,300	\$15,399,600	\$11,549,700	\$12,063,020	\$14,116,300
bespoke	\$10,453,791	\$8,960,392	\$10,453,791	\$7,466,993	\$8,064,353	\$8,960,392
implementation	\$-	\$-	\$-	\$-	\$-	\$-
communication	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
costs	\$27,186,690	\$23,126,692	\$25,903,390	\$19,066,693	\$20,177,373	\$23,126,692
less status quo costs	\$12,671,756	\$12,671,756	\$12,671,756	\$12,671,756	\$12,671,756	\$12,671,756
additional cost	\$14,514,934	\$10,454,936	\$13,231,634	\$6,394,937	\$7,505,616	\$10,454,936
lost landfill revenue	\$607,351	\$699,999	\$1,111,100	\$1,203,748	\$699,999	\$1,203,748
lost end product revenue	\$498,914	\$367,430	\$498,914	\$367,430	\$-	\$-
disbenefits	\$1,106,265	\$1,067,429	\$1,610,014	\$1,540,413	\$699,999	\$1,203,748
costs and disbenefits	\$15,621,199	\$11,522,364	\$14,841,648	\$7,935,350	\$8,205,616	\$11,658,684
Revenue from end products	\$900,944	\$1,173,011	\$1,246,025	\$1,367,863	\$1,181,865	\$1,376,716
Waste levy avoided	\$248,745	\$286,689	\$455,058	\$493,003	\$286,689	\$493,003
Emissions Reduction	\$182,543	\$247,070	\$361,872	\$361,872	\$247,070	\$361,872
Landfill capacity saved	\$61,672	\$71,080	\$112,824	\$122,232	\$71,080	\$122,232
benefits	\$1,393,904	\$1,777,850	\$2,175,779	\$2,344,969	\$1,786,704	\$2,353,823

	A food/no separate glass	B food/glass wheelie bin	C FOGO/no separate glass	D FOGO/glass wheelie bin	E food/glass crate	F FOGO/glass crate
net benefits	-\$14,227,295	-\$9,744,514	-\$12,665,869	-\$5,590,381	-\$6,418,912	-\$9,304,861

For the cost benefit analysis all of the costs, disbenefits and benefits have been estimated for each year over a 30-year period. A discount rate has then been applied to give the present value of these future costs and benefits. A nominal discount rate of 7.1% has been used, based on the default Treasury real discount rate of 5% and an assumption of 2% inflation. The choice of this discount rate and the effect of different discount rates are discussed in the next section on sensitivity analysis.

Table 16: results of the cost benefit analysis for each option

	A food/no separate glass	B food/glass wheelie bin	C FOGO/no separate glass	D FOGO/glass wheelie bin	E food/glass crate	F FOGO/glass crate
Costs	\$259,794,431	\$187,662,272	\$236,994,621	\$115,530,114	\$135,263,053	\$187,662,272
Disbenefit	\$19,654,512	\$18,964,525	\$28,604,389	\$27,914,403	\$12,436,570	\$21,386,448
Total Costs and Disbenefits	\$279,448,943	\$206,626,797	\$265,599,010	\$143,444,516	\$147,699,623	\$209,048,720
Benefits	\$24,478,458	\$30,951,676	\$37,726,640	\$40,732,555	\$31,108,976	\$40,889,855
Net Benefits	-\$254,970,485	-\$175,675,122	-\$227,872,369	-\$102,711,961	-\$116,590,648	-\$168,158,865
Benefit-cost ratio (BCR)	0.088	0.150	0.142	0.284	0.211	0.196

None of the options have a benefit cost ratio above 1. However, this should not necessarily be taken as evidence that none of the options are worthwhile investments given the significant price rises in landfill costs expected in future decades.

When considering the cost benefit ratio, it is important to remember that the majority of costs are measurable and included in the analysis, whereas there may be high value benefits that cannot be measured and therefore are not included. These benefits were also calculated using a conservative capture rate for new organics collection services.

The results are useful in highlighting which options perform better than others based on the measurable benefits included in the analysis.

In order to consider the potential effects of the intangible benefits on the benefit cost ratio, an analysis was done including both welfare and safety benefits. This analysis also removes the lost landfill revenue disbenefit as it is debatable whether this should be considered a disbenefit as discussed above.

Estimated welfare benefits have a present value of \$45 million over 30 years. Safety benefits vary across options and have a present value of \$11-\$25 million over 30 years.

Table 17: Potential effects of intangible benefits

	A food/no separate glass	B food/glass wheelie bin	C FOGO/no separate glass	D FOGO/glass wheelie bin	E food/glass crate	F FOGO/glass crate
Most benefits						
Costs	\$259,794,431	\$187,662,272	\$236,994,621	\$115,530,114	\$135,263,053	\$187,662,272
Disbenefit	\$8,863,975	\$6,527,955	\$8,863,975	\$6,527,955	\$-	\$-
Total Costs and Disbenefits	\$268,658,406	\$194,190,227	\$245,858,596	\$122,058,068	\$135,263,053	\$187,662,272
Benefits	\$24,478,458	\$30,951,676	\$37,726,640	\$40,732,555	\$31,108,976	\$40,889,855
Net Benefits	-\$244,179,948	-\$163,238,551	-\$208,131,955	-\$81,325,514	-\$104,154,077	-\$146,772,417
Welfare Benefits	\$45,030,147	\$45,030,147	\$45,030,147	\$45,030,147	\$45,030,147	\$45,030,147
Safety Benefits	\$19,046,396	\$16,339,353	\$25,440,736	\$25,017,175	\$11,576,881	\$20,254,704
Total Benefits	\$88,555,000	\$92,321,175	\$108,197,523	\$110,779,877	\$87,716,004	\$106,174,706
Net Benefits	-\$180,103,405	-\$101,869,052	-\$137,661,073	-\$11,278,192	-\$47,547,049	-\$81,487,567
Benefit-cost ratio (BCR)	0.330	0.475	0.440	0.908	0.648	0.566

It is possible to estimate how the identified intangible benefits are expected to differ between options. Options that deliver higher diversion and circularity will have higher environmental benefits and are expected to have higher cultural benefits as they have greater alignment with mātauranga Māori. It is uncertain whether social benefits would differ across options. Tonkin+Taylor judged that options C and D would have better outcomes for resident safety as neither requires any manual lifting. Options A, B and F would be similar to the status quo as they all involve one manual lift bin. The 23L bins for food collection in options A, B and E could increase the trip hazard on footpaths. Option E includes two manual lift bins and would be worse than the status quo for residents' safety.

Table 18: Options scored against benefits

	A food/no separate glass	B food/glass wheelie bin	C FOGO/no separate glass	D FOGO/glass wheelie bin	E food/glass crate	F FOGO/glass crate
Environmental benefits	✓	✓✓	✓✓	✓✓✓	✓✓	✓✓✓
Cultural benefits	✓	✓✓	✓✓	✓✓✓	✓✓	✓✓✓
Social benefits	?	?	?	?	?	?
Residents' safety	-	-	✓✓	✓✓	X	-

Finally, an analysis of the baseline scenario that ends in 2035 was calculated. This gives an indication of what the additional costs might be prior to organics and recycling collections becoming more affordable than landfill disposal.

Table 19: baseline scenario analysis to 2035 (original text: analysis period 2035)

	A food/no separate glass	B food/glass wheelie bin	C FOGO/no separate glass	D FOGO/glass wheelie bin	E food/glass crate	F FOGO/glass crate
Costs	\$121,786,060	\$88,628,838	\$111,305,598	\$55,471,616	\$64,542,320	\$88,628,838
Disbenefit	\$13,209,263	\$12,892,094	\$19,656,838	\$19,339,670	\$9,891,368	\$16,338,944
Total Costs and Disbenefits	\$134,995,323	\$101,520,932	\$130,962,436	\$74,811,285	\$74,433,688	\$104,967,782
Benefits	\$15,123,312	\$19,705,254	\$24,929,613	\$26,311,351	\$19,777,560	\$26,383,658
Net Benefits	-\$119,872,011	-\$81,815,679	-\$106,032,823	-\$48,499,934	-\$54,656,128	-\$78,584,123
Benefit-cost ratio (BCR)	0.112	0.194	0.190	0.352	0.266	0.251

Based on this analysis option F the additional costs to ratepayers for these collection services prior to 2035 range between \$48.5 million and \$119.9 million. Including welfare and safety benefits would see these additional costs reduce further.

If organics collections become mandatory in 2030 then these additional costs will only be borne by ratepayers for the four years between 2026 and 2030.

Councillors need to consider whether these additional costs are justified in order to begin organics collections sooner.

Sensitivity Analysis

Sensitivity testing is performed by changing assumptions used to prepare the cost benefit analysis to determine the effect this has on the overall result. This can give indications of the level of uncertainty that remains (the difference between the high and low estimates). It also commonly includes using a higher or lower discount rate to see how exposed the project's value is to changes in interest rates.

Several sensitivity calculations were presented as part of the discussion of measurable costs and benefits to determine which assumption to include in the base case analysis.

When comparing the different options one of the important functions of sensitivity analysis is to check whether a change in assumptions changes the difference between options. If a specific option performs well or poorly regardless of how the assumptions are changed there is greater confidence in the result of the analysis.

The list of all sensitivity testing scenarios performed is as follows:

- 4% discount rate
- 2% discount rate
- Using historical inflation rate of 5.3%
- Using SensePartners forecast number of households for 2026 of 86,103
- High cost/High benefit – using top of the cost range for each option, capture rates of 42% for food only and 53% for food and garden

- High cost/Low benefit – using top of the cost range for each option, standard capture rates
- Low cost/High benefit – using bottom of the cost range for each option, capture rates of 42% for food only and 53% for food and garden
- Low cost/Low benefit – using bottom of the cost range for each option, standard capture rates
- Setting the cost for each option to \$300 per household
- Removing the lost landfill revenue disbenefit
- Increasing the cost to service 27% of MUDs by 200%
- Cut revenue from all end products in half
- Reducing the analysis period to end in 2035

The only scenarios that changed the ranking of the different options were the high cost/high benefit scenario and setting all options costs to \$300 per household. These will both be discussed in the following section.

Costs and Diversion

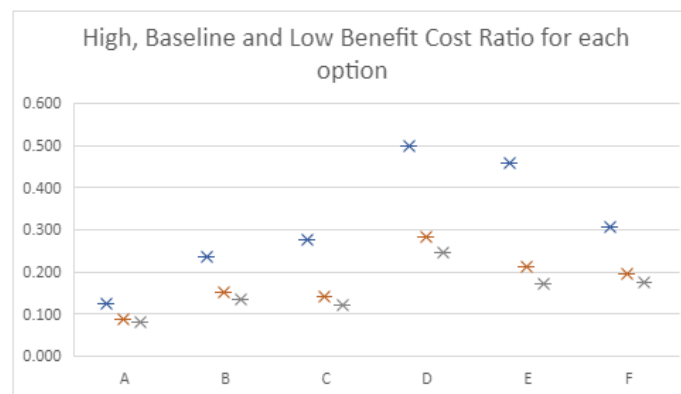
The key driver of the benefits of all the options is how much material is captured by a new service. This depends on the participation of residents and how much of the target material they put in the target bin (recognition rate). Higher participation and recognition rates deliver higher benefits. The main driver of participation and recognition is effective communication with residents about how and why to use the new service.

Cost escalation is currently being driven by labour market shortages and global supply chain disruptions as a result of the COVID-19 pandemic. If these pressures continue over the next few years, or if an alternative inflationary shock occurs costs could be higher than forecast.

The base case analysis assumed costs would be higher than the midpoint of any cost ranges but not necessarily the highest point in the cost range. Diversion benefits were relatively conservative.

A sensitivity analysis was performed to understand how each option performs at the higher and lower ends of the range for both costs and benefits. The following figure shows the benefit cost ratios for each option using the Low cost/High benefit, baseline, and High cost/Low benefit scenarios.

Graph 2



The ranking of each option based on the benefit cost ratio was consistently option D, then E, then F. There were two scenarios where this pattern did not hold: the high cost/high benefit scenario and the scenario where all the options had costs set to \$300 per household.

In the high cost/high benefit scenario option E drops to third rank. As the estimated capture rates increase, option F total benefits increase more than option E. This reflects the fact that option F delivers greater diversion due to option E including a food only collection. Option E's costs also increase more than option F between the baseline and high-cost scenarios. This reflects the fact that option F delivers greater diversion than option E.

Table 20: High cost/High benefit scenario

	A food/no separate glass	B food/glass wheelie bin	C FOGO/no separate glass	D FOGO/glass wheelie bin	E food/glass crate	F FOGO/glass crate
Costs	\$282,594,241	\$210,462,082	\$282,594,241	\$138,329,924	\$167,182,787	\$210,462,082
Disbenefit	\$24,800,803	\$24,110,816	\$37,099,336	\$36,409,349	\$17,582,861	\$29,881,394
Total Costs and Disbenefits	\$307,395,044	\$234,572,898	\$319,693,577	\$174,739,273	\$184,765,648	\$240,343,477
Benefits	\$29,294,959	\$38,125,943	\$48,182,724	\$51,188,638	\$38,283,243	\$51,345,938
Net Benefits	-\$278,100,085	-\$196,446,955	-\$271,510,853	-\$123,550,635	-\$146,482,405	-\$188,997,539
Benefit-cost ratio (BCR)	0.095	0.163	0.151	0.293	0.207	0.214

Given the significant uncertainty associated with the indicative costs, a scenario was analysed where all the options costs were set to the same amount of \$300 per household. This removes any variation in costs; therefore, the results demonstrate the difference in benefits and disbenefits between options. In this scenario option F performs best as it has the highest benefits and moderate disbenefits, followed closely by option D, and then option C. Option E ranks fourth.

Table 21: Costs set for all at \$300 / household

	A food/no separate glass	B food/glass wheelie bin	C FOGO/no separate glass	D FOGO/glass wheelie bin	E food/glass crate	F FOGO/glass crate
Costs	\$210,462,082	\$210,462,082	\$210,462,082	\$210,462,082	\$210,462,082	\$210,462,082
Disbenefit	\$19,654,512	\$18,964,525	\$28,604,389	\$27,914,403	\$12,436,570	\$21,386,448
Total Costs and Disbenefits	\$230,116,594	\$229,426,607	\$239,066,471	\$238,376,485	\$222,898,652	\$231,848,530
Benefits	\$24,478,458	\$30,951,676	\$37,726,640	\$40,732,555	\$31,108,976	\$40,889,855
Net Benefits	-\$205,638,136	-\$198,474,932	-\$201,339,831	-\$197,643,930	-\$191,789,677	-\$190,958,675
Benefit-cost ratio (BCR)	0.106	0.135	0.158	0.171	0.140	0.176

Another scenario worth noting is the loss of end product markets, represented by cutting end product revenues in half for the 30-year period. This resulted in the lowest benefit cost ratios of any change in

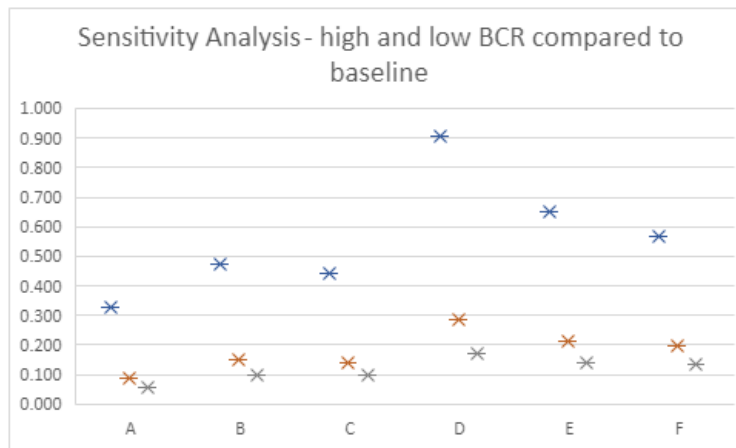
sensitivity testing for 5 of the 6 options. This emphasises the importance of having strong markets for end products and the efficient commercial management of the sale of end products.

Table 22: Loss of markets

	A food/no separate glass	B food/glass wheelie bin	C FOGO/no separate glass	D FOGO/glass wheelie bin	E food/glass crate	F FOGO/glass crate
Costs	\$259,794,431	\$187,662,272	\$236,994,621	\$115,530,114	\$135,263,053	\$187,662,272
Disbenefit	\$19,654,512	\$18,964,525	\$28,604,389	\$27,914,403	\$12,436,570	\$21,386,448
Total Costs and Disbenefits	\$279,448,943	\$206,626,797	\$265,599,010	\$143,444,516	\$147,699,623	\$209,048,720
Benefits	\$16,404,145	\$20,531,499	\$26,657,857	\$28,581,458	\$20,610,149	\$28,660,108
Net Benefits	-\$263,044,798	-\$186,095,298	-\$238,941,153	-\$114,863,058	-\$127,089,474	-\$180,388,612
Benefit-cost ratio (BCR)	0.059	0.099	0.100	0.199	0.140	0.137

The following graph shows the range of benefit cost ratios for each option across all the sensitivity analysis.

Graph 3



The highest ratios were for the analysis that included welfare and safety benefits and excluded lost landfill revenue. The lowest were mostly for the scenario that cut estimated end product revenue in half for the full 30-year period. Options D and E had the lowest cost benefit ratios in the scenario that set all options to the same cost of \$300 per household.

Conclusion

While the baseline scenario benefit cost ratios were all below 0.3 a number of other factors need to be considered when evaluating whether this is a good investment for council.

A scenario that included the welfare and safety benefits, which were excluded from the baseline analysis for being too reliant on assumptions and removed the lost landfill revenue disbenefit (as it is arguable whether this should be considered a disbenefit) the benefit cost ratio raised to 0.9 for the best performing option. This shows the significant effect that including otherwise intangible benefits can have on these results.

Decision makers should give serious consideration to the other intangible benefits that are not included in the baseline analysis. These include the environmental benefits to soil and water, the cultural benefits of improved kaitiakitanga, and the social benefits of being responsible for our waste within our rohe.

Councillors should also consider these results in the context of rapidly rising landfill fees. It is expected that organics and recycling collections will become more affordable than landfill within the next 30 years. Therefore, any additional cost of these services will only need to be met until that time.

Differences in indicative cost per household drive some of the differences between options. Councillors should consider how much weight to give to these cost differences given the uncertainty associated with these preliminary estimates.



Wellington City Council

Resource Recovery Business Model Options

Prepared for: Wellington City Council

Prepared by: Tonkin + Taylor

Document Control

Title: Wellington City Council Waste Business Model Options					
Date	Version	Description	Prepared by:	Reviewed by:	Authorised by:
8 Aug 2023	1.0	Draft	CHP	HEC	
24 August	2.0	Final	CHP	HEC	

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1 Introduction

1.1 This report

Tonkin + Taylor has been engaged by Wellington City Council (WCC) to identify gaps in the market for processing of materials for resource recovery and to assess the options for Council involvement in resource recovery and/or materials processing.

Wellington City Council, as part of delivering on its Zero Waste Programme (ZWP), seek to maximize the opportunity for resource recovery and/or materials processing activities. At the same time WCC, as owner of the Southern Landfill, wishes to optimise the use of the site for resource recovery related activities that will best achieve diversion outcomes for the city.

This report provides analysis of market gaps, possibilities for Council involvement and discussion on opportunities at a high level. This will reflect range of key considerations drawing on a range of supporting analysis and evidence. Where opportunities are identified, Council is also interested to understand whether there is potential for processing to be located at Southern Landfill.

¹ (Wellington City Council, 2021)

1.2 Wellington City

Wellington (Pōneke) is New Zealand's capital city, located on the south-western tip of the North Island (see Figure 1-1).



Figure 1-1 Wellington City Council Boundaries

It is the third most populous city in New Zealand, with a current population of approximately 550,000. The 2018 census showed 202,000 residents residing in the central City.

Long-term population forecasts for the central City predict a growth of between 50,000 to 80,000 residents over the next 30 years, with population expected to reach around 248,000 by 2043. The ratepayer base is also predicted to increase, from around 86,600 in 2021/22 to approximately 92,500 by 2032/33¹.

1.3 Objectives for Wellington City Council

Key objectives for Wellington City Council in delivering waste and resource recovery services, informed by this work include:

- Increased capture and diversion of material streams over and above status quo.
- Self-sustenance of the waste system, i.e. a revenue generating system that can ensure increased diversion for the next 30 years, complimentary to rates without putting sole onus on rates funding to achieve diversion targets.
- Maximise and monetise commodity value of our material waste streams.
- Reduced emissions from waste capture and diversion.

2 Drivers for change

A range of initiatives and drivers combine to create significant capital and operational costs for Council in delivering waste and resource recovery services. Many of the services can be provided on a cost recovery basis through user charges or targeted rates but Council is looking for opportunities to reduce the net impact on service users.

2.1 National policy

The national policy environment has an impact on services that Council is able to, or is required to, provide including:

- A signalled intent to mandate organic materials recovery from households and businesses.
- Standardising materials collected for recycling from households.
- An increasingly challenging environment for gaining consent for waste recovery and disposal activities under the Resource Management Act.

2.2 Changes in Wellington City

Waste minimisation and management in Wellington is undergoing significant change. This includes:

- The recent adoption of the Zero Waste Strategy.
- Planning for an extension (piggy back option) at Southern Landfill.
- Working with territorial authorities across the Wellington Region on a joint Waste Minimisation and Management Plan.
- Working on a redesign of waste, recycling and organic materials collections within Wellington City.
- Collaborating with Porirua and Hutt City Councils on developing options for organic materials recovery.

These initiatives are intended to reduce waste to landfill, reduce waste related emissions and ensure that there is provision for appropriate disposal of residual waste in the short term.

2.3 Materials processing requirements

The system changes being developed through the initiatives noted above mean that Council will need to access a range of processing or disposal infrastructure. This includes:

- Glass sorting. Glass is currently colour sorted at kerbside or the tip shop and then transported to Auckland for recycling. Glass could be collected without sorting and processed in Wellington.

- Recyclable materials processing through a Materials Recovery Facility (MRF). Mixed materials excluding glass are currently processed by Oji Fibre Solutions Limited at their Seaview MRF. There may be a need to additional capacity and/or a facility that can also handle glass.
- Organic materials processing. Green waste is currently collected by private operators and dropped off for windrow composting Southern Landfill. Food waste collected by Council and similar materials generated by businesses will require new processing, for example in-vessel composting or anaerobic digestion, that could take place in Wellington.
- Residual waste disposal – currently Southern Landfill, anticipated to be Southern Landfill Extension piggyback option through to at least 2031.

Council collects materials (and is likely to collect a wider range of materials) from households in Wellington City. Waste companies collect a range of materials from multi-unit developments and business across the City.

Similar material streams are generated and collected across the Wellington Region. These materials could be processed by a facility controlled wholly or in part by Wellington City Council.

3 The current situation

3.1 Materials processing landscape

As noted in Section 2, there are several material streams controlled by Council. In most cases other councils and the private control similar materials streams. These materials are:

- Green waste (from drop off and private collections).
- Mixed paper, cardboard, plastics and cans (from kerbside and commercial recycling).
- Glass (mixed from commercial collections, colour sorted at kerbside for Council collections).

There are also 'new' materials streams that may require processing including mixed glass (from commercial collections and if there is a kerbside mixed glass collection), mixed recyclables including glass (if there is a fully co-mingled recycling collection) and food organics (as a food only or mixed food and garden stream).

Green waste is currently composted at the Southern Landfill by Wellington City Council's Capital Compost operation. This operation will

need to shift from the current location (on top of Stage 2 of the landfill) when construction of the piggyback extension starts. The former Living Earth Joint Venture area has been identified as a potential location for windrow composting.

Mixed paper/cardboard, plastics and cans are currently processed at Oji Fibre Solutions Seaview MRF (Lower Hutt). Materials are transported in collection vehicles to the MRF with an approximately 20 - 40 km round trip.

Glass collected from households is colour sorted at the kerbside and then transported to Seaview for consolidation prior to transport to Auckland.

Mixed paper/cardboard, plastics cans and glass (colour sorted) from Porirua, Kapiti and the Hutt Valley are also processed in Seaview. Materials from the Wairarapa are processed by Earthcare Environmental Limited (the Wairarapa Councils' collection contractor).

There are several companies collecting recyclable materials from businesses including cardboard, glass and mixed recyclables. In some cases materials are sorted at the contractor's premises with access to Oji's MRF not available for all contractors.

Green waste from the Wellington Region is also windrow composted by Composting New Zealand (Otaihanga, Masterton and depot in

Plimmerton) and McMud Earthworks (Grenada). McMud note on their website that they process paunch grass alongside wood chips, shavings and pine mulches.

3.2 Materials flows

Wellington City Council kerbside recycling materials through the Oji facility are summarised in Table 3-1. Other council materials and commercial recycling are estimated using Wellington City per capita figures. Commercial recycling quantities are estimated based on total facility throughput.

Table 3-1 Estimate material quantities (T/yr)

Material	Wellington	Other Council	Commercial
Card	1,832	1,950	6,744
Paper	1,706	1,816	6,281
PET	388	413	1,430
HDPE	264	281	971
PP	237	252	871
Steel	268	285	985
Aluminium	166	177	611
Glass	3,842	4,089	5,082
Contamination	1,008	1,073	3,711

The flow of recyclable materials from Wellington City Council kerbside collection, other Council and private sector collection/processing is presented in Figure 3-1.

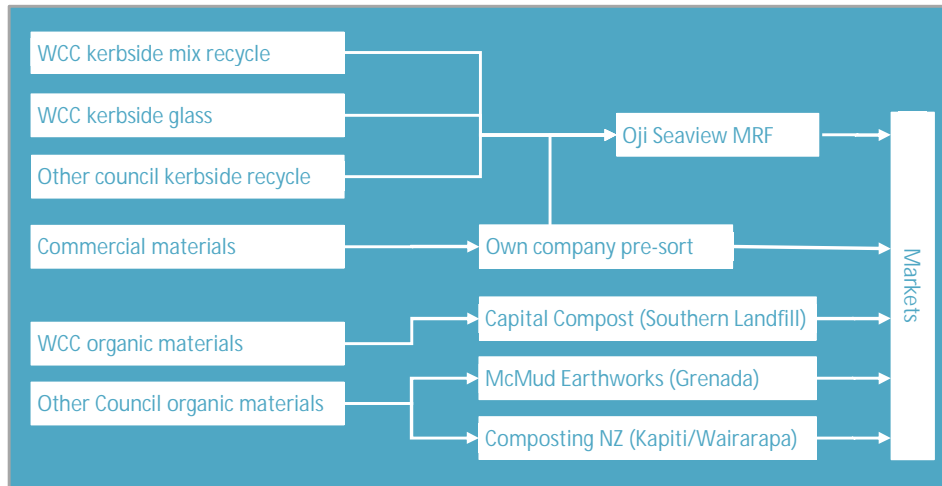


Figure 3-1 Recovered material flows

3.3 Materials currently landfilled

In addition to materials that are currently captured for recycling or composting, a range of other materials are currently landfilled at Southern Landfill or elsewhere. In some cases these materials are likely to be targeted for separate collection or drop-off in the future with processing required in Wellington or elsewhere.

Examples of materials that could be processed in Wellington, including at Southern Landfill, and are currently targeted but with potential for improved capture include:

- Garden organic materials.
- Tyres.
- Recyclable materials.
- Food organics
- Untreated timber

Examples of materials that could be targeted in the future include:

- Textiles
- Mattresses
- Treated timber (as part of a construction and demolition stream).
- Degradable or recyclable materials present in residual waste (currently landfilled).

3.4 Processing occurring elsewhere

It is relevant to consider processing of various material streams elsewhere in New Zealand and internationally.

Examples include:

- Organic materials processing.

Windrow composting of green waste, aerated and/or in-vessel composting of mixed food and green waste or similar putrescible streams.

Anaerobic digestion of food waste and other putrescible material streams.

Vermi-composting of food and 'soft' green waste and other putrescible material streams.

- Tyres
Shredded for use as playground matting, horse arena bedding and/or fuel.
Baling for export for processing into crumb (remanufacturing).
- Textiles
Use as rags for engineering or padding.
Developing for use as fibre reinforcement in paving systems. (emerging technology)
- Mattresses
Dismantling to recover textiles, padding and metals. A system has recently been established in Auckland and other local authorities in New Zealand are considering schemes. Mattresses are banned from landfill in some States in Australia, driving dismantling and recycling.
- Construction and demolition materials
Sorting and some processing of materials including rubble/concrete, metals, plasterboard and timber. While mixed urban timber can be used as biofuel in Whangarei there is no current outlet for treated timber unsuitable for reuse from the Wellington Region.
- Mixed residual waste processing

There are examples internationally of processing of mixed residual waste. The objective is usually to stabilise degradable material and recover some recyclable materials (such as metals).

The examples noted here are implemented by councils, by the private sector and through various public and private sector partnership models. Examples of partnerships including infrastructure co-investment including Resource recovery Hubs in Auckland and making space available for private operations (Treadlite - New Plymouth, Revital – Tauranga).

3.5 Potential suitable locations in Wellington

Materials processing could potentially occur in areas Zoned Business 1 and Business 2 across Wellington City (refer Figure 3-2).

Establishing any processing activity will be subject to the specific activity, availability of land and any regional planning requirements.

Business 1 and 2 areas (purple in Figure 3-2) include:

- Ohiro Bay (Landfill Road).
- Kilbirnie (Kingsford Smith St, Rongatai Rd/Batten St, Kemp St/Tacy St).

- Miramar (Portsmouth Rd/Southampton Rd, Park Rd, Manuka St).
- Ngaio Gorge (Ngaio Gorge Rd/Hutt Rd).
- Ngauranga Gorge (Tyers Rd, Glover St, Jarden Mile).
- Grenada North.

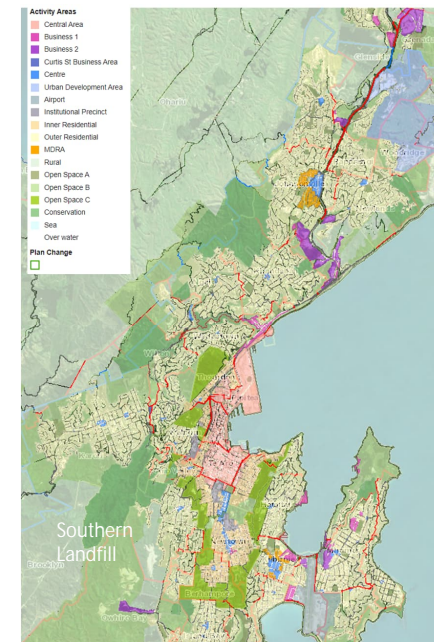


Figure 3-2 Southern Landfill – existing layout (WCC GIS – District Plan)

Rural areas (light green in Figure 3-2) may also be suitable, particularly for organic materials processing. Southern Landfill may also be a suitable location (refer Section 3.7).

It may also be possible to establish processing activity in a suitable location in other parts of the Wellington Region or further afield. This would likely involve some form of collaboration with other local authorities and/or the private sector.

Example industrial zoned areas are shown in the figures below and include:

- Porirua - Keneperu, Elsdon
- Hutt City - Seaview, Petone, Gracefield, Wingate
- Upper Hutt City – Trentham, Wallaceville



Figure 3-3 Hutt City Industrial Zones (purple)

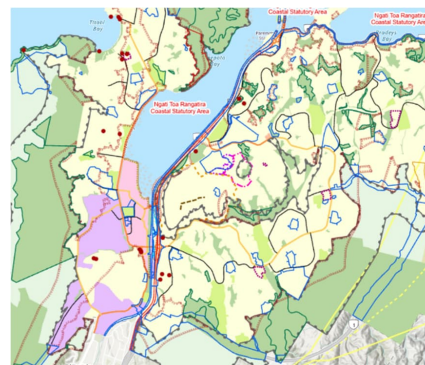


Figure 3-4 Porirua Industrial Zones (purple)

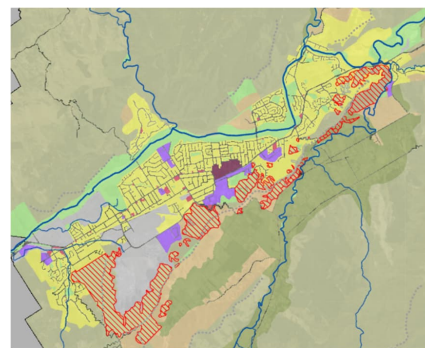


Figure 3-57 Upper Hutt Industrial Zones (purple)

As for Wellington City, rural areas in other parts of the Region may also be suitable for some organic materials processing options (windrow composting, vermi-composting) with potentially suitable locations in Judgeford (Porirua) and Moonshine Valley (Upper Hutt).

3.6 Proposed development in the Wellington Region

There are several resource recovery related developments proposed or underway across the broader Wellington Region potentially accessible from Wellington. Based on a range of sources examples include:

- Waste Management NZ development of the Manor Park Resource Recovery Park. Based on resource consent applications this comprise a transfer station, C&D waste processing and a 'MRF'. The equipment lists for these facilities imply a simple commercial materials sorting operation rather than a MRF targeting kerbside material.
- A proposal to develop an anaerobic digestion plant in Manawatu – target food waste and primary sector by-products.
- Existing and proposed composting activity in Horowhenua targeting mixed food and garden waste alongside primary sector by-products.

3.7 Space available at Southern Landfill

The focus of this report is on opportunities to deliver resource recovery / materials processing in a way that enhances processing availability and Council revenue. There may be opportunities to make use of the various facilities at the Southern Landfill facility. This assumes that the Southern Landfill Extension piggyback option will proceed.

The Southern Landfill has multiple activities occurring on the site. In addition to waste disposal these include:

- The tip shop and recycle centre
Accepting and selling reusable items, recyclable materials and e-waste.
- Capital compost - Windrow composting of green waste and a small amount of food waste.
- Transfer station
Drop off facility for domestic and small commercial quantities of general waste, green waste and hazardous wastes.
- Sludge centrifuge facility

The site layout is show in Figure 3-6.



Figure 3-6 Southern Landfill – existing layout

The proposed Southern Landfill Extension piggyback option will have an impact on current operations and space available for new activities at Southern Landfill.

Specifically:

- The current windrow composting area and sludge centrifuge facility will be impacted by the piggyback extension.
- The current expectation is that the composting activity will shift to the former Living Earth Joint Venture area. This building and the surrounding area are approximately 1.5 Ha in total including the 5,000 m² building).

The centrifuge facility will no longer be required once the sludge minimisation project (advanced digestion, dewatering and drying) is implemented at Moa Point.

The transfer station, tip shop and landfill gas power generation facility will not be impacted by the piggy back extension. In all cases these activities will continue in their current locations.

3.8 Potential impact of a Container Return Scheme

There is a proposal to introduce a container return scheme (CRS) in New Zealand targeting a range of beverage containers. Development of the CRS has been paused with no clear timeline for finalising the scheme design. Details of scheme design will define the impact on any materials processing opportunities for Wellington City Council.

Examples include:

- Recovery of targeted materials, particularly those currently recovered through kerbside recycling collections.
- Return arrangements i.e. could Council operate one or more CRS return depots or reverse vending machines.
- Any funding available to support kerbside collections and processing.

The design and regulatory impact work completed to date provides an indicator of potential CRS design for New Zealand. The performance of similar schemes in Australia provide some indicators although there may be design differences that impact on material recovery.

The NZ CRS proposal is that each targeted container will pay a deposit. The funds will then be used to fund the CRS scheme with unclaimed deposits used to fund the scheme administration and potentially to support kerbside recycling activity.

The NSW scheme (in place since 2017) claims refunds from beverage suppliers when containers are recycled. This approach risks incentivising low recovery rates (to reduce the cost to beverage producers). In NSW Councils have reported around 50% drop in eligible containers equating to around 30% drop in total volume in kerbside containers.

4 Options development

4.1 What is the opportunity

There are two groups opportunities for resource recovery and materials processing that are considered in this report.

The first group involves existing activity, undertaken on a commercial basis. For these activities there is potential for Council to process materials from their own operations and from other Councils or the private sector. This group includes mixed recyclables processing and green waste processing.

There are also resource recovery activities that are not currently occurring in the Wellington Region that could support new diversion and emissions reductions. In some cases these may be commercially viable but will be more likely to establish in Wellington with Council support (for example food waste processing, textile recycling, tyre re-processing). In other cases activities are only occurring elsewhere when financially supported by Council or others. Examples include mattress recycling, processing of some construction waste materials.

4.2 Potential material streams

There are several materials streams that could be targeted for processing at the southern landfill.

Potential target materials streams include:

- Mixed recyclables (paper, cardboard, plastics, steel cans, aluminium cans).
- Glass – colour sorted or mixed.
- Organic materials
- Garden organics.
- Food organics.
- Mixed food and garden organics.
- Textiles.
- Mattresses (textiles, steel).
- Construction and demolition materials.
- Tyres.

For each material stream, we have considered materials controlled by Wellington City Council, total materials generated in Wellington City (estimated) and total materials generated metropolitan Wellington (Wellington, Hutt Valley, Porirua, Kapiti).

Feedstock quantities provide a basis for estimating facility space requirements (building and surrounding area). We have used several data sources to develop facility options. These include:

- Published information on recent facility developments around New Zealand (referencing capacity and indicative capital spend).
- Standard calculators for facility space requirements (for example BioCycle).

At a high level, the options we have identified for processing materials are:

- 1 Organic materials processing – in-vessel composting, anaerobic digestion and/or windrow composting.
- 2 Materials Recovery Facility (MRF) – targeting mixed paper, cardboard, plastics and cans with or without glass.
- 3 Glass beneficiation facility – targeting mixed glass collected from households and/or businesses.
- 4 Mattress dismantling and materials recovery.
- 5 Textile processing.
- 6 Tyre processing.
- 7 Construction and demolition materials processing.

In the following sections we have noted space required for Wellington City specific and regional material quantities of the relevant target materials(s). Other considerations for each option are discussed in Section 5.

As noted above, these activities may be suitable for industrial or rural zoned areas across the wider Wellington region. It would be possible to make use of the former Living Earth Joint Venture space and building for each of these options with the space and infrastructure available defining capacity.

4.3 Organic materials

It would be possible to process a range of organic materials in a location with suitable space and buffer distance from sensitive neighbouring land use (residential, offices, schools) could be identified. This includes space available at the Southern Landfill, possibly land zoned for industrial activities and some rural land.

Processing options relevant for potentially available materials include windrow composting, in-vessel composting, anaerobic digestion and vermi-composting. In all cases consideration needs to be given to transport connections for feedstock and products (compost, vermi-compost, digestate and biogas).

Windrow composting

The current windrow composting operation at Southern Landfill processes several thousand tonnes of green waste and some food waste. This could be relocated to the available area at Southern Landfill with windrows in the yard area or placed inside during early stages of composting.

A new site would ideally have around 2Ha available to allow for feedstock preparation, windrows and product screening/storage. Location with respect to neighbouring land use is important with windrow composting ideally located with significant buffer distance from other activities to reduce the impact of any fugitive odour emissions during feedstock preparation, turning of windrows and screening of finished product.

In-vessel composting

The Living Earth Joint Venture operation processed around 40,000 tonnes of material each year (biosolids, separated green waste delivered to Southern Landfill and bulking agent brought in from elsewhere). The process was aerated and mechanical agitated tunnel (in-vessel) composting system with maturation and storage in the yard area.

Our analysis looking at organic materials processing in the Wellington Region suggests there is around 17,000 tonnes per year of

food and garden organics in kerbside waste currently disposed of at Southern Landfill. A capture rate of 50% would provide 8,500 tonnes per year. This is on top of the several thousand tonnes of material currently composted by Capital compost.

Pulling in materials from Porirua, Hutt and Upper Hutt would increase this figure to around 47,000 tonnes per year to landfill and capture of material around 23,000 tonnes per year.

A new site with capacity for the upper end of the figures noted above would require 1.5 – 2.0 Ha of space for feedstock acceptance, in-vessel processing, maturing and product screening/storage. Similar to windrow composting, an in-vessel system should have a reasonable buffer distance from sensitive neighbouring land users to minimise the impact of any fugitive odour emissions.

An in-vessel composting system could be established in the available space at Southern Landfill (building and yard area) with capacity to manage materials generated in Wellington City and the surrounding areas. Key considerations will include managing odorous feedstocks and transport costs for compost product to markets.

Anaerobic digestion

The Ecogas anaerobic digestion facility in Reporoa provides an indicator of the space required for a large scale anaerobic digestion facility. The facility has a design capacity of 75,000 tonnes of material per annum and total area of 2.3 Ha. Food waste from Wellington City has been estimated at around 10,000 tonnes per year, increasing to a total of over 30,000 tonnes when Porirua, Hutt and Upper City materials are included.

50% capture of this material would translate to 5,000 – 15,000 tonnes of food waste requiring processing. 1.5 – 2.0 Ha would be adequate for process food waste from across the region with potential to work with a more constrained site if needed. This could be accommodated at Southern Landfill.

The existing building at Southern Landfill may be suitable for digestion, biogas handling and digestate management. Biogas storage would likely be outside the building. Considerations include managing odorous feedstocks and minimising the transport costs for digestate.

Biogas could be fed into the existing biogas to power facility (adjacent to the Tip Shop). Digestate could be dewatered or transported as a liquid for use in horticulture or agriculture with large scale markets potential accessible in the Wairarapa and Horowhenua and further north.

Vermi-composting

MyNoke are a large scale vermi-composter operating on multiple sites in the North Island. Their model relies on having access to a range of materials (to create the right blend for the earthworms), space and time to allow the worms to process materials.

Based on published information we estimate this model can process in the range 1-2,000 tonnes per Ha each year. This suggests that 5-10 Ha or more would be required to process materials from Wellington City or the broader Wellington area. This means that the available space at Southern Landfill is insufficient for a vermi-composting operation of sufficient scale.

Vermi-composting operations elsewhere in New Zealand are typically located on production land with significant buffer from surrounding land uses. This suggests that this type of operation would be best suited to rural parts of the region. Taking transport connections and markets into account Judgeford, Moonshine Valley or further north (Kapiti, Wairarapa, Horowhenua) are the most likely locations.

4.4 Recyclable materials

It would be possible to process recyclable materials at suitable industrial zoned land or

the space available Southern Landfill. Processing options of relevance include a materials recovery facility for mixed paper, cardboard, plastics and cans or a similar facility with capability to handle a mixed stream including glass.

The Oji facility in Seaview has a capacity of around 35,000 tonnes of mixed paper, cardboard, plastics and cans each year (from across the Wellington Region). The Oji facility comprises a 4,000 m² building with a surrounding yard of approximately 5,500 m².

The New Plymouth MRF provides an indicator for a facility with capacity suitable for Wellington City Council household only materials only (excl glass). This facility processes around 6,000 tonnes per year and is around 3,600 m² with minimal yard space i.e. largely internal storage.

The Timaru MRF is a 2,000 m² facility. The site processes a mixed paper, cardboard, plastics and cans stream and mixed glass with a capacity of around 10,000 tonnes per year. Our analysis suggests that Wellington City contributes around 10,000 tonnes per year of recyclable materials from households and businesses.

Impact of the CRS

As noted in Section 3.8, the introduction of a CRS will have an impact on materials available for processing. The impacts are uncertain but experience in Australia suggests that kerbside materials may reduce significantly. The impact on kerbside materials quantities will depend on target materials but could result in 20-30% reduction in material quantity.

It is also possible that a CRS will primarily impact on containers used outside of homes i.e. have minimal impact on kerbside quantities.

There is some discussion in Australia about using additional capacity in kerbside recycling bins to target other recoverable or recyclable materials. Approaches suggested including upgrading MRF to capturing a wider range of materials and/or bagging materials for removal at a suitable configured MRF. Potential candidates include:

- Soft plastics (bagged) – being trialled in Australia.
- Clothing (bagged).
- Small items targeted by product stewardship schemes, for example coffee pods or small electronics, most likely bagged.

² 5,000 m² at \$1,250 / m² is \$6.25M

4.5 Glass beneficiation

It would be possible to process mixed glass at a suitable facility located in an industrial zone across the Wellington Region or at Southern Landfill. In terms of space required and indicative capital spend, a recent beneficiation plant development in South Australia provides one example with a capacity of 150,000 tonnes of glass per year and capital investment of AU\$25M in 2022. This compares with total glass currently collected in the Wellington Region of around 15,000 tonnes each year. Similar facilities in NSW and Queensland also provide an indicator of the investment and space requirements for a beneficiation facility of suitable scale for the Wellington Region.

Typically facilities are owned by glass packaging manufacturers (such as Visy or Orora) and located adjacent to the packaging manufacturing operations. The facilities in Australasia also tend to be large scale with the existing Auckland facility handling around, 100,000 tonnes of glass each year.

A glass beneficiation plant of a scale suitable for the Wellington Region could be located in industrial zoned land and is unlikely to require all of the building footprint or yard space current available at Southern Landfill. This

means a beneficiation process could potentially work alongside other processing activities at Southern Landfill.

It is also worth noting that the capture rates for glass are high across the country. This means that there is no shortage of feedstock for the beneficiation and recycling plants in Auckland from across the country. This is reflected in the current value of colour sorted glass and represents a risk for any glass processing facility with limited margin between processing costs and material revenue.

4.6 Mattress recovery

Mattress recovery (dismantling) is established internationally and emerging in New Zealand. It would be possible to establish a dismantling operation in Wellington using a suitable warehouse or similar enclosed space. The existing building at Southern Landfill is a potential candidate as are sites in industrial areas across the region. Detailed process design and storage requirements would need to be developed, but a 5,000 m² space is likely to more than adequate for this activity.

The existing building at Southern Landfill is this size, construction of a similar facility elsewhere would likely cost in excess of \$6M²

plus land costs. Leasing costs will vary by location but for a 5,000 m² space are likely to be over \$600,000 per year.

An average mattress is 20 – 30 kg with key components including steel, textiles, foam and untreated timber. The dismantling process tends to be labour intensive with 3R estimating that 90% of materials are recoverable. Council have existing outlets for steel (metal recycling) and untreated timber (potentially chipped for composting/mulch). Markets would need to be developed for other materials.

4.7 Textile processing

It would be possible to process textiles at any industrial space including the building at the Southern Landfill. Typical operations sort textiles into resaleable items (already occurring at the Tip Shop) and a range of material grades suitable as rags or for the manufacture of low grade textile products such as felt, furniture blankets and cushion filling.

Textiles present in landfilled material from Wellington City are estimated at almost 5,000 tonnes each year. At a regional level this increases to over 12,000 tonnes. Source separated material will be easier to process and there is potential to process textiles

removed from residual waste, for example at transfer stations across the region.

Textile Products in Auckland process a range of materials – provided free at their site in Onehunga Auckland. Their finished products including felts, removal blankets, geotextiles, various wadding products and insulation mats.

This type of operation could potential operate in a larger warehousing space alongside mattress recovery or similar activities. As for mattress recovery the existing building at Southern Landfill is potentially suitable.

4.8 Tyre processing

It would be possible to establish tyre processing, or make space available for existing processors looking to establish in the Wellington Region at Southern Landfill. The space required would depend on the ‘catchment’ for tyres to be processed with potential to service Manawatu, Wairarapa and the Wellington Region from Wellington.

4.9 Construction and demolition materials

It would be possible to process mixed construction and demolition materials at Southern Landfill – sorting mixed loads to recover concrete/rubble, metals, timber,

plasterboard and potentially other recoverable materials.

Activity at Southern Landfill could include sorting of mixed loads or focus on processing specific materials. Examples of potential materials for processing include timber (reusable lengths de-nail and/or re-machining) and plasterboard (crushing and contaminant removal).

4.10 Residual waste processing

There are international examples of residual waste processing. These are typically focussed on stabilising degradable materials within the residual waste and recovering recyclable materials such as metals. Examples include a range of variations of mechanical biological treatment (MBT) and mechanical heat treatment (MHT). Thermal treatment processes such as conventional incineration and advanced thermal processes (gasification, pyrolysis) could also be included, converted combustible materials to gas and ash and enabling the recovery of metals from bottom ash or char.

There are also examples of facilities targeting specific materials streams. A facility targeting ‘dry’ construction and demolition materials is an example of this approach with similar materials from other commercial sources also a potential target.

The residual waste processing operation will typically target a relatively low capture rate reflecting the mixed input stream and damage to potentially recoverable materials during collection and transport.

Other points to note include:

- In most case, sorting and processing equipment is under cover or inside a warehouse style building.
- Biological or heat stabilisation processes will produce significant odour, so enclosed processes, odour treatment systems and suitable buffer distances are required.
- While stabilised degradable material may be usable in theory, it often is only suitable for low grade uses (for example mine rehabilitation) or disposal to landfill. This means the benefits may be related to stabilisation and volume reduction rather than diversion.
- Mixed 'dry' materials may be sorted to produce recyclable materials suitable for existing markets, particularly metals.
- Mixed materials including degradable or wet materials are likely to produce low grade recyclable materials. Marketable products may be limited to hard items such as metals and washable plastics.

4.11 Options summary

Most of the options discussed here could be located on land zoned industrial or for similar land use (such as at Southern Landfill). Organic materials processing sites will require a suitable buffer distance from sensitive land uses to address the risk of odour and may be suitable for rural zoned land.

Table 4-1 provides a summary of the options discussed above.

Table 4-1 Options summary

Option	Location	Space	New Diversion	Notes
Organic materials – in-vessel composting	Industrial, Rural	1.5 - 2.0 Ha	>8,000 t	Depends on throughput, Buffer required.
Organic materials – anaerobic digestion	Industrial, Rural	1.5 - 2.0 Ha	>5,000	Food only, depends on throughput, Buffer required.
MRF – glass out	Industrial	0.2 – 0.5 Ha	Existing	
MRF – glass included	Industrial	0.2 – 0.5 Ha	Existing	Product quality impacts (glass fines).
Glass Beneficiation	Industrial	0.2 – 0.5 Ha	Existing	Typically significantly larger scale.
Mattress recycling	Industrial	Warehouse space	300 t (50% capture)	Potential co-locate with other resource recovery activity.
Textile recycling	Industrial	Warehouse space	Existing	Potential co-locate with other resource recovery activity.
Tyre processing	Industrial	0.1 – 0.2 Ha	Existing	
Construction and demolition waste recovery	Industrial	> 0.5 Ha		Depends on throughput, range of possible approaches
Residual waste processing	Industrial		Est 15-20%	Unproven in New Zealand, limited markets for some outputs.

5 Options Assessment

5.1 Approach

We have set out a number of considerations for the options identified in Section 4. For each consideration a range of evidence has been used to evaluate the options. In some cases we have been able to provide a semi-quantitative assessment, in others we have drawn on evidence to provide commentary but no quantified assessment.

Key questions we have considered are:

- Does this option address a gap in current arrangements?
- Is this a commercial opportunity or is processing not commercially viable?
- Are there any implementation risks that need to be considered?
- What are the benefits of this option (emissions, diversion,)
- What are the likely capital costs, operational costs and revenue streams?

Each key consideration is discussed below.

5.2 Organic materials processing

Current arrangements

There are several windrow composting operations in the Wellington Region including Capital Compost at Southern Landfill. These operations can handle green waste but are not able to handle the projected future quantity of food waste and similar material streams requiring processing. We are not aware of any proposals to establish food waste processing closer to Wellington.

Paranui Organics (Foxton) process a range of primary sector materials streams and may be in a position to process food materials. They have been the subject of enforcement action regarding odours and water management.

There is a proposal to establish a wet anaerobic digestion process in Fielding drawing on food waste and similar materials from across the lower North Island. This facility is seeking WMF Grant funding to support establishment and is also reporting access to private sector co-funding.

Based on the comments here, establishing organic materials processing suitable for food waste from the Wellington Region would address a gap in current arrangements. There is potential that a Wellington based operation

would compete with the proposed facility in Fielding and/or Paranui Organics in Foxton.

Establishing organic materials processing suitable for food waste would address a current gap in services available within the (or for) the Wellington Region but may end up competing with similar facilities that are working towards establishment.

Commercial viability

The existing operations and proposed new facility illustrate the commercial viability of organic materials processing in Wellington and further afield servicing Wellington. The existing operations across New Zealand demonstrate that the right combination of gate rate, facility configuration and product marketing organic materials processing can deliver a commercial return.

A new organic materials facility suitable for food waste would be a commercial activity. This means that capital (after any WMF grant funding) and operational costs would be fully funded through user charges. This also means that a Council owned facility could compete with private sector facilities. This is the case with Capital Compost and green waste processing (competing with McMud Earthmovers and Composting NZ).

Establishing organic materials processing suitable for food waste is a commercial opportunity. This means that any new facility may end up competing with other facilities established by the private sector.

Implementation risks

Organic materials, and in particular food waste and similar highly putrescible materials, can be challenging to process. Odour and management of leachate are key focus areas for most facilities. Strategies to manage these include providing a suitable buffer distance from sensitive land uses, enclosing processing (particularly materials acceptance, feedstock mixing and the initial pasteurisation stage of composting) and managing turning of materials.

In addition to processing risk, transport logistics can pose a challenge with feedstock potentially odorous during transport. Suitable processing locations can be distant from materials source (for example kerbside collections), impacting on the gate rate that can be charged for accepting materials.

It is difficult to identify suitable locations for organic materials processing suitable for food waste within the Wellington Area. The Southern Landfill site has neighbouring

³ incorporating amortised capital costs, operating costs and reflecting product sales revenue

residential properties and some history of odour challenges related to specific weather conditions and operational procedures. Other sites close to urban areas are likely to face similar challenges. Rural areas may be more suitable but will pose transport logistics challenges.

Key risks for organic materials processing in Wellington are:

- Processing and transport odour impacts.
- Transport logistics – balancing proximity to organic materials generation with transport impacts.

Key option benefits

Organic materials processing is targeted at producing beneficial products including biogas (anaerobic digestion) and soil amendments (composting, vermi-composting, anaerobic digestion). A key driver from a waste policy perspective is the removal of organic materials from landfill disposal with associated emissions reductions. The diversion and emissions reductions achieved will be defined by the nature and quantity of feedstock.

As noted above, this option has the potential to provide a commercial return to Council

subject to detailed analysis of capital costs, operational costs and product sales revenue.

Key benefits are anticipated to be:

- Enabling Councils and other organisations to divert organic materials from landfill disposal.
- Reducing organic materials loads to landfill
 - Reducing emissions.
 - Reducing odour and leachate risk.
- Council can achieve a (commercial) return on capital and operational spend.

Cost analysis

The costs for this option are highly dependant on the location selected, processing technology adopted and scale of processing activity. We have focussed on processing system with land casts additional to any processing capital costs.

It is important to note that

- Recently published information provides guidance on likely capital costs. Typical gate rates³ are also useful in understanding the likely cost impact for Council.
- Windrow composting is not considered given there are existing operations and this

approach is not suitable for large quantities of food waste.

In-vessel composting

In-vessel composting example developments include the Living Earth/Christchurch City council plant at Bromley (currently considering re-location), Timaru District Council composting facility and Enviro NZ's composting facility at Hampton Downs (Waikato).

Adopting an 8% finance rate and 25 year asset life suggests amortised capital costs in the range \$30 – over \$100 per tonne. The lower end of the range is based on the Timaru system, employing covered windrows and forced aeration. The higher end of the scale reflects published costs for the relocation of the Christchurch City Council facility and includes an allowance land purchase alongside a fully enclosed processing system with extensive odour management arrangements.

Timaru covered windrow operation would be best suited to a rural location or site with large buffer distance to neighbouring land users. More constrained sites will require more complex odour containment including for maturation stages of the composting process.

⁴⁴ Mark Abott Consulting Analysis

Operational costs will be in the range \$50 - \$100 per tonne of feedstock, depending on the processing approach adopted. Quality compost will sell in the range \$50 - \$100 per m³ (\$100 or more per tonne).

In both cases cost on a per tonne of feedstock processed will increase for smaller scale processing. Table 5-1 summarises the application of these numbers to aerated static pile and in vessel facilities for 50,000 tonnes each year⁴.

As noted above, the lower capital and operational costs reflect a relatively simple approach, most suited to rural areas or large sites with a large buffer between processing

As noted above, the lower capital and operational costs reflect a relatively simple approach, most suited to rural areas or large sites with a large buffer between processing areas and neighbouring land users. The higher costs are likely to be reflective of the investment require to establish an operation at Southern Landfill⁵.



Figure 5-1 Timaru composting facility

Table 5-1 Composting indicative cost ranges

Component	Aerated static pile	In-vessel composting	Note
Throughput	50,000 TPA	50,000 TPA	WCC, PCC, HCC
Capital	55 M	70 M	Covered, aerated windrow / Fully enclosed
Operating	\$50 / t	\$100 / t	
Product value	\$505 / m ³	\$80 / m ³	Needs to account for transport to market
Indicative gate rate	\$100 / t	\$180 / t	Covering capital and operating costs i.e. assuming minimal revenue on sale.

⁵ This costs reflect a new development, there may be capital cost savings where existing building or equipment can be used.

Anaerobic digestions

With limited examples of anaerobic digestion plants focusing on food waste available, developing a reasonable cost range is difficult. Published costs for the EcoGas facility in Reporoa (processing food waste from Auckland) is \$42M in 2022. Based on published capacity numbers this translates to an amortised capital cost of around \$50 per tonne.

The EarthPower facility in Sydney provides another indicator. The site was developed in 2003 with a reported capital cost of AU\$35M. This would translate to NZ\$75-80M or an indicative amortised cost of around \$145 per tonne. This higher cost in part reflects the Sydney location.

Processing costs are anticipated to be at the higher end of the range noted for in-vessel composting reflecting the active management of the digestion process and digestate handling required. Revenue will also be relatively high based on use of biogas (off setting other energy sources) or sale of biogas. A facility would ideally be located where biogas can be used in existing power generation or heat plant.

Using the Ecogas and Earthpower figures provides a basis for some indicative cost ranges for anaerobic digestion.

Table 5-2 Digestion indicative cost ranges

Component	Lower	Upper	Note
Throughput range	5,500 TPA	50,000	Lower, WCC only, Upper WCC, PCC, HCC
Capital cost	10 M	35 M	Lower EcoGas, Upper 30,000 TPA, Earthpower
Revenue	\$30 / t	\$50 / t	Digestate minimal value, biogas
Indicative gate rate	\$200 / t	\$150 / t	Covering capital and operating costs

An anaerobic digestion facility will need to be designed and located to manage odour risk. This implies an area with primary processing activities or similar activities, for example waste management or wastewater treatment.

5.3 Recyclable materials processing

Current arrangements

As noted previously, there is a single materials recovery facility processing kerbside and commercial recyclable materials in the Wellington Region. Based on discussions with collection contractors for the WCC Re-Designing collections project we understand that other companies are considering establishing process capacity that could service the Wellington Region.

The consent application material for Waste Management's proposed development in Manor Park (Lower Hutt) includes a 2,500 m² 'MRF Operations Warehouse' and a 1,600 m² space for building and construction

operations. The public material suggests provision for basic sorting (materials handler, baling) rather than a multi material sorting process as currently implemented by Oji in Seaview.

The interest in investment by the private sector indicates that there is a gap in the market – driven by access to the existing facility and potentially the current pricing structure. This means that establishing a materials recovery facility for mixed recyclable materials from the Wellington Region would replicate (or refine) the current arrangements. A new Wellington based operation would compete with the existing Oji Fibre Solutions facility in Seaview and with any new facilities established by the private sector.

If Council opts for a single bin, mixed recycling collection (glass included) there is no facility in Wellington that can process the collected materials. In this scenario there is a gap in the market that Council could address in establishing a suitably configured materials recovery facility. The collection and processing of a fully mixed stream has implications for

markets for fibre (paper/cardboard, likely impacted by glass fines) and glass (significant proportion of glass fines and/or mixed colour glass that is not suitable for recycling into new glass containers in New Zealand).

Commercial viability

The existing operation and possible new facilities illustrate the commercial viability of recyclable materials processing in Wellington and further afield servicing Wellington. The existing operations across New Zealand demonstrate that the right combination of gate rate, facility configuration and links to product markets can deliver a commercial return.

A new recyclable materials facility suitable for paper, plastics and cans would be a commercial activity. This means that capital (after any WMF grant funding) and operational costs would be fully funded through user charges. This also means that a Council owned facility would compete with private sector facilities. Scale will be important with as facility processing materials from Wellington City losing some economies of scale compared the a regional facility.

A facility suitable for a fully mixed recyclables stream may be commercially viable subject to negotiating suitable processing charges. As noted above, some product streams are likely

to be more difficult to market suggesting processing costs will need to be higher than a paper/card, plastics and cans only sorting facility.

Implementation risks

A materials recovery facility can be located in suitable zoned industrial land/warehouse space across the wider Wellington region. Key considerations from a consenting perspective will be logistics, traffic movements (materials drop-off, product to markets). If the facility is targeting materials from across the region a centrally located site (for example in Ngauranga Gorge) may be preferred. For Wellington City a similar location would work well balancing distance from Tawa, Karori and the eastern and southern suburbs.

An important consideration is the trading of materials separated through the facility. This requires access to markets in New Zealand and off shore. The commercial model for the facility needs to provide for variations in material value over time relating to commodity markets (New Zealand and International) and the quality of product achieved at the facility.

A key issue is markets for glass. Glass managed as a kerbside sorted stream is currently shipped to Auckland for processing with a small return to Council after processing

and shipping. Glass from a full mixed recyclables processing line is likely to be a cost to Council after shipping and processing through beneficiation in Auckland. Local reuse (as an aggregate replacement)

As noted previously, the implementation of a Container Return Scheme in New Zealand will have an impact on the materials passing through a materials recovery facility. The scheme is likely to target higher value kerbside streams (PET and aluminium cans) meaning that the feasibility analysis should consider the impact of reduced quantities of these materials.

Key option benefits

The benefits of this option for Council include having control over the handling of recyclable materials collected at kerbside and through the Southern Landfill drop off area. Where the facility also processes commercial recyclables Council will have improved visibility of commercial recycling activity within Wellington City.

Key benefits are anticipated to be:

- Control of the processing and marketing of recyclable materials including visibility of end markets.
- Improved visibility of commercial recycling in Wellington City.

- Council can achieve a (commercial) return on capital and operational spend.

Cost analysis

The current arrangement with Oji Fibre Solutions for processing of materials from Council kerbside collections provides an indicator of current costs in Wellington. These costs include an unspecified margin for Oji Fibre solutions.

With current materials value Council is received a small rebate from processing i.e. the sale of materials produced by MRF off set processing cost including transport of materials and disposal of residual waste (contamination) collected with recyclable materials.

The New Plymouth MRF noted earlier, a facility with capacity suitable for Wellington City Council household only materials only, was developed with approximately \$4M capital investment in 2015.

The Timaru MRF was completed in 2022 with a capital investment of around \$4M This facility has a capacity of around 10,000 tonnes per year similar to the estimated 10,000

⁶ Based on reported investment in Timaru and New Plymouth, the amortised capital cost per tonne is likely to be in the range \$50 - \$100 per tonne processed.

tonnes per year of recyclable materials from households and businesses in Wellington City.

Drawing on the reported capital costs we expect that a facility sized for Wellington City materials (kerbside and commercial) would require capital investment in the \$5 - \$10M. This would increase to \$XX - \$YYM if the facility was sized to process materials from across the Wellington Region.

The current processing cost for mixed recyclables excluding glass is around \$260 per tonne including disposal of contamination. This is consistent with our assessment of the impact of capital investment⁶ and operational costs for a MRF of this type.

A facility capable of processing glass will have a significantly higher throughput⁷ and potentially reduced product value as noted above. This means that capital cost will be higher and operational costs will scale with the quantity of materials processed.

We have used data from Council's current processing contract to provide an illustration of processing cost (including an allowance for amortised capital cost) and revenue. We have used the same base data to provide an indication of how this would change for a MRF

⁷ Glass makes up around 40% of the total collected materials by weight.

processing mixed recyclables including glass. Figure 5-2 presents processing costs and revenue only. It is important to note that a single bin mixed recycling collection will be lower cost than a bin and kerbside sorted glass crate or glass only bin. This means that while the picture looks less positive for mixed recycling including glass processing this may not be the case when collection costs are also considered.

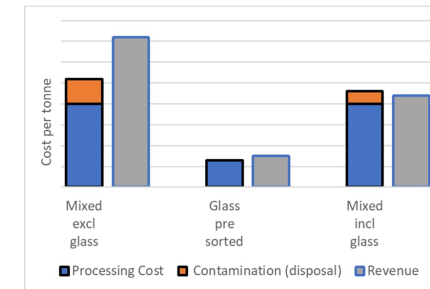


Figure 5-2 Indicative processing costs and revenue

5.4 Glass beneficiation

Current arrangements

Glass collected for recycling in the Wellington Region is colour sorted at kerbside

(Wellington, Lower Hutt, Kapiti) or by collection contractors. This material is then sent to Auckland for further processing in Visy's beneficiation plant prior to manufacturing into new glass packaging. Some material is collected as a mixed stream (Porirua kerbside, commercial and multi-unit collections). Some of this material is partially sorted and sent to Auckland for further processing. Other material is treated as contaminated material and disposed of to landfill.

This means that there is a gap in that there is no beneficiation occurring in Wellington. We are not aware of any proposals to establish a beneficiation process in Wellington (or elsewhere in New Zealand) beyond the existing facility in Auckland.

Commercial viability

As noted in Section 4.5, glass beneficiation plants are typically located in close proximity to glass packaging manufacturing facilities and target high volumes of glass. This reflects the relatively low value of the product and the impact of logistics (glass is relatively heavy with associated transport costs).

The total quantity of glass 'available' in Wellington is estimated at 20,000 t with current kerbside quantities in the range 5,000-10,000 tonnes each year. This is

significantly lower than existing beneficiation plants are design to process.

As noted above, there is a significant amount of glass captured for recycling across New Zealand providing feedstock for the glass recycling process in Auckland. This has the impact of maintaining a relatively low price for recycled glass.

This suggests that glass beneficiation is unlikely to be commercially viable for materials available in the Wellington Region alone.

Other matters

Because our analysis concludes that there is insufficient glass available in the Wellington Region to make beneficiation viable in Wellington we have not considered the other matters.

5.5 Other recovery activities

In Section 4 we have noted several other materials streams that could be targeted by recovery activities. These activities are not currently occurring in Wellington (mattress recycling) or there is potential to expand or introduce complimentary approaches to current activity (textile recycling, tyre processing, construction waste processing).

Mattress recycling

Services for removal of mattresses are available and All Heart NZ are working with bedding manufacturers on a trial take back scheme (free to consumers). There is no specific data on mattress disposal in Wellington but based on available services and national estimates there are likely to be a significant amount of mattresses still disposed of to landfill from Wellington City.

The involvement of manufacturers and All Heart NZ indicate that mattress recycling is not commercially viable.

From an infrastructure perspective, the key requirement is covered space. This is required for

- Storage of incoming mattresses.
- Processing of mattresses – removal of textile cover, padding, springs and timber.
- Storage of separated components, particular those that are not suitable for outside storage – textiles, padding, timber.

The core benefit of undertaking mattress recycling is diverting materials from landfill disposal alongside retaining those materials in circulation. The trial work completed by All Heart reported almost 80% recovery and international initiatives have reported up to 90% recovery of materials. Mattress recycling

will also create jobs for unskilled labour as well as supervisory positions.

The capital cost requirements are low for mattress recycling, limited to dismantling equipment and generic warehouse/processing space. Operational costs will be dominated by staff costs with equipment, consumables and residual materials disposal also likely to be significant. Current pricing for mattress disposal (around \$100 per mattress) is a good indicator of operational costs.

Textile processing

Textiles unsuitable for reuse in their original form or as rags are currently shipped out of Wellington (off shore or to other parts of New Zealand) for re-processing. We are not aware of any re-processing activity in Wellington. Any re-processing in Wellington will compete with operations elsewhere in New Zealand.

Re-processing activity elsewhere in New Zealand illustrates that textile recycling can be commercially viable although scale is likely to be an important factor. Relatively small scale re-processing activity in Wellington may require ongoing funding i.e. revenue from sale of reprocessed materials is unlikely to cover the full cost of processing.

From an infrastructure perspective, the key requirement is covered space. This is required for:

- Storage of incoming materials.
- Processing of materials – removing non textile components (zips, buttons), shredding, manufacture into new products.
- Storage of intermediate product and finished product.

The core benefit of undertaking textile recycling is diverting materials from landfill disposal and retaining those materials in circulation. Textile Recycling report that around 1% of the materials they receive (no longer suitable for reuse) are disposed of to landfill. Textile recycling will also create new jobs for unskilled labour, machine operators and supervisory positions.

The capital cost requirements will depend on the processing undertaken. Shredding of incoming textiles will require a suitable shredder and associated dust control measures. Each end product will require suitable machinery, for example felt production line or foam boxing machine. Operational costs will be dominated by staff and equipment costs. Consumables and residual materials disposal also likely to be significant.

Subject to more detailed analysis, we anticipate that individual process steps are likely to involve machinery in the order of \$100 – 250,000 for each process step. This suggests that on top of warehousing space

machinery costs for an operation involving shredding and several end products is likely to be in excess of \$1M.

The business model for Textile Products relies on clean input materials delivered to their site at no cost and established markets for their end products. A processing operation in Wellington may benefit from a partnership with an established operator. Target textiles in the residual waste stream may be possible, most likely involving a washing step to ensure that feedstock for end product manufacturing is clean i.e. similar to source separated material.

Tyre processing

Tyres from the Wellington region are variously transported to Whangarei for use as tyre derived fuel, shredded for bedding (e.g. in horse arenas) or baled for export. With tyre shops charging a tyre disposal fee and several companies offering collection services it is clear that tyre collection and processing is commercially viable. This means any Council operation would compete with existing services.

Given all material is currently exported from the Wellington Region there is potential to establish processing within the region. This has the potential to improve transport logistics, shifting from transporting full tyres to processed material, typically at a much

higher density. Treadlite (Cambridge) have indicated they are considering establishing a processing operation in Wellington. New Plymouth District Council are providing space for Treadlite to establish a tyre processing operation at their Colson Road Commercial Waste facility (the Sorting Depot)

Tyre processing can take place in a suitably zoned land (industrial or heavy commercial) across the Wellington Region. Key implementation risks include access to markets and ensuring materials are processed as they arrive to avoid creating stockpiles that exceed thresholds set by the National Environmental Standards for storing tyres outdoors.

Published information on the Treadlite's facility in Cambridge suggests capital costs for processing equipment will require investment in the range \$3-5M with the ability to process 5,000 tyres per day⁸. There is no data available on tyres generated in the Wellington Region but Tyre Disposal Services (now part of Treadlite) have reported collecting around 2,500 tyres a day in the lower North Island.

Construction and Demolition

Construction and demolition material in the Wellington Region is current disposed of at dedicated disposal sites (C&D Landfill, TnT

Landfill). There is limited sorting or recovery of material reflecting low cost disposal and relatively cheap combined aggregate and transport costs from Kiwi Point and Horokiwi Quarries.

Porirua City Council have led a regional project to establish C&D waste processing at Spicer Landfill with 'feeder depots in Kapiti and Lower Hutt. The future of the existing disposal sites is uncertain with TnT Landfill schedule to close and C&D Landfill yet to confirm a proposed expansion.

There is potential sort and process material within Wellington City. This could link to the regional network being established by Porirua City council or act as a standalone operation. Key products typically included recycled aggregate (already produced at Kiwi Point Quarry), metals and reusable timber. Available materials with limited existing markets include insulation, plasterboard and mixed or treated timber.

Capital investment for C&D process is highly dependant on the level of processing undertaken. Concrete crushing requires a crusher, screen (to produce products to specification) and excavator/loader for move materials. Sorting can be a simple excavator/grab arrangement on a compacted

aggregate or concrete slab sorting area. Covered storage is likely to be required for some materials (plasterboard, reusable timber). Sorting lines increase cost with automation adding additional complexity and cost.

Recognising the range of potential approaches, capital cost could range from several million to several 10s of millions. Processing cost will be in the range of \$25 - \$100 per tonne depending on scale and complexity of the sorting operation. The higher processing cost will only be justified where high value materials (metals, native timbers) are recovered.

Residual waste processing

If Council are to meet the diversion targets set out in the Zero Waste Strategy, collection of recyclable and organic waste materials at kerbside and through the recovery operations at Southern Landfill. There is limited dry waste sorting occurring in Wellington (Daily Waste in Kaiwharawhara, proposed by Waste Management at their new Manor Park facility). There is no sorting of mixed general waste occurring in New Zealand.

The commercial model for mixed waste sorting internationally relies on avoided

⁸ An average 15kg per tyre translates to 75 t per day.

disposal costs (influenced by waste levy and emissions trading scheme costs) and revenue from recovered materials.

The quantity of materials for disposal are reduced by removing materials for recycling and in many cases by reducing the weight and volume of degradable material through biological or heat treatment

- Metals recovered from mixed waste (2-5%) are suitable for trading with other scrap metal.
- Other materials (plastics, rubble) are likely to be contaminated with organic and/or hazardous materials and therefore have limited markets.
- Stabilised degradable material and residual waste are likely to require landfill disposal.

With relatively low material value the savings in landfill disposal costs need off set processing costs. Processing costs will reflect sorting costs, any stabilisation process and any revenue from sale of recovered materials. These costs will be function of throughput, approach adopted and any downstream upgraded of recovered materials.

A residual waste processing facility could focus on dry waste (similar to a construction waste sorting facility). This represents the lower end of investment required, processing costs and also recovery achieved.

A facility could also be configured to process mixed general waste. A common approach adopted internationally involves:










- An automated sorting process (similar to conventional Materials Recovery Facility) to remove metals and other saleable products.
- Biological (aerobic or anaerobic) or heat treatment to stabilise degradable materials including paper/cardboard, food and garden waste).

This type of facility is both capital intensive and expensive to operate. Internationally these facilities have been developed where disposal costs are high (over \$300 per tonne) and there are strong policy drivers such as mandatory targets.

International information suggests that capital cost for a 50,000 tonner per year facility is likely to be in the range \$15M – over \$50M depending on configuration. Gate rates are likely to be in the range \$150 - \$300 per tonne.

5.6 Assessment summary

Table 5-3 Assessment summary

Option	Existing	Commercially viable	Implementation risks	Benefits	Capex	Opex
Organic materials – aerated static pile	✘	✓	Site, Odour, Logistics	CO ₂ , \$, 	Est \$55M	\$80 - \$120 / t
Organic materials – in-vessel composting	✘	✓	Site, Odour, Logistics	CO ₂ , \$, 	Est \$70M	\$80 - \$120 / t
Organic materials – anaerobic digestion	✘	✓	Site, Odour, Logistics, Energy user(s)	CO ₂ , \$, 	Est \$35M	\$120 - \$150 / t
MRF – glass out	✓	✓	Logistics, CRS	\$, Control	Est \$5-25M	\$200-\$250 / t
MRF – glass included	✘	?	Logistics, CRS	\$, Enable collections	Est \$10-25M	\$200-\$250 / t
Glass Beneficiation	✘	✘	Scale, CRS	\$ 	NA	NA
Mattress recycling	✘	?	Markets		NA	Est \$100-150 per mattress
Textile recycling	✓	✓	Markets		Est \$1-5M	Est \$50-\$100 / t
Tyre processing	✓	✓	Scale, Markets, Logistics	\$, 	Est \$3-5M	Est \$100 - \$150 / t
Construction and demolition waste recovery	✓	✓	Scale, Markets, Processing approach		Est \$5-25M	Est \$25-100 / t
Residual waste processing	✘	✘	Scale, Odour, Markets, Technology	CO ₂ , 	Est \$15 - > \$50M	Est \$150 - > \$300 / t

Benefits:


- CO₂ delivers emissions reductions
- \$ potential revenue stream for Council
-  Increased material capture



Table 5-4 Option advantages and disadvantages

Option	Advantages	Disadvantages	Comment
Organic materials – in-vessel composting, aerated static pile	Addresses a gap in current arrangements Can provide a 'commercial' return	Requires site with suitable buffer distance High capital cost Requires secure markets (not Council core skill)	
Organic materials – anaerobic digestion	Addresses a gap in current arrangements Can provide a 'commercial' return	Requires site with suitable buffer distance High capital cost Requires secure markets (not Council core skill)	
MRF – glass out	Can provide a 'commercial' return	Replicates existing facility in the Wellington Region CRS impacts are uncertain High capital cost Requires secure markets (not Council core skill)	
MRF – glass included	May provide a commercial return Would enable a single bin recycling collection	Market risk for paper/cardboard and glass Requires secure markets (not Council core skill) High capital cost CRS impacts are uncertain	
Glass Beneficiation	Addresses a gap in current arrangements	CRS impacts are uncertain Unlikely to have sufficient scale Anticipated very High capital cost	Over supply of glass in NZ is a significant factor
Mattress recycling, textile recycling	Addresses a gap in current arrangements Could potentially co-locate with similar activities Low capital cost	Requires access to markets for materials	Co-located recovery activity (mattress recycling, textile recycle)
Tyre processing	Addresses a gap in current arrangements	Requires access to markets for materials	
C&D waste recovery	Addresses a gap in current arrangements Potential lower capital investment approach	May compete with proposals already in development Requires access to markets for materials	
Residual waste processing	Addresses a gap in current arrangements	High capital and operating costs Requires markets for materials	

6 Implementation considerations

6.1 Operations approach

Operating context

The broader operating environment for waste and materials recovery in the Wellington region is an important consideration in developing operating models for each of the new facilities. Any new facilities will 'compete' with waste disposal and other resource recovery activities in the region (largely Porirua, Kapiti, the Hutt Valley and Wellington City). The options available to households and businesses vary by material stream. Decisions on materials handling are influenced by direct cost (gate rate) as well as transport distance.

Council vs contractor delivery

When considering options for operating a resource recovery facility there are multiple possibilities. These include:

- In house – operations managed and delivered by Council employees.
- Contracted – operations delivered by a contractor or community organisation under Council direction. This could take the

form of a conventional operations contract (NZS 3917, NEC or similar) or a collaborative framework.

- Partnership model with the private or not for profit sector – operations delivered by the private sector with varying levels of Council control. Examples range from contracted operations (as above) is to Council using private sector owned infrastructure to deliver public services.
- Leasing land or a facility to a private operator for them to operate independent of Council.

- Procuring processing of materials i.e. contractor owned and operated facility.

The selection of the appropriate approach for a facility is critical to achieving the objectives of the investment. In some cases a facility would compete with existing private sector facilities meaning operation by Council staff has the advantage of avoiding the perception that the facility is under contractor control. This and other advantages and disadvantages are presented in Table 6-1.

Table 6-1: Contractor vs council staff

	Contractor operated	Council staff
Advantages	<p>Provides access to resource recovery expertise across the contractor organisation.</p> <p>Provides access to suitable plant and equipment including back up equipment.</p> <p>Potential to share plant and operators with other activities.</p>	<p>Operational activities do not need to return a profit.</p> <p>Potential to combine operational management with other council activities.</p>
Disadvantages	<p>Operation not 100% in Council control.</p> <p>Contractor will charge a margin on time, costs and plant.</p> <p>Commercial imperatives are potentially stronger than waste diversion focus.</p> <p>Commercial operator will charge a margin to address risk.</p>	<p>May require specialist equipment - could be sub-contracted.</p> <p>Requires employment of specialist staff (machine operators, materials sale/marketing).</p> <p>Council does not have existing skills or relationships for marketing of recovered materials.</p>

Level of control over operations

Council retaining full control of the facility, including for pricing and markets for materials, allows the operator to focus on maximum use of the facility and waste diversion. Council can also invest to support and develop markets with community organisations, grants and/or industry engagement. Council taking responsibility for marketing materials carries some risk, this means an approach where the operations contractor owns, and trades materials may be preferred.

For some options, operators with extensive materials processing experience are likely to be an attractive option for Council, drawing on the contractor's operations experience and access to markets. For materials without existing markets (in or accessible from Wellington) Council and/or a contractor will need to develop suitable products and establish markets. Any contract needs to provide incentives to develop new markets i.e. reward materials recovery and increasing quality/value of materials recovered.

Contracting approach

Where operations are contracted, a range of contract models can be adopted. Examples include:

- A conventional operations contract with a well-defined specification – the contractor is required to undertake specific activities. This can use a range of contract forms include NZS 3917, NEC or similar.
- A collaborative framework focussed on outcomes rather than specified activity. Examples open book or alliance style arrangements that may use modified conventional contract forms or bespoke terms.
- Processing services delivered by the contractor on agreed cost of service (per tonne rate, availability, ...). This can take the form of a simple agreed cost at a contractor owned and operated site, leasing of Council land to develop a processing operation or operation of a Council developed site.

Where a partnership model is adopted the level of control will influence the contract form adopted. There is potential for an operations contractor to have a role in, or deliver completely, detailed design and/or construction of the facility to be operated as part of the partnership arrangement. This is relevant for contracted operations and for other examples of partnership style arrangements. Table 6-2 notes how various approaches link to the level of control exercised by Council.

Council should seek legal advice on the form of contract employed. We have worked with the NZS 3917 framework to develop outcomes-based contracts including risk allocation (related to markets and market development). We have also worked with bespoke contracts to deliver a similar framework.

Regardless of the contract approach adopted, Council will need to work closely with the operator of any facility to maximise the recovery of materials and develop new markets. This means the agreement and delivery of services needs to provide for a collaborative and flexible approach.

Facility construction

Where a facility is to be developed, it will be possible to procure design and construction as separate packages, as a combined package (Design – Build) or in combination with operations (Design Build Operate or DBO).

It is also possible to introduce financing components, for example procuring a contractor design, build, own and operate a facility. This is often for a defined period with ownership transferred to the principal (Council) at the completion of the arrangement (Design – Build – Own – Operate – Transfer or DBOOT).

Table 6-2: Contract Models

Approach	Defined specification	Outcomes based specification	Agreed processing cost basis
Design / Construction / Operations	✓	✓	✓
Design-Build / Operations	✓	✓	✓
Design-Build-Operate (DBO) ⁹	~ ¹⁰	✓	✓
Lease site for development			✓
Procure processing			✓

Decreasing control

Incentivising recovery

For any facility a key objective is to increase the recovery of materials. This relies on the capture of materials at a quality that meets market requirements and secure markets for materials. Operations arrangements need to be designed to ensure that there is effective collaboration for all involved in the facility operations to maximise recovery.

To maximise recovery, there are several components that should be considered:

- Clearly stated service objectives, so all involved in the service have a common understanding of what is to be delivered.

⁹ Council retains ownership of the facility, an alternative or variation is a Design-Build-Own-Operate-Transfer (DBOOT) where the contract develops and operates the

- Appropriate collaboration arrangements in the contract. This should provide a mechanism for stepping away detailed service delivery considerations and focus on the RRN objectives.
- Clear KPIs, linked to service objectives (including innovation) and with incentives and penalties to ensure meeting the KPIs is a focus for the operations staff and management.
- Provision for innovation – we are aware of contracts and partnerships where there is provision for funding innovation that supports the broader service objectives. For example, Council may make provision for an innovation fund that can be used to develop new methods to capture materials

site with ownership transferred to Council at the end of the contract term.

or develop markets. Access to 'innovation funds' could be subject to a simple investment case that is reviewed and approved by the contract governance group.

- Incentives – in addition to rewards or penalties associated with KPIs, it is possible to define incentives directly related to materials recovery and associated costs or savings. An example could be payment based on a share of avoided disposal costs (including levy and ETS) for any 'additional' diversion achieved at the facility.

Facility construction

For basic infrastructure (yards, processing buildings/warehousing) the focus should be on securing best value for money through clear quality measures, alongside pricing a defined scope of work. The required civil (roads, utilities) and structural (buildings, retaining walls) construction work.

For more complex facilities, processing equipment and overall process design is likely

¹⁰ DBO and DBOOT are likely to be outcomes based, particularly for the operations component.

to be more specialised. This means design is likely to be most effectively delivered in close consultation with one or more specialist equipment suppliers. Construction of the processing equipment will require appropriate enabling works (as part of civil works) with equipment installed and commissioned by the selected equipment supplier.

If Council staff will operate a site, then a Design-Build arrangement may be appropriate although it is more likely that construction will be a conventional build only contract for civil and structural works with specialist equipment installed by the supplier or under their direction.

Selection of the processing approach could involve the operator of the site, implying that they have involvement in the design and construction of the facility. This could take the form of a Design-Build-Operate arrangement or appointing the operations contractor prior to confirming the processing approach so they can be involved in the design process.

6.2 Operating model

Governance vs. delivery

The focus of this analysis is on the impact of governance models on the key objectives for the RRN (capture of materials for diversion, managing risk and delivering broader

community outcomes. The relationship between the governance model and the arrangements for delivery of services (in house or contracted) are closely related. A key distinction is the drivers for behaviour.

- Those tasked with exercising governance over facility or network of facility in operation are required to consider the best interests and objectives of the organisation that they represent.
 - Those representing a local authority need to consider community outcomes and objectives as set out in the Council's Long Term Plan and other relevant strategic documents.
 - Those representing a private entity need to deliver the best outcome for shareholders, typically combining an acceptable return on investment alongside other strategic objectives. A key objective for most private sector entities is maximising profit while delivering on other strategic outcomes.
- Those tasked with delivering services will focus on delivering agreed activities for a defined price (typically set out in a Service Level Agreement or Contract). For the private sector the price should provide for a reasonable profit margin.

The role of a delivery contractor

For the options identified in Section 4, we suggest that Council should work with external contractors to ensure that the appropriate skills are available and to secure access to markets for target materials. This means that the operating model options have been considered in the context of contractor delivery of services.

In our view, the operating model should:

- Focus on cost effective delivery of Council objectives.
 - Efficient and effective service delivery (business discipline).
 - Capture of materials for recycling or recovery.
 - Create economic opportunity.
- Encourage and enable innovation including looking for opportunities beyond what is simply commercially viable.

For this discussion, we have assumed that facility development is a Council initiative. This means the focus is on how Council will ensure appropriate governance is in place and any role a contractor partner may have from a governance perspective. This is distinct from a contractor having a role in delivery of services with appropriate key performance indicators and incentives.

Private sector partners

A key decision, that will inform the operating model options, is whether Council wants to enter into a formal partnership with a private sector partner (who would operate and potentially part own a facility). A formal arrangement with a private sector partner could take the form of a CCTO (Council as the controlling party) or other structures such as a Limited Partnership, Limited Liability Company (Council not a controlling party) or unincorporated Joint Venture.

For a partnership with the private sector, those in governance roles would be expected to focus on the matters noted above (cost effective delivery, innovation) and delivering a return to their respective organisations. The benefits of this approach include a focus on commercial discipline including delivering on outcomes agreed with the owning entities and maximising return. For this approach careful consideration needs to be given to ensure that commercial and non commercial objectives are given appropriate weight at a governance level.

Examples of local authority and private sector partnerships include:

- The Northland Regional Landfill Limited Partnership (NRLLP, a CCTO). NRLLP is a joint venture between Whangarei District Council and Northland Waste Limited.

NRLLP owns Puwera Landfill and the ReSort Resource Recovery Park in Whangarei) and contracts the private sector partner to operate the assets.

- Transwaste Canterbury Limited (a CCTO). Transwaste is jointly owned by several Canterbury Council and Waste Management New Zealand Limited and is the owner of the Kate Valley Landfill with Waste Management NZ contracted to operate the landfill and transport waste from partner transfer station.

Local government partners

There is potential for other local organisations to be involved in resource recovery facility development at an operating model level.

Formal partnership between local government organisations can take place under the oversight of a Joint Committee established under the relevant provisions of the Local Government. This involves an agreement between the participating organisations and may involving delegation of some decisions from the individual local authorities. A joint committee provides governance or oversight but cannot own assets.

There is also potential for a CCO or CCTO to be jointly owned by two or more local authorities. The CCO or CCTO is a discrete entity, often employing business management

approaches including competency based board setting direction for the organisation, to deliver specific services or activities for the owner Council(s) and potentially other parties. A CCO or CCTO can manage assets on behalf of owning Councils or own and manage its own assets. A CCO can also seek its own funding if required although CCO financials form part of each owning Council's financial position.

In both cases, there is potential for the participation (Joint Committee) or ownership (CCO/CCTO) to change over time. This means that Council could establish an entity with other Council partners joining at a later stage.

Examples, in addition to Transwaste, of CCO/CCTO jointly owned by multiple local authorities include:

- Wellington Water Limited (WWL) – a CCO established to manage water assets for owner Councils. WWL deliver a range of service with their own staff and also work with consultants and contractors.
- BOPLASS Limited is a local authority shared services focused limited liability company jointly owned by local authorities across the Bay of Plenty Region.
- Co-Lab (formally WCLASS) is a local authority shared services focused limited liability company jointly owned by local authorities across the Waikato Region.

Discussion

If Council is seeking formal partnership at operating model level with service delivery contractors the partnership approach will need to be defined. If not, a conventional project development and governance approach is likely to be fit for purpose while any facility remains a Wellington City Council initiative.

If Council progresses with contractor delivery of a Wellington City only facility, moving to a CCO or CCTO structure would mitigate some commercial risk but at some cost for establishing a new management structure to then manage one or more service delivery contract(s). Council does not have an existing CCO or CCTO that could pick up this role. If facilities are restricted to Wellington City Council ownership/partnership, establishing a CCO to manage service delivery is unlikely to provide good value for money.

If Council is seeking a formal partnership with service delivery contractor(s) a new model will need to be adopted. A CCTO model is one that has been adopted elsewhere and should be considered further for this scenario. More complex arrangements such as a limited partnership offer similar benefits (business

discipline, some separation from Council) with additional complexity.

If Council anticipates partnering with other local authorities moving to a Joint Committee or jointly owned entity are both possibilities.

Council participates in several existing Joint Committees¹¹ with oversight but limited decision-making roles. With a collaborative operating model involving a Joint Committee, one of the participating Councils or another entity would need to provide contract management for service delivery.

A jointly owned CCO or CCTO would be able to set direction for investment and operations and provide for pooling expertise and coordinate delivery of similar initiatives with partners. Partners joining a CCO would provide a mechanism for introducing new local authority partners and an entity for managing contracts for service delivery. The CCO structure provides for limited liability structure that mitigates risk for Wellington City Council and other local government partners.

A pragmatic approach could involve exploring of potential investment and partnership opportunities under the existing

arrangements (in-house management) with a view to potential future partnerships.

¹¹ Including the Wastewater Treatment Plant and Landfill Joint Committee | Komiti Ngātahi Mihini Whakapai

Waipara me te Ruapara and the Wellington Region Waste Management and Minimisation Plan Joint

Committee, Wellington Regional Transport Committee, Wellington Water Committee

7 Next steps

The discussion presented in this report identifies a number of possible materials recovery activities that Council could undertake or support. Some of the options are commercial activities, these are an opportunity for Council to recover materials and provide a return on investment. Other options are unlikely to be commercially viable i.e. would require Council investment to deliver resource recovery with no commercial return.

In determining which options to progress, Council needs to consider:

- Whether to undertake commercial activities, alone or in partnership with others.
- Council's ability to contribute capital, land, and/or feedstock to support an investment.
- The potential to locate one or more activities at Southern Landfill.
- Alternative locations (industrial or rural zoned as appropriate) for processing activities.
- Potential partnership models in more detail.
 - With other local authorities.
 - With the private sector

To progress, the key next steps are to:

- Confirm the Council view on the considerations noted above.
- Complete more detailed analysis of one or more options. This will focus on:
 - Available feedstock.
 - Improving capital and operational cost information (pre-feasibility analysis).
 - Confirm markets for process outputs.
- Evaluate and select an operating model approach.
- Depending on Council's view on formal partnerships, initiate discussion with potential local authority partners.

ZERO WASTE PROGRAMME - RESOURCE RECOVERY NETWORK EXPANSION BUSINESS CASE

Kōrero taunaki | Summary of considerations

Purpose

1. This report to Kōrau Tūāpapa | Environment and Infrastructure Committee seeks agreement to explore options to expand the existing resource recovery facilities at the Southern Landfill and for two resource recovery centres in Wellington.

Strategic alignment with community wellbeing outcomes and priority areas

Aligns with the following strategies and priority areas:

- | | |
|--|---|
| Strategic alignment with priority objective areas from Long-term Plan 2021–2031 | <ul style="list-style-type: none"><input checked="" type="checkbox"/> Sustainable, natural eco city<input checked="" type="checkbox"/> People friendly, compact, safe and accessible capital city<input checked="" type="checkbox"/> Innovative, inclusive and creative city<input checked="" type="checkbox"/> Dynamic and sustainable economy
<input type="checkbox"/> Functioning, resilient and reliable three waters infrastructure<input type="checkbox"/> Affordable, resilient and safe place to live<input type="checkbox"/> Safe, resilient and reliable core transport infrastructure network<input checked="" type="checkbox"/> Fit-for-purpose community, creative and cultural spaces<input checked="" type="checkbox"/> Accelerating zero-carbon and waste-free transition<input type="checkbox"/> Strong partnerships with mana whenua |
|--|---|

Relevant Previous decisions

The following Council decisions are relevant to this paper:

Strategy and Policy Committee (disestablished) – 8 April 2021
15. Request officers to deliver on the resource recovery business case, including CBD diversion options, by the end of the next financial year (2021-2022). The purpose of the business case will ensure that the Council is ready to accelerate its waste minimisation efforts and scale up to a waste free economy as soon as the Sludge Treatment Plant is operational.

Pūroro Waihanga | Infrastructure Committee – 14 October 2021
10. Note that in years one to three Council will be engaging on:
• the review of kerbside waste service arrangements with a goal to incentivise recycling and support waste diversion activities,
• Investigation into organic processing technology options and end markets. Including community-based composting and technology-based processors,
• Assessment of the feasibility of a community resource recovery facility and /or expansion of existing facilities supported by a review of available Council infrastructure and catchment mapping.

Pūroro Waihanga | Infrastructure Committee – 9 December 2021
11. Note that the Resource Recovery business case will consider construction and demolition waste recovery.

Long-term Plan 2021-31

We have provisioned \$2.2m in year 4 of this plan toward Resource Recovery to ensure that the Council is ready to accelerate its waste minimisation efforts and scale up to a waste free economy as soon as the Sludge Treatment Plant is operational. A business case for this resource recovery investment will be developed in the first year of this plan.

Significance

The decision is **rated medium significance** in accordance with schedule 1 of the Council’s Significance and Engagement Policy. The decision is rated **med** significance in accordance with schedule 1 of the Council's Significance and Engagement Policy. Whilst the project is of high significance, the decisions being requested in this paper are of low – medium significance.

Financial considerations

- Nil
 | Budgetary provision in Annual Plan / Long-term Plan
 | Unbudgeted \$X

2. The recommended options can be delivered within existing revenue streams and capital allocations. No additional funding is required through the Long-term Plan 2024-34.

Risk

- Low
 | Medium
 | High
 | Extreme

Author	Stephanie Steadman, Senior Waste Planner
Authoriser	Siobhan Procter, Chief Infrastructure Officer

Taunakitanga | Officers' Recommendations

Officers recommend the following motion

That the Kōrau Tūāpapa | Environment and Infrastructure Committee:

- 1) **Receive** the information.
- 2) **Note** that the attached business case is indicative and that a detailed business case will be presented in May 2024 with more detailed proposals for the selected projects.
- 3) **Agree** that Council will work toward implementing a hub and spoke model of resource recovery centres across Wellington city over the next 10 years, with the Southern Landfill, or a similar area close by, as the hub.
- 4) **Note** that the projects recommended in this indicative business case will be funded from existing funds and revenue sources and that no additional funding is required through the Long-term Plan 2024-34.

Resource Recovery Hub:

- 5) **Agree** to investigate a proposal that will meet the objectives of the Te Kopahou Track Network Plan (including the entrance carpark to 221 & 223 Happy Valley Rd.) and an expansion of the resource recovery hub (option C) on the same site for inclusion in the detailed business case in May 2024.
- 6) **Note** that should the single site option not be achievable, the final cost in the business case may be substantially higher due to the need for additional land purchase.
- 7) **Note** the existing \$2.2m capital allocation for resource recovery in the 2024/25 financial year and the \$3.7M available from the Landfill Surplus Fund for resource recovery projects.
- 8) **Agree** to include the cost of a new Tip Shop and related resource recovery facilities (option C) in the Long-term Plan consultation budget funded from the existing \$2.2M allocation and \$3.7M from the Landfill Surplus Fund.
- 9) **Note** that textile and mattress processing will be considered for the currently underutilised LEJV warehouse at the Southern Landfill and a proposal brought to the Long-term Plan 2027-37 if it is not required for other waste related activities.

Resource Recovery Centres:

- 10) **Note** that officers are currently negotiating a partnership with the Sustainability Trust for three years starting in 2023/24 as a pilot resource recovery centre at their premises on Forresters Lane, with an operating cost to WCC of up to \$250,000 per year and that this will be funded from the waste minimisation component of landfill revenue.
- 11) **Agree** to develop a proposal for two additional resource recovery centres including identifying priority locations, partnering, and operating models in the detailed business case for May 2024.
- 12) **Agree** to include the cost of a further two resource recovery centres (one in 2024/25 and one in 2025/26) in the Long-term Plan consultation budget and funded from waste levy funds and the waste minimisation component of landfill revenue.
- 13) **Note** that all the inflation adjusted figures in this paper could change slightly when updated inflation forecasts are received from BERL as the Long-term Plan budget is prepared.

Whakarāpopoto | Executive Summary

3. The recently adopted Zero Waste Strategy sets targets to move towards a circular economy. Improved resource recovery infrastructure and initiatives are required to achieve the 50% waste diversion from landfill target by 2030.
4. Resource recovery is located towards the top of the waste hierarchy within the circular management of resources category. It provides for re-use and re-purposing of materials which would otherwise go to landfill.
5. Wellington City Council currently provides the Tip Shop at the Southern Landfill as the main resource recovery centre, which is combined with a recycling centre which allows residents to recycling excess cardboard, paper, plastics and glass.
6. The Tip Shop and recycling centre is only accessible by private car, so provides limited access to Wellington residents. It is also space constrained so is not able to take, process or sell as many goods as it could.
7. To address this challenge it is proposed to follow a 'hub and spoke' model whereby the Tip Shop area at the Southern Landfill becomes the hub, or central component to a network or 'spokes' of resource recovery centres which can be in more accessible locations.
8. For the resource recovery hub it is proposed to improve the facilities at, or nearby, the Southern Landfill to increase the ability to manage more products and divert more material from ending up in landfill. The recommended option involves building a new Tip Shop at a location accessible from Happy Valley Road. This would free up the existing area to allow for more processing of building materials and potentially other materials which are currently not being recovered.
9. For the resource recovery centres, officers are currently in negotiations to enter into a three-year partnership with Sustainability Trust, based at Forresters Lane. This would be the first centre established in financial year 23/24, with the intention to establish two more in financial years 24/25 and 25/26. These centres can provide different services such as repair cafes, education, receiving and selling goods.
10. There is an existing network of charity shops located within Wellington that do a great job at repurposing textiles and home goods. It is important to acknowledge the work they do, and to ensure any future resource recovery centres focus on goods which are not already provided for.
11. There is a provision of \$2.2m in year 4 (24/25) of the 2021 Long-term Plan towards Resource Recovery. It is intended that this amount be used for this proposal.
12. There are also available funds in the Landfill Surplus Fund which is ring fenced for waste reduction activities. The provisional amount of this fund at 30 June 2023 is \$20.7M. Officers recommend that \$2M of this fund is retained for operational risk management, to fund future landfill operating deficits should they arise. \$15.0M is recommended to fund the new bins and organics processing facility needed for new collection services. This leaves \$3.7M which to be used for the resource recovery network.
13. No new funding is requested in the Long-term Plan 2024-34.

14. Following direction provided on this report and the attached indicative business case (Attachment 1), it is proposed to undertake targeted engagement and further detailed work on the possible options for the resource recovery hub. A paper and detailed business case will be presented to the Kōrau Tūāpapa | Environment and Infrastructure Committee in May 2024.
15. Public consultation on the resource recovery hub options will occur after May 2024, with a final decision being sought by Kōrau Tūāpapa | Environment and Infrastructure Committee after consultation is complete.

Takenga mai | Background

16. On 27 April 2023 the Environment and Infrastructure Committee unanimously approved the Zero Waste Strategy, the goal of which is to achieve intergenerational sustainability by moving to a circular economy. One of the key outcomes of the strategy is to treat landfill capacity as finite. Resources should instead be reused or repurposed so we can regain their value. To do this, the community needs to be equipped to reduce waste, with services that make material capture and waste diversion an easy choice.

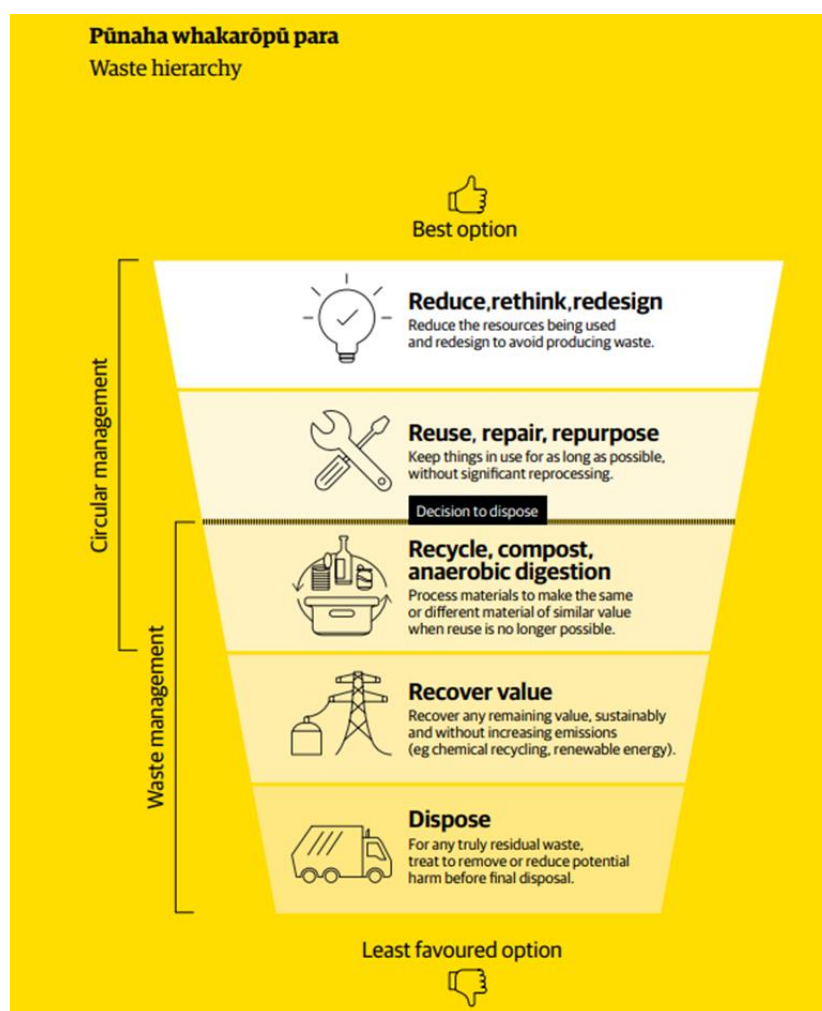


Figure 1– Waste hierarchy, Wellington City Council Zero Waste Strategy 2023 (page 13)

17. The strategy sets the following targets for reducing waste to landfill and biogenic methane gas emissions:
 - Reduce total waste to landfill by 50% by 2030.

-
- Reduce per capita kerbside waste to landfill by 40% by 2030.
 - Divert 50-70% of organic waste from landfill by 2030.
 - Divert 50% of construction and demolition waste to landfill by 2030, 70% by 2035.
 - Reduce biogenic methane emissions by at least 30% by 2035.
18. The outcomes and objectives of the Zero Waste Strategy are included in the draft objectives for the Long-term Plan 2024-34 which closed to public consultation on 24 May 2023. These include a priority statement that “waste reduction is attractive and accessible with the systems and infrastructure in place to increase resource circularity”.
19. The disposal of waste to landfill represents the loss of materials with potential economic value. Reuse of these materials is consistent with the principles of the circular economy incorporated within the Zero Waste Strategy 2023 and the Economic Wellbeing Strategy 2022. The revenue generated from the sale of reprocessed materials can off-set the cost of collecting materials, improving affordability of these services at a household level.
20. Providing resource recovery centres which are easily accessible by residents is a growing trend in Aotearoa. In addition to having a place to drop-off unwanted household items and to shop at their retail space, these spaces can also become community hubs that offer zero waste education, repair sessions, and other community activities. This approach has proved successful elsewhere, for example Auckland Council have established 11 resource recovery centres and approved funding for nine more.
21. The approval of the Zero Waste Strategy and previous resolutions have provided a strong message that accessible resource recovery facilities are desired in Wellington.

Kōrerorero | Discussion

Current resource recovery facilities provided in Wellington city

22. The only council operated resource recovery centre in Wellington is at the Southern Landfill. This includes the Tip Shop and recycle centre and drop-off options at the transfer station.
23. Residents who wish to dispose of good quality unwanted household items can either sell items online, donate to a nearby charity shop, or drop-off goods to either the Tip Shop at the Southern Landfill or go Trash Palace at Spicer’s Landfill in Porirua.
24. The resource recovery facilities currently at Southern Landfill include:
- Green waste drop-off facilities at the transfer station.
 - Hazardous waste e.g., paints, spray cans, pesticides, drop-off facilities at the transfer station.
 - Scrap metal drop-off facilities at the transfer station.
 - Recycling drop-off for paper and cardboard, glass bottles and jars, plastic grocery packaging with the numbers 1,2, and 5, and aluminium and steel cans at the recycle centre.

- Household items suitable for resale, and e-waste for reuse or recycling, at the Tip Shop.
25. Capital Compost at the Southern Landfill currently captures approximately 5,500 tonnes of green waste and 1,200 tonnes of food waste per annum and converts this into compost. Compost is made using outdoor windrow composting, with the resulting product sold in bulk and as bagged product from the Tip Shop.
 26. Approximately 375 tonnes of scrap metal is recycled each year, and 20 tonnes of household hazardous materials are collected for recycling or secure disposal.
 27. There is also an existing network of resource recovery across the city that includes both community and council operated facilities. As well as the Tip Shop, the resource recovery network includes charity shops that accept donations of household items for resale and will often arrange collection. The Sustainability Trust on Forrester's Lane, accepts drop-offs of good quality curtains, e-waste, batteries, and other small items.

Description of the current Tip Shop facilities



Figure 2 – Tip Shop and recycling centre

28. The main Tip Shop building (shown in blue in Figure 2 above) has a floor area of 260m² including a mezzanine area. At the front of the building is a covered, but not enclosed 200m² area (shown in green). The staff facilities are contained in the building identified as purple above. The recycling centre contains recycling bins for residential drop-off (identified as orange in above).



Figure 3 – Recycling centre located adjacent to the Tip Shop



Figure 4 – Tip Shop and staff facilities

What is the case for change?

29. The current Tip Shop location has access, size and layout constraints. This limits the amount of material it can take and divert from landfill.

30. Access on weekends can be congested and there is no pedestrian or bike access due to safety concerns on the upper parts of Landfill Road. In addition, cars entering the Tip Shop area need to cross the road where trucks returning from the landfill are coming downhill.
31. The Tip Shop has grown organically and as a result does not utilise the space available in an efficient way. The layout and size mean that materials which could be diverted from landfill are not currently able to be accepted or processed.
32. The following items are the ones most often turned away due to capacity.
 - Building Materials, Doors, windows
 - Furniture
 - Clothing / Bedding
33. New resource recovery centres across Wellington will make it easier for residents to access somewhere to drop-off unwanted household items and to shop at their retail space. These spaces could also become community facilities that offer zero waste education, repair sessions, and other community activities.

What is being proposed?

34. There are two components to this proposal. The first is for the resource recovery hub at the Southern Landfill. The second is for development of resource recovery centres.

Resource Recovery Hub – Southern Landfill

35. It is proposed to expand the capacity and capability of the hub at the Southern Landfill. There are a number of options available, which are discussed in detail in the business case and below. These include expanding the existing Tip Shop and recycling centre plus relocating some or all of the existing facilities to a more accessible location either on a commercial or industrial site near the Southern Landfill, or to the Wellington City Council owned site at 221 & 223 Happy Valley Rd (shown in purple in Figure 5 below).

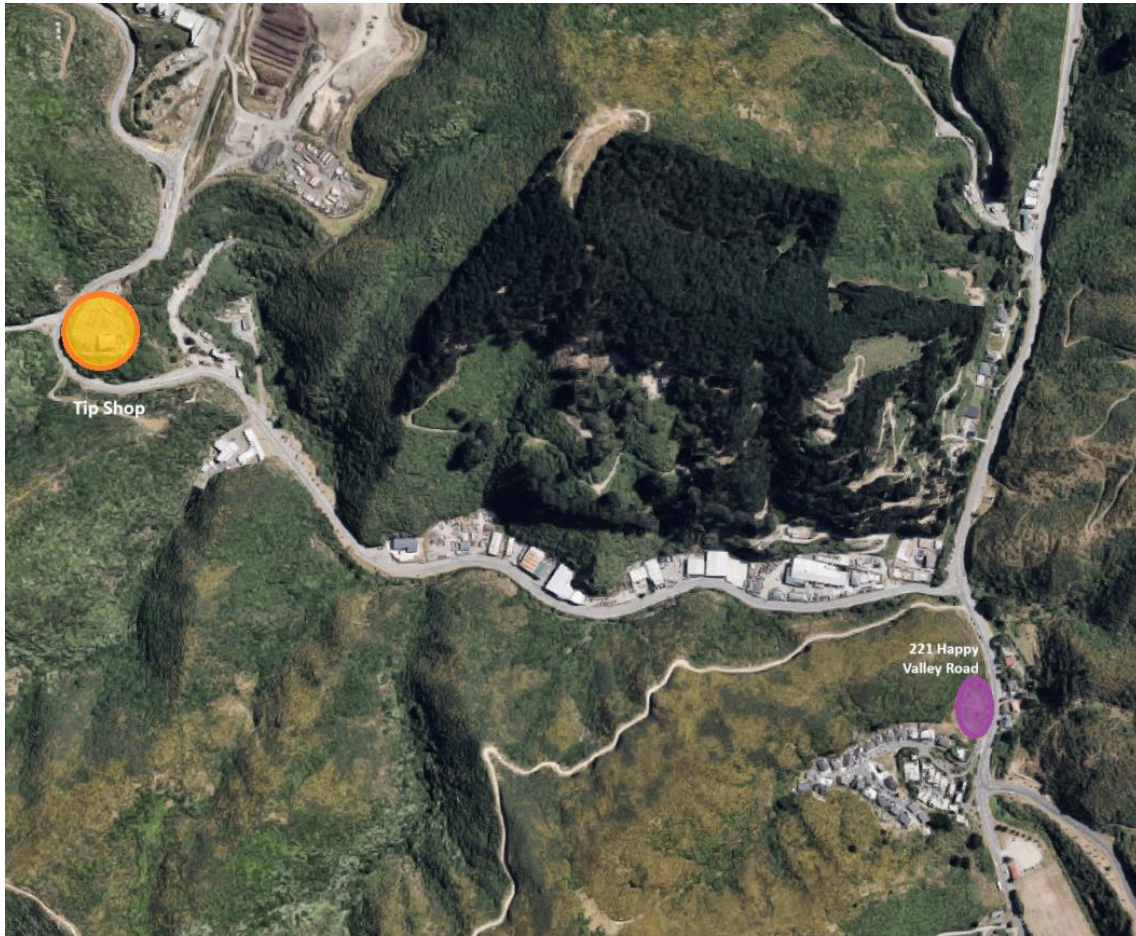


Figure 5 – locations of Tip Shop and 221 & 223 Happy Valley Road



Figure 6 – street view of 221 & 223 Happy Valley Road (looking north)



Figure 7 – street view of 221 & 223 Happy Valley Road (looking south)

36. The site at 221 and 223 Happy Valley Rd (Lot 2 DP 29742 and Part Lot 1 DP 29398) is council owned land. This small section is part of a much larger block of land that forms the majority of Te Kopahou Reserve (block 7.1.7 in the Outer Green Belt Management Plan). The land status is held for sanitary purposes (disposal of refuse) however it is outside the landfill designation. It is currently not classified as scenic reserve.
37. The OGBMP includes a prioritised action to protect the open space values of the land outside the landfill designation, including the site, by classifying it as scenic reserve.
38. The OGBMP identifies the site for 'potential parking and link to the Tip Track', to be investigated. The Te Kopahou Track Network Plan 2021 was then developed and confirmed the site as a future trailhead for the Tip Track, with carparking, signage and information. A concept plan was prepared in 2017 (Attachment 2).
39. Both the OGBMP and Te Kopahou Track Network Plan were approved by Council committees within the last four years, following extensive public consultation on both documents. As the site is managed as a reserve under the OGBMP, which has statutory basis under the Reserves Act 1977, Council would need to amend the OGBMP before it could use the land for resource recovery purposes. This would require a decision by Council to publicly notify the proposed change. Following the public notification, a report back to Council would be needed for a final decision, which would have to take into account any objections received during the public notification. Using the land for resource recovery may also require the site to be subdivided from the larger block that makes up much of Te Kopahou Reserve.
40. If councillors agree to investigate the use of the site for resource recovery activities, the design brief can include signage and information about the Tip Track, public toilets, and making parking onsite available to users of the Tip Track at times of low demand such as weekdays and evenings. Our Tā kai Here partners would be invited to participate in developing the design brief and sharing their aspirations for the signage and information provided about Te Kopahou Reserve, its cultural history and importance.

41. The operative District Plan shows the area of interest (the gravelled area at the base of Rarangi Way) is split zoned between Outer Residential and Open Space B. Under the Proposed District Plan the site is zoned as Natural Open Space.



Figure 8 - District Plan view of the site at 221 & 223 Happy Valley Road

42. If the decision is made to further investigate the site at 221 & 223 Happy Valley Road, then resource consent would need to be obtained, potentially for subdivision and land-use. This may present some challenges due to the proximity to residential properties and the split zoning between Open Space and Outer Residential in the District Plan (Figure 8 above). The resource consent could be notified and concerns may be raised by neighbouring properties and roading.
43. If the decision is made to pursue a site in the commercial or industrial zoned land nearby, then consenting is likely to be much easier. However, land acquisition would be more expensive and relies on a willingness to sell to council. The cost for land acquisition is estimated to be \$2M.

Resource Recovery Centres

44. The second part of the proposal is to partner with Sustainability Trust to pilot the first spoke / resource recovery centre. There is an existing facility at Forresters Lane off Tory Street in the CBD which can be used with minimal set-up.



Figure 9 - Sustainability Trust existing facility at Forrester's Lane

45. Partnering with community providers is the preferred option as the success of the model has been proven in Auckland. If agreed, the partnership with Sustainability Trust would result in a co-branded facility, co-staffed and financial agreements.
46. Building on the findings of the pilot, it is intended to investigate opportunities to establish two more resource recovery centres, one in 24/25 and one in 25/26. The location of these centres and the partnership models will need to be determined.

Kōwhiringa | Options

47. There are a number of options for developing the resource recovery hub and resource recovery centres.

Resource Recovery Hub

Option A - Stay and expand Tip Shop, move recycling centre to 221 & 223 Happy Valley Road.

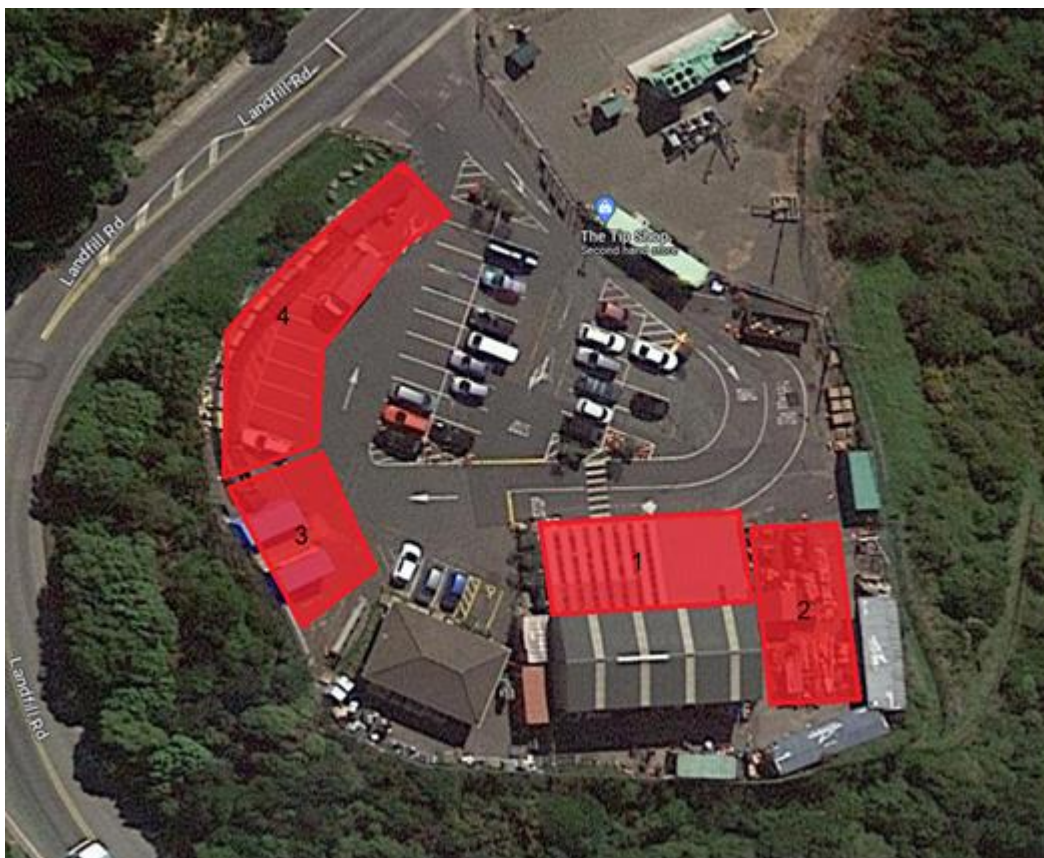


Figure 10 9 – Option A

48. This option involves continuing to use the existing main 260m² Tip Shop Building. Enclosing the existing 200m² covered area in front of the Tip Shop (labelled #1 in Figure 10 above), extending to the east by 200m² (labelled #2 above) and constructing a new 200m² building where the glass recycling is currently (labelled #3 above). This will increase the weatherproof building area from 260m² to 860m².
49. Moving the recycle centre (labelled #3 and #4 above) to another site will free up 500m² of additional space. This would allow an additional covered area of 150m² to be constructed to accept donated items and to process timber.
50. The existing carpark will be resealed after the removal of the Recycle Centre and building works. This would allow for 30 car parks, and two drop-off lanes.
51. The recycle centre will be moved to 221 & 223 Happy Valley Road. This will allow additional recycling bins to be provided to the public, however, the site will need to be developed, consented and include staff facilities.
52. This option will require the use of Council owned land currently listed in the Outer Green Belt Management Plan.
53. The estimated cost of this option is \$2.3M.

Option B - Redevelop Tip Shop, move recycling facilities to 221 & 223 Happy Valley Road.

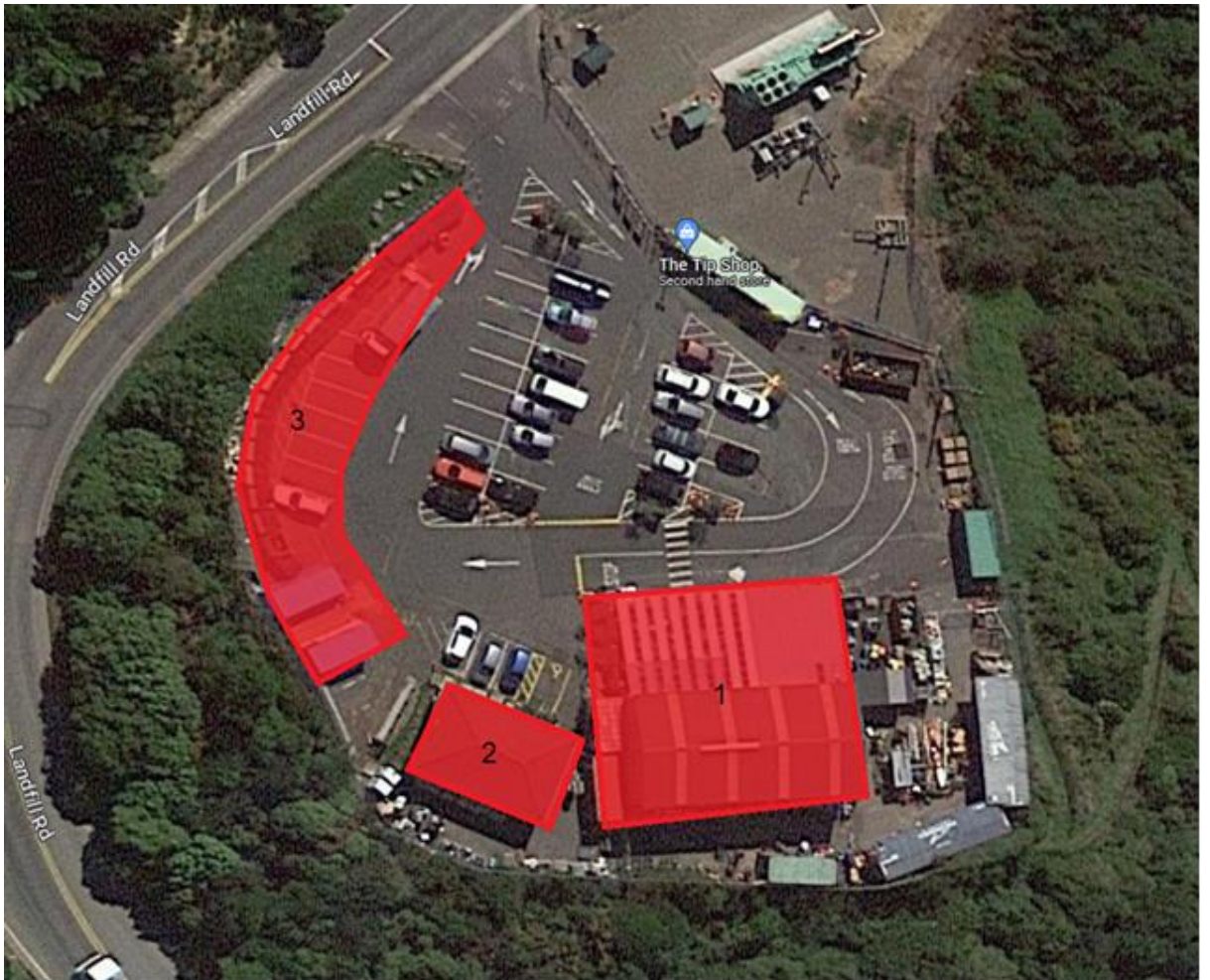


Figure 11 10 – Option B

54. This option involves the redevelopment of the Tip Shop site. The existing Tip Shop (labelled #1 in figure 11 above) and staff room buildings (labelled #2 above) would be demolished and a purpose built two-storey building constructed with a 600m² footprint.
55. This will provide a total 1,200m² floor area to house the Tip Shop operations and staff facilities.
56. This may also provide space for an additional drop-off lane for the Tip Shop given the smaller footprint required for the buildings, and better placement. The existing carpark will be resealed.
57. The recycle centre (labelled #3 above) will be moved to 221 & 223 Happy Valley Road. This will allow additional recycling bins to be provided to the public, however, the site will need to be developed, consented and include staff facilities.
58. This option will require the use of Council owned land currently listed in the Outer Green Belt Management Plan.
59. The estimated cost of this option is \$4.6M.

Option C – Move Tip Shop to 221 & 223 Happy Valley Road, locate timber and building material processing on current Tip Shop site. **Preferred option**

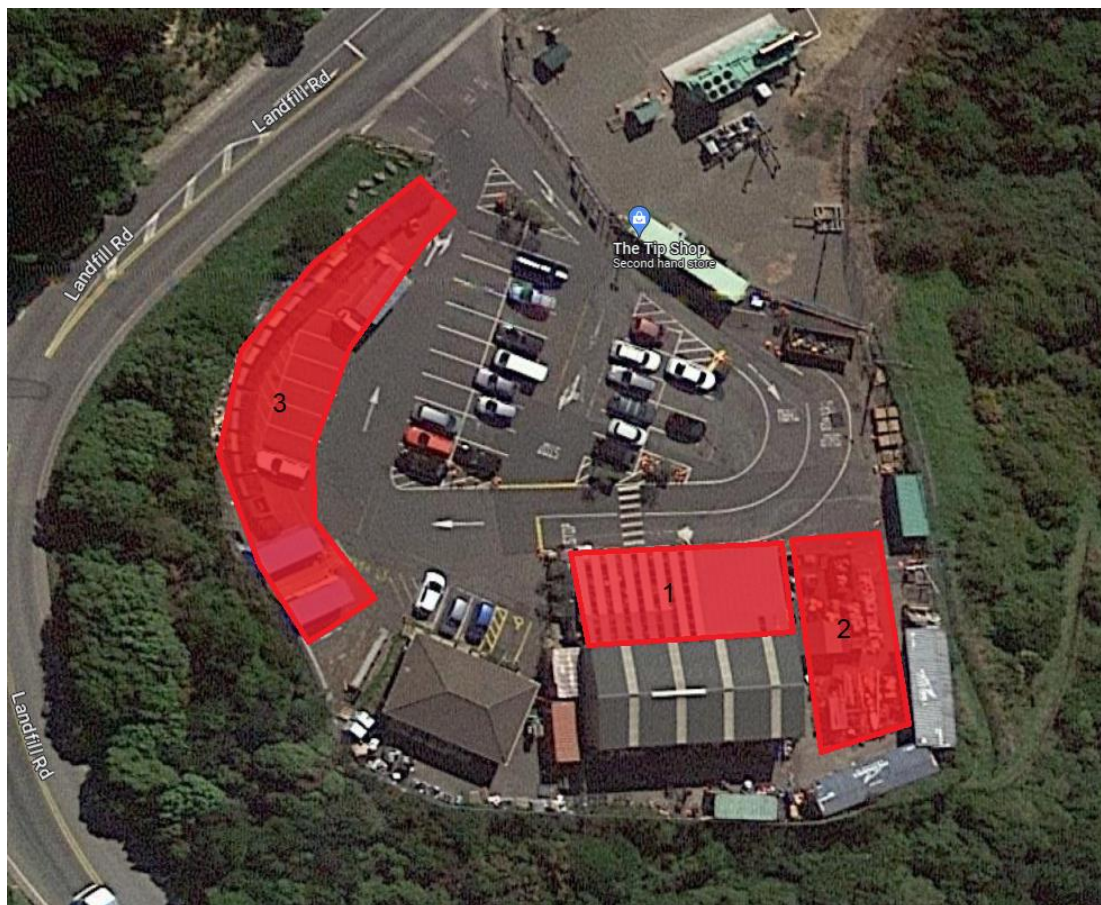


Figure 12 11 – Option C

60. This option involves continuing to use the existing main 260m² Tip Shop Building and enclosing the existing 200m² covered area in front of the Tip Shop (labelled #1 in Figure 12 above) and extending to the east by 200m² (labelled #2 above). This will increase the weatherproof building area from 260m² to 660m². This building will be used to receive, process and sell recycled building materials.
61. The recycling centre will remain where it is (labelled #3 above), with the ability to increase capacity. Due to the relocation of the Tip Shop, a single drop-off lane is adequate.
62. This option involves building a new single storey purpose-built 1000m² building for the Tip Shop at 221 & 223 Happy Valley Road.
63. This option will require the site at 221 & 223 Happy Valley Road to be removed from the Outer Green Belt Management Plan and will require a resource consent as it is currently zoned partly Outer Residential and partly Open Space.
64. The estimated cost of this option is \$4.2M. Noting that the cost to construct a single storey building is less than a double storey.

Option D - Move all operations to a commercial site near the Southern Landfill.

65. This option involves relocating both the Tip Shop and the recycle centre to a commercially zoned site near the Southern Landfill.

- 66. To pursue this option will require the purchase of land and potential redevelopment or construction of buildings.
- 67. It is anticipated that resource consent complexity will be low if the hub is established on commercially zoned land.
- 68. This option allows for further resource recovery works to occur at the current Tip Shop site which do not involve so much public interactions, e.g. timber recycling and processing.
- 69. The estimated cost of this option is \$8.3M including any land acquisition costs (estimated to be \$2M).

Status Quo – No changes to the Tip Shop or recycling centre.

- 70. The cost of this option is no change to existing operations, but it does not meet strategic objectives.

High level comparison of options:

	Build Cost	Diversion Potential (Tonnes p/a)	Increase in size	Accessibility
<i>Option A – extend existing Tip Shop and relocate the recycle centre to Happy Valley Rd</i>	<i>\$2.3M</i>	<i>684</i>	<i>161%</i>	<i>Recycle centre will be more accessible to non-car users. Tip Shop remains inaccessible to non-car users</i>
<i>Option B – demolish and replace Tip Shop, relocate recycle centre to Happy Valley Road</i>	<i>\$4.6M</i>	<i>1293</i>	<i>304%</i>	<i>Recycle centre will be more accessible to non-car users. Tip Shop remains inaccessible to non-car users, however purpose-built building can include accessible design features.</i>
<i>Option C (preferred) – relocate Tip Shop to Happy Valley Road, expand recycle centre and repurpose current Tip Shop</i>	<i>\$4.2M</i>	<i>1386</i>	<i>326%</i>	<i>Improved access to Tip Shop. Can be accessible by alternative means of transport and purpose-built building can include accessible design features. Recycle centre remains only accessible by car.</i>
<i>Option D – relocate both Tip Shop and recycle centre to a site near the Southern Landfill which has commercial zoning.</i>	<i>\$8.3M (includes \$2M for land acquisition)</i>	<i>1926</i>	<i>453%</i>	<i>Provides best access to Tip Shop and recycle centre. May be accessible by alternative means of transport and purpose-built building can include accessible design features</i>
<i>Status Quo</i>	<i>Nil</i>	<i>425</i>	<i>0%</i>	<i>Remains inaccessible.</i>

-
71. The implementation costs are discussed in detail in the financial implications section below.

Resource Recovery Centres

Option A – Partner with Sustainability Trust for a three-year pilot. **Preferred option.**

72. It is recommended to partner with Sustainability Trust to establish a joint resource recovery centre at their Forresters Lane facility in 2023/24. This would be established as a three-year pilot, funded from the waste minimisation component of landfill revenue.

Option B – Establish two more resource recovery centres. **Preferred option**

73. It is recommended that two more resource recovery centres – one in 24/25 and one in 25/26 be established. This can be funded from the waste minimisation and waste levy component of landfill revenue, with top up funding from the Landfill Surplus Fund if required.
74. Depending on the results of the pilot and the two further resource recovery centres, further recommendations may be put forward for the 2027-37 Long-term Plan.
75. Councillors could choose to fund additional resource recovery centres in 2026/27 and outyears in this Long-term Plan. It is not recommended to fund more than one new resource recovery centre per year due to implementation challenges.

Option C – do nothing

76. The option to continue operating the Tip Shop with no changes is not recommended due to the lost opportunity for diverting more materials from landfill.

LEJV Building:

77. The Living Earth Joint Venture (LEJV) building previously housed a composting facility that processed biosolids. It is located at the top end of Landfill Road (circled in red in Figure 13 below) and is approximately 5000m². The building is used as a storage area for Capital Compost at present.



Figure 13 12 – LEJV building

78. There is potential for the existing large LEJV building located towards the north east of the Southern Landfill working area to be used for additional diversion activities. The two main options identified in the Tonkin+Taylor report are mattress deconstruction and textile processing (Attachment 3).
79. The location of the building means that it is not suitable for public access, as you would need to go through a working landfill. However, due to the size and location of the building it may be required for other activities such as organics processing. If redevelopment of this site is not required, then a proposal for mattress and textile recycling (and other potential resource recovery uses) will be brought in the Long-term Plan 2027-37.

Whai whakaaro ki ngā whakataunga | Considerations for decision-making

Alignment with Council's strategies and policies

80. On 27 April 2023 the Environment and Infrastructure Committee unanimously approved the Zero Waste Strategy, the goal of which is to achieve intergenerational sustainability by moving to a circular economy. One of the key outcomes of the strategy is to treat landfill capacity as finite. Resources should instead be reused or repurposed so we can regain their value. To do this, the community needs to be equipped to reduce waste,

with services that make material capture and waste diversion an easy choice. The strategy sets the target of reducing total waste going to landfill by 50% by 2030.

81. The outcomes and objectives of the Zero Waste Strategy are included in the draft objectives for the Long-term Plan 2024-34 which closed to public consultation on 24 May 2023. These included a priority statement that “waste reduction is attractive and accessible with the systems and infrastructure in place to increase resource circularity”.
82. The disposal of waste to landfill represents the loss of materials with potential economic value. Reuse of these materials is consistent with the principles of the circular economy incorporated within the Zero Waste Strategy 2023 and the Economic Wellbeing Strategy 2022.
83. Done well, resource recovery centres deliver not only environmental benefits, but also social and community benefits by allowing for the re-use of materials and bringing together communities.
84. The strategic context is illustrated below⁷.



Figure 14 13 - Strategic Context Wellington City Council Zero Waste Strategy 2023 (page 19)

Engagement and Consultation

85. At a high level there has been wide ranging consultation and engagement for this project in the form of consultation on the Zero Waste Strategy and the consultation on the Wellington Region Waste Management and Minimisation Plan 2023-2029. The development of resource recovery centres is an action contained in both the Wellington Zero Waste Strategy and the Wellington Region Waste Management and Minimisation Plan.

⁷ [Wellington City Council Zero Waste Strategy](#)

86. Officers have worked closely with Auckland Council, Zero Waste Network and community operators to gather industry knowledge and strategic inputs required for a successful resource recovery model in Wellington.
87. We will engage with local residents and continue to engage with community operators like Sustainable Trust who have experience setting up recycling centres, prior to presenting the detailed business case in May 2024.
88. Following the detailed business case, public consultation will be undertaken on the resource recovery hub options.

Implications for Māori

89. The Zero Waste Strategy and Action Plan are guided by the principles of Tūpiki Ora and embrace protecting and enhancing the mauri of resources by working towards a circular economy approach.
90. There are no known direct implications for Māori as a result of this proposal. However, it is anticipated that following the pilot with Sustainability Trust, a future partnership model with our Tākai Here partners for one or more resource recovery centres can be explored.

Financial implications

91. The recommended options can be delivered within existing revenue streams and capital allocations. No additional funding is required through the Long-term Plan.
92. Waste minimisation revenue from landfill gate fees and the Wellington City Council local share of waste levy funds provide sufficient revenue to fund the operating costs of both projects:

\$ million	2023/ 24	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Waste levy funds available	\$2.90	\$2.92	\$3.47	\$3.60	\$3.60	\$3.60	\$3.60	\$3.60	\$3.60	\$3.60	\$3.60	\$38.08
Waste minimisation landfill revenue	\$1.40	\$1.40	\$1.40	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$12.20
Available revenue	\$1.50	\$1.52	\$2.07	\$2.60	\$2.60	\$2.60	\$2.60	\$2.60	\$2.60	\$2.60	\$2.60	\$25.88

93. Capital funding of \$2.2M is allocated for resource recovery in year 4 of the Long-term Plan 2021-31
94. The Landfill Surplus Fund is used to smooth out any operating deficits at the Southern Landfill. When there is an operating surplus it gets paid into the fund which can then be used to fund any future operating deficit without increasing rates. In the past seven years there has only been a deficit in 2018/19 of \$1.1 million. Surpluses have been run in every other year and the Landfill Surplus Fund was \$13.7M at 30 June 2022.
95. The provisional landfill operating surplus for 2022/23 is \$7.0M, which will bring the Landfill Surplus Fund total to \$20.7M.
96. Officers recommend that \$2M is retained in this fund for its original purpose of operational risk management. \$15.0M is recommended to fund the new bins and organics processing facility required for new collections services. Therefore \$3.7M is available to fund resource recovery projects.

97. The partnership proposal from Sustainability Trust, estimated operating costs are \$250,000 for each resource recovery centre (in 2023 dollars).
98. Resource recovery centre capital costs are based on a fit-out of an existing space, with no allocation for 2023/24 and \$100,000 in each of the following two years.
99. Resource recovery centres will generate some revenue from the sales of goods. It is highly uncertain what the level of this revenue might be. An indicative estimate of \$25,000 per centre per year has been included.
100. The total inflation adjusted operating costs, capital costs and expected revenue of the recommended three new resource recovery centres are as follows:

\$ million	2023/ 24	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Opex Costs Resource Recovery Centres	\$0.25	\$0.52	\$0.80	\$0.82	\$0.84	\$0.85	\$0.87	\$0.88	\$0.90	\$0.92	\$0.93	\$8.58
Capex Cost - Fit Out Resource Recovery Centres	\$0.00	\$0.10	\$0.11	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.21
Capex Cost - Implementation Resource Recovery Centres	\$0.00	\$0.03	\$0.03	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.05
Revenue - Resource Recovery Centres	\$0.03	\$0.05	\$0.08	\$0.08	\$0.08	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.86

101. The cost of a new building at 221 & 223 Happy Valley Rd is estimated to be \$4.2M in 2025/26, with an additional costs for design, consenting and other related costs.
102. An expansion of the resource recovery hub will result in an increase in revenue from the sale of goods. The current Tip Shop has annual revenue of \$1 million. An indicative estimate an additional \$1,625,000 (before inflation) per year has been included. This project can still be funded from existing waste levy and waste minimisation revenue if this revenue forecast is not fully achieved.
103. The total inflation adjusted operating costs, capital costs and expected revenue of the recommended expansion to the resource recovery hub are as follows:

\$ million	2023/ 24	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Opex Costs Resource Recovery Hub	\$0.00	\$0.00	\$0.00	\$1.09	\$1.12	\$1.14	\$1.16	\$1.18	\$1.20	\$1.22	\$1.24	\$9.35
Capex Cost - Tip Shop expansion (option C)	\$0.00	\$0.00	\$4.18	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.18
Capex Cost - Implementation Resource Recovery Hub	\$0.00	\$0.26	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.26
Capex Cost - Project Delivery	\$0.40	\$0.42	\$0.43	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1.24
Revenue - Resource Recovery Hub	\$0.00	\$0.00	\$1.74	\$1.78	\$1.81	\$1.85	\$1.88	\$1.92	\$1.95	\$1.98	\$2.02	\$16.93

104. Project delivery costs to support both the new resource recovery centres and the expansions to the resource recovery hub are expected to be \$400,000 per year for three years starting in 2023/24.
105. The council's debt ceiling is calculated as a percentage of revenue. Any increases in revenue from resource recovery activities will have the effect of raising the debt headroom available to council.

Legal considerations

106. Consultation and analysis of the options will be needed before a final decision can be made.
107. Following direction provided on this report and business case, exploration of options to purchase / acquire land near the Southern Landfill can occur to test willingness of landowners to sell. Whether there is the ability to purchase land will allow council officers to identify reasonably practicable options.
108. If a commercial site is purchased near to the Southern Landfill the resource consenting requirements are likely to be relatively straight forward due to the business use zoning in the District Plan. However, the resource consenting requirements for 221 & 223 Happy Valley Road are likely to be more complicated due to the split zoning between residential and open space and the proximity to residential properties at Rarangi Way.
109. All options will require building consents, however there are no known significant challenges to obtaining these.
110. As previously mentioned, 221 & 223 Happy Valley Road is owned by council and is part of Te Kopahou. The land in question was originally acquired and held 'for disposal of refuse' purposes but has never been used for that purpose. Instead, it has been managed as public reserve. Through the Outer Green Belt Management Plan 2018 and its 2004 predecessor, the site has been approved for scenic reserve classification but has not yet been classified due to survey complications. The OGBMP identifies the site as 'potential parking and link to Tip Track' and that purpose was further confirmed in the Te Kopahou Track Network Plan, which Council approved in 2021.
111. The proposed use is consistent with the original sanitary purposes and if needed, parking could potentially be made for users of Tip Track.

Risks and mitigations

112. This proposal has been assessed using the committee and subcommittee risk analysis tool and emerges as a moderate risk, with a moderate consequence and a likelihood of 'unlikely'. There are three relevant consequences being:

Partnership and relationships

113. The proposed resource recovery centres will rely on partnership models and having strong relationships in place. If these partnerships fail then the centres are unlikely to thrive to their fullest potential. The result of this will be less diversion from landfill and lost community benefits. To mitigate this risk, learnings from other councils and from existing facilities will be integrated into any design.

Significant projects and programmes

114. This project forms part of the Zero Waste Programme. It is a priority within the programme due to the potential diversion rates which can be achieved and to provide making reducing waste accessible and attractive. If the hub and resource recovery centres do not function then the diversion targets of the Zero Waste Strategy will be less likely to be achieved. To mitigate this risk, learnings from other councils and from existing facilities will be integrated into any design.

Reputation and trust

115. The proposal involves public facing facilities which, if not operated well can impact on the reputation and trust of council. Having strong partnership agreements and well-designed facilities will mitigate this risk.

Disability and accessibility impact

116. The proposals in this report will improve accessibility to resource recovery facilities in Wellington. In addition, the design of any new or altered facility will consider accessible design guidelines.

Climate Change impact and considerations

117. The ability to extend the resource recovery network will have a positive impact on Wellington's zero carbon goal.

118. The Ministry for the Environment have estimated Unique Emissions Factors for different types of materials going to landfill. Total tonnes of equivalent CO₂ are estimated by multiplying the tonnage of material by its unique emissions factor. The higher the unique emissions factor, the higher the potential for emissions reduction by removing it from landfill.

119. The materials that could be diverted from landfill by a resource recovery facility and which generate the most emissions when sent to landfill are:

- Paper 0.876
- Garden 0.492
- Textiles 0.438
- Wood 0.339

120. In addition to diverting these materials, the retail components of the centres and hub will reduce the greenhouse gas emissions generated by manufacturing. Whilst these are not calculated in Wellington's targets, it is a beneficial step towards reducing Wellington's climate change impacts.

Communications Plan

121. Following direction provided on this report and business case, formal consultation will occur in accordance with the Council's Significance and Engagement Policy. This will occur after the detailed business case is presented in May 2024.

Health and Safety Impact considered

122. The access to the Tip Shop is not ideal. It requires residents to drive a car to the site as there is no ability to use alternative transport or bike / walk. The layout of the building has grown organically so the staff make the most of the space available but it is limited and somewhat cramped.

123. Any partnership agreement or new facility will require health and safety input. Careful consideration will need to be given to PCBU responsibilities and have risk assessments of hazardous substances, workshop layouts and staff training / qualifications.



Ngā mahinga e whai ake nei | Next actions

124. In May 2024 a paper will be provided to the Kōrau Tūāpapa | Environment and Infrastructure Committee seeking approval to proceed with consultation on the options. To support this paper, a detailed business case will be provided which will include the following details:

- Design and progress of the preferred option in relation to the resource recovery hub.
- Detailed financial modelling and sources of funding.
- Progress on the partnership with Sustainability Trust.
- Results of engagement.

125. Public consultation on the resource recovery hub options will occur after May 2024, with a final decision being sought by Kōrau Tūāpapa | Environment and Infrastructure Committee in mid-late 2024.

Attachments

Attachment 1.	Resource Recovery Network Expansion Business Case - 7 September 2023 ↓ 	Page 414
Attachment 2.	T+T Resource Recovery Business Opportunities Report - August 2023 Final ↓ 	Page 447

Indicative Business Case

Resource Recovery Network Expansion

Project ID	9922	Classification Tool Outcome	Moderate
Senior Responsible Owner	Siobhan Procter	Project Business Owner	Diljinder Uppal
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Document Properties

This table describes the properties of the document.

Author	Jenny Condie, Business Cases Writer, Zero Waste Programme
Project Manager	Terry Friel, Senior Project Manager, Zero Waste Programme
Location	SharePoint Online Trove - Resource Recovery Planning - All Documents

Document History

This table provides a history of changes made when completing this document.

Version No.	Date	Summary of Changes	Author
0.1	25.08.2023	Template transfer	Sakura Rimington, Programme Coordinator
0.2	31.08.2023	Version for review	Terry Friel, Senior Project Manager
0.3	06.09.2023	Version for final changes	Terry Friel, Senior Project Manager
1.0	07.09.2023	Version for final approval	Terry Friel, Senior Project Manager

Approvals

Version No.	Date	Approver
1.0	07.09.2023	Terry Friel, Project Manager
1.0	07.09.2023	Diljinder Uppal, Project Business Owner
1.0	07.09.2023	Chris Mathews, Programme Business Owner
1.0	07.09.2023	Siobhan Procter, Senior Responsible Owner

Related Documents

Document	SharePoint
Resource Recovery Business Model Options Tonkin + Taylor, August 2023	SharePoint Online Trove - Appendices - All Documents

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Purpose of this Document

This is an Indicative Business Case. Its purpose is to enable decision-makers to consider and approve:

- a preferred way forward (short-list of options).
- the project to proceed with more detailed assessment of the short-list options.
- the project to engage with market suppliers through a Request for Information.
- provide an indicative maximum budget envelope for the Long-term Plan 2024-34.

The Detailed Business Case, to be presented in the fourth quarter of FY2024, enables decision-makers to consider and approve:

- preferred options from the previously identified preferred way forward.
- the project to develop and finalise the arrangements for the successful implementation of the preferred options.
- the project to proceed to formal market engagement through a Request for Proposal or Request for Tender process.
- the confirmed Long-term Plan 2024-34 project budget required to successfully deliver the preferred options.

Executive Summary

Introduction

Resource recovery refers to services, facilities, and associated infrastructure that will support the process of recovering materials for reuse. The purpose of a resource recovery network is to effectively enable product reuse, recovery, and recycling for a diverse range of material types.

- Reuse: using materials more than once
- Recovery: the practice of putting 'waste' products to use, without re-processing
- Recycling: reprocessing of materials to produce another product

Wellington City's current resource recovery network is prohibitive to residents diverting their waste from landfill due to the limited accessibility to resource recovery services and facilities, and the limited capacity of existing resource recovery sites. In addition, the existing network has limits around the types of materials that can be diverted to an established end market.

Effective expansion of the resource recovery network will be necessary to ensure the council is ready to accelerate its waste minimisation efforts and transition to a circular economy.

There are two main aspects to this project, referred to as a hub and spoke model:

1. The hub: expansion/replacement of the current resource recovery area at the council's Southern Landfill.

2. The spokes: establishment of suburban Resource Recovery Centres throughout Wellington.

The hub and spoke model refers to a centralised system of distribution or service delivery that resembles a bicycle wheel. The hub is the key part of the model which generally offers a full range of services, whilst the spokes are smaller locations that may offer less services. This means the majority of the processing, dismantling and potential collection of items will occur at the hub.

The advantage of this model is that it allows for the redistribution of goods to areas which need them most and provides for improved access to the facilities for all Wellington residents.

This type of model is referred to within the Draft Te Awe Māpara / Community Facilities Plan 2023. Whilst this is a useful reference, Te Awe Māpara has not included resource recovery within the scope of the document. The type of activities which will occur at a spoke will determine whether it is appropriate for it to be located within the same complex or location as other community facilities.

In July 2023 Tonkin + Taylor consultants (T+T) were engaged to identify gaps in the market for processing of materials for resource recovery and to assess the options for council involvement in resource recovery and/or materials processing. Their report of 24 August 2023 (Appendix 1) provides analysis of market gaps, possibilities for Council involvement and discussion on opportunities at a high level.

Strategic Case

On 27 April 2023, the Environment and Infrastructure Committee unanimously approved the Zero Waste Strategy, the goal of which is to achieve intergenerational sustainability by moving to a circular economy. One of the key outcomes of the strategy is to treat landfill capacity as finite. Resources should instead be reused or repurposed so we can regain their value. To do this, the community needs to be equipped to reduce waste, with services that make material capture and waste diversion an easy choice. The strategy sets the target of reducing total waste going to landfill by 50% by 2030.

The outcomes and objectives of the Zero Waste Strategy are included in the draft objectives for the Long-term Plan 2024-34 which closed to public consultation on 24 May 2023. These included a priority statement that “waste reduction is attractive and accessible with the systems and infrastructure in place to increase resource circularity”.

The disposal of waste to landfill represents the loss of materials with potential economic value. Reuse of these materials is consistent with the principles of the circular economy incorporated within the Zero Waste Strategy 2023 and the Economic Wellbeing Strategy 2022.

Done well, resource recovery centres deliver not only environmental benefits, but also social and community benefits by allowing for the re-use of materials and bringing together communities.

The strategic context is illustrated below¹.



Figure 1 - Strategic Context Wellington City Council Zero Waste Strategy 2023 (page 19)

Economic Case

Unlike the investments considered in the Collections and Processing business case, the projects considered here are independent from each other. That is, any combination of these investments could be advanced without concern for interdependency.

The advantage of the hub and spoke model is that it allows for the redistribution of goods to areas which need them most and provides for improved access to the facilities for all Wellington residents.

Any recommended portfolio of projects needs to consider the indicative cost, diversion potential, land availability constraints, and other co-benefits.

Resource Recovery Centres across the city

New resource recovery centres across Wellington would make it easier for residents to go somewhere to drop-off unwanted household items and to shop at their retail space. These spaces could also become community hubs that offer zero waste education, repair sessions,

¹ [Wellington City Council Zero Waste Strategy](#)

and other community activities. Elsewhere this approach has proved successful, for example Auckland Council have established 11 resource recovery centres and approved funding for nine more.

In developing proposals for resource recovery centres across the city, it is critical that existing charity and second-hand shops are taken into account. Additional council investment needs to complement these existing resource recovery providers rather than displace them. When Auckland Council developed their resource recovery centres, they engaged closely with the existing providers in the area. In one case, the new resource recovery centre agreed not to accept clothing donations due to other charity shops nearby. Introducing resource recovery centres in Wellington will require similarly close engagement with these existing providers and a focus on filling identified gaps in the current resource recovery system.

The draft Community Facilities Plan encourages use of existing underutilised council facilities where possible and discourages building new facilities. Therefore, the resource recovery centres are proposed to be delivered by leasing existing facilities, whether council or commercially owned. This could include partnering with existing council facilities such as libraries and community centres and making use of underutilised space, focusing on particular materials at each one.

Stakeholder engagement during the development of the draft Community Facilities Plan emphasised the desire for council to provide a variety of experiences across the city, rather than just duplication of facilities. In developing proposals for resource recovery centres consideration will be given to the experience offered across the network as a whole.

The draft Community Facilities Plan also encourages partnering with other agencies. Auckland Council has had success with a partnership approach to their resource recovery centres. WCC intends to take a similar approach. Potential partners include NGOs working in waste minimisation and also social agencies, as resource recovery centres also provide a social benefit of affordable goods, employment opportunities, and community activities.

WCC staff have received a proposal from Sustainability Trust to partner with them in providing a joint resource recovery centre in their facilities in Forrester's Lane. Negotiations are at an early stage, but this does seem to be a viable option, particularly as the Trust has a good reputation.

Options

The key dimensions of a network of resource recovery centres are determining how many to set up and in what locations.

As mentioned above, Auckland have established 11 resource recovery centres and have approved funding for nine more. Twenty resource recovery centres for a population of 1.7 million equates to one per 85,000 residents. Wellington has a population of 215,000. Using the same ratio that would require three resource recovery centres across the city.

Alternatively, we could choose to set up one resource recovery centre in each ward to provide good coverage across the city. We could set up one new resource recovery centre as a trial/pilot and then decide on more at the next Long-term Plan.

When selecting locations for new facilities the draft Community Facilities Plan says to consider:

- Co-location with existing council or community facilities
- Transport links, particularly low carbon options
- Current and future population centres
- Serving deprived areas

There is a social benefit to providing resource recovery centres in high deprivation areas, where residents often have no car, and need affordable secondhand goods. Resource recovery centres offering workshops to upskill residents in simple repair techniques/offer repair cafes with experts to carry out repairs would also be of social benefit, again especially in high deprivation areas. In a hub and spoke model, goods can be dropped off in one location and moved to a different location where the need/retail demand is higher.

Further evaluation of locations for resource recovery centres will be provided in the detailed business case in May 2024.

Estimated Diversion and other Benefits.

The key benefit of resource recovery centres is normalising waste minimisation and making it an everyday activity that Wellingtonians can easily do. Resource recovery centres can facilitate practical waste minimisation at all levels of the hierarchy, from reduce and reuse through to repair and recycling. They offer a unique opportunity to engage with residents, raising awareness and offering different ways of doing things. Over time resource recovery centres will contribute to fostering the shift in behaviour and establishment of new cultural norms required to achieve our zero waste goals. Making waste reduction easy, and ensuring visibility within our communities, is essential.

The Tip Shop currently diverts approximately 1,000 tonnes of material from landfill. Resource recovery centres will be on a smaller scale. WCC staff estimate that each centre could divert between 250 and 400 tonnes of material from landfill, depending on facility size and materials accepted. While these centres may not directly deliver large amounts of waste diversion, they are important in raising awareness of waste reduction and behavior change.

The centres also deliver social benefits beyond waste minimisation. Through events and other activities, they provide a space for community connections. Providing second-hand household goods at low prices also provides a social benefit for those living on low incomes.

Indicative Cost

A Morrison Low report prepared for the Council in November 2022 estimated the cost of each resource recovery centre as follows:

	Resource recovery centres – spokes (each)
Estimated capital costs	\$50,000-\$70,000
Estimated gross operating costs (p.a.)	\$175,000 - \$200,000
Depreciation	\$5,000-\$7,000
Total operating cost (p.a.)	\$180,000-\$207,000

	Resource recovery centres – spokes (each)
Notes	Costs highly dependent on size of facility. No income has been assumed but it is likely income will be generated to offset some of these costs.

These estimates assume that an existing site is leased, with a small capital allowance for the fit out of the site. Some locations such as the central city will have higher lease costs. The proposal for partnership with the Sustainability Trust is in line with these cost estimates.

In the Morrison Low report, they estimated the cost for three resource recovery centres in the next three years as follows:

	23/24	24/25	25/26	26/27	27/28	28/29
Capex		\$70k	\$70k			
Opex	\$200k	\$400k	\$600k	\$600k	\$600k	\$600k
Funding opex landfill fees	\$275k	\$275k	\$275k	\$275k	\$275k	\$275k
Estimated revenue	\$25k	\$50k	\$75k	\$75k	\$75k	\$75k

Additional funding will be provided from the Landfill Surplus fund.

Recommended option and alternatives.

The recommended option is to:

- Proceed with a pilot partnership with Sustainability Trust to establish a joint resource recovery centre at their Forrester Lane facility in 2023/24 at an estimated cost of \$250,000, and
- Plan for two more resource recovery centres in the following two years, with priority locations, partnership, and operating arrangements developed for the detailed business case in May 2024.

Resource Recovery Hub at Southern Landfill

Due to the access constraints at the current location, there are barriers to residents diverting their waste from landfill. In addition, the current site has limits around the types of materials that can be diverted to an established end market.

It is difficult to expand capacity for resource recovery due to limited flat and accessible land at the Southern Landfill. Expanding the Tip Shop and/or materials drop-off area will require additional land.

The two best options near the Southern Landfill are:

- Repurpose existing council land at 221 Happy Valley Rd (shown in purple in Figure 2 below).²

² This site is part of Te Kopahau.

- Acquire a commercial site near to the Southern Landfill (estimated cost \$2M, subject to being able to find a suitable site and agree a sale and purchase with the landowner of that site).



Figure 2 – locations of Tip Shop and 221 & 223 Happy Valley Road

Both of these options provide additional flat land near the Southern Landfill that would enable the expansion of resource recovery facilities.

The recommended option is to investigate the council owned land at 221 Happy Valley Rd, as this will have a minimal cost. However, this site may require more earthworks and site preparation than an existing commercial site.

Priority materials

The Zero Waste Strategy identified four focus materials, one of which is household items and consumables. There are multiple options to increase capacity for resource recovery of household items and consumables at the Southern Landfill. To evaluate them, it is helpful to understand which material streams will likely deliver the greatest benefit in terms of emissions reduction.

Household items and consumables can contain many different material types. The table below shows some of these materials.

Material	Household goods
Timber	Scrap timber from residential building projects, wooden furniture
Plastic	E-waste, small appliances, kitchen items and general household items
Paper	Cardboard packaging too large for recycling bins, books
Textiles	Clothing, bedding, towels, sofas, cushions, mattresses
Metal	Whiteware, bicycles, outdoor furniture, general household items

The targets in the Zero Waste Strategy focus on waste diversion and reducing emissions. Waste diversion potential is dictated by the total amount of a particular material going to landfill and how much of that material a project is likely to capture. A further consideration is the retail demand for different materials.

Waste to landfill

The key material streams for household items and consumables are shown in the table below, ranked by the estimated tonnes of that material going to landfill in the Solid Waste Assessment Protocol³ 2018 report (SWAP).

Material	Tonnes to Southern Landfill SWAP 2018
Timber	8600
Plastic	7600
Paper	6100
Textiles	4800
Metal	2300

This gives an indication of which material types have the greatest opportunity for diversion.

The rubbish transfer station at the Southern Landfill mainly receives trailer and carloads. 45.5% of this waste is timber, and a further 15.2% is rubble⁴.

In 2022/23 the Southern Landfill received 9,029 tonnes of domestic rubbish to the transfer station. This indicates that 4,108 tonnes of timber and 1,372 tonnes of rubble could be diverted if there were greater opportunities to do so at the Southern Landfill.

New conditions in the lease agreement for the C&D landfill will target large C&D loads coming from commercial operators. However, it will not target timber and rubble entering the Southern Landfill via the transfer station.

³ [SWAP full report \(wellington.govt.nz\)](https://www.wellington.govt.nz)

⁴ Zero Waste Strategy, p 30

Drop-off demand

Another consideration is whether there is already a demand for greater diversion capacity. Items that are frequently turned away from the Tip Shop due to capacity constraints indicate latent demand for greater capacity. These materials are more likely to be captured, increasing the estimated diversion.

The following items are the ones most often turned away due to capacity:

- Building materials, doors and windows
- Furniture
- Clothing / bedding

Greenhouse gas emissions

The Ministry for the Environment have estimated Unique Emissions Factors for different types of materials going to landfill. Total tonnes of equivalent CO2 are estimated by multiplying the tonnage of material by its unique emissions factor. The higher the unique emissions factor, the higher the potential for emissions reduction by removing it from landfill.

The materials that could be diverted from landfill by a resource recovery hub and which generate the most emissions when sent to landfill are:

1. Paper 0.876
2. Garden 0.492
3. Textiles 0.438
4. Wood 0.339

Retail demand

Another consideration in identifying priority materials is whether those items are popular in the retail shop. These items are more likely to meet the community demand for secondhand goods (a social benefit) and more likely to generate revenue that can be used to offset costs.

The following list shows the items that sell the most quickly once they have been received. When new high demand items are received, the Tip Shop staff update on social media (Instagram/Facebook) and the item can be sold within hours. Social media is used to increase stock turnover, more items sold means more items that can be accepted.

Item	Sells within
Timber & Building Materials	Within half a day
Bicycles (in working order)	Within half a day
Paint	Within half a day
Tools	Within half a day
Furniture good quality chairs or benches (indoor or outdoor)	Within a day
Laptops / Electrical goods that have been tested and tagged	Within a day
High quality clothing blankets	Within a day
Pots with plants or high-quality pots	Within a day

Item	Sells within
Furniture good quality cupboards or storage	Within a few days
Whiteware – Dryers and washing machines	Within a few days
Whiteware Fridges	Within a week

Based on these considerations, the highest priority materials within household items and consumables are:

- Cardboard
- Garden waste
- Timber
- Textiles

The moderate priority waste streams based on these criteria are:

- Furniture
- E-waste and small appliances
- Whiteware
- Scrap metal

Investment Opportunities

Investment opportunities that target **highest** priority materials:

- A moderate expansion of the Tip Shop to expand capacity for timber, building materials, and textiles
- Expanding the cardboard drop off facilities at the Recycle Centre to accept small commercial loads
- Textiles and mattresses processing facility

Investment opportunities that target **moderate** priority materials:

- A larger expansion of the Tip Shop to expand capacity for e-waste, minor repairs, furniture and whiteware.
- A larger expansion of the drop off facilities at the Recycle Centre targeting other materials like scrap metal.

Tip Shop and Recycle Centre expansion options

The current state analysis of resource recovery activities at the Southern Landfill found that the Tip Shop is operating close to capacity. Expanding the Tip Shop would mean that items would no longer be turned away due to limited capacity. Providing space and equipment for testing electrical goods and appliances, as well as for minor repairs would improve the circularity outcomes of the Tip Shop by keeping household items in use for their original purpose rather than dismantling them to recover the materials.

The Recycle Centre that includes drop-off bins for cardboard, glass, plastics and tins also operates at capacity for parts of the year. Additional cardboard bins are brought in over summer

to cope with the spike in cardboard packaging at that time. Sometimes small commercial loads of cardboard are turned away because of lack of capacity to accept them, in which case they end up in landfill.

Waste Operations staff developed a list of possible expansions that could be made to the current Tip Shop and Recycle Centre operations.

These opportunities were identified based on:

- the type of material targeted (where possible)
- The type of activity targeted
- The type of space needed – weatherproof, covered, or uncovered, and
- the amount of additional space needed.

For example, they identified that the following space would be needed to expand the capacity to accept textiles:

Activity	Type of space	Square metres
Clean and sort textiles	Weatherproof	10
Retail display	Weatherproof	10
Storage of textiles	Weatherproof	5
Laundry space	Weatherproof	5
Additional changing room	Weatherproof	5
Expanded textiles capacity	Weatherproof	35

The following table has a summary of the additional space required by activity or material stream:

Material or Activity	Sum of Size m2
Recycle Centre	300.00
Timber and building materials	670.00
Textiles	30.00
Improve drop off & storage	1,280.00
E-waste	490.00
Whiteware	125.00
Repair space	40.00
Retail space for general household goods	600.00
Outdoor retail space	60.00
Trade Me operations	250.00
Tool hire space	70.00
Staff Facilities	100.00
Parking	3,700.00
Destination & Education	390.00
Grand Total	8105

The Recycle Centre collected the following amount of recycling in the 23 financial year.

- Glass – 224T
- Plastics & cans – 38T
- Paper & cardboard – 204T
- Total – 466T

Development Options

There are several options for developing the resource recovery hub and resource recovery centres.

Resource Recovery Hub

Option A - Stay and expand Tip Shop, move Recycle Centre to 221&223 Happy Valley Road.

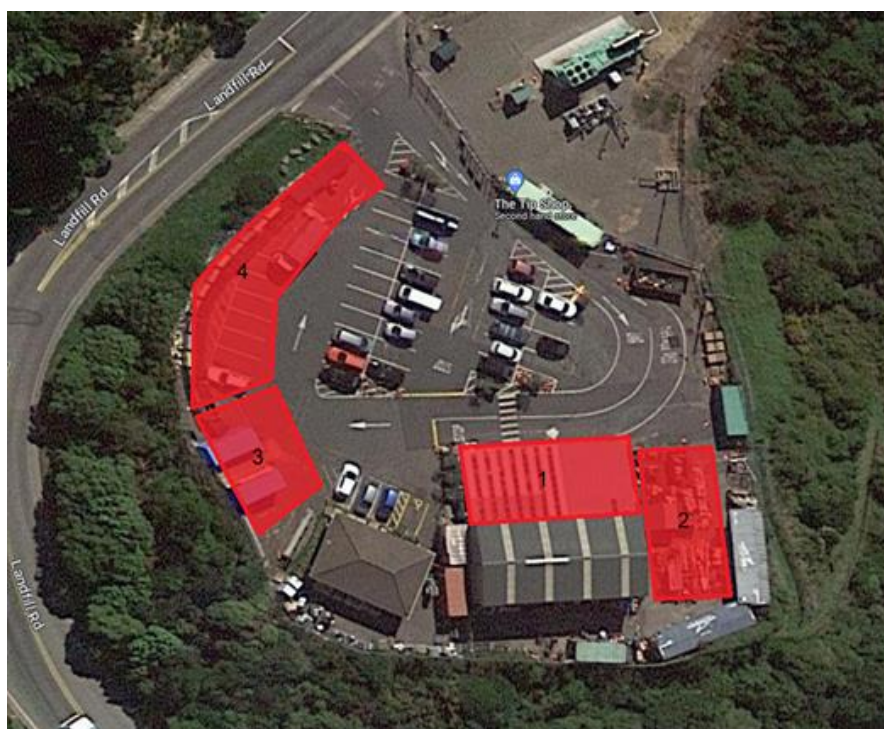


Figure 3 – Option A

This option involves continuing to use the existing main 260m² Tip Shop Building. Enclosing the existing 200m² covered area in front of the Tip Shop (labelled #1 in Figure 3 above), extending to the east by 200m² (labelled #2 above) and constructing a new 200m² building where the glass recycling is currently (labelled #3 above). This will increase the weatherproof building area from 260m² to 860m².

Moving the recycle centre (labelled #3 and #4 above) to another site will free up 500m² of additional space. This would allow an additional covered area of 150m² to be constructed to accept donated items and to process timber.

The existing carpark will be resealed after the removal of the Recycle Centre and building works. This would allow for 30 car parks, and two drop-off lanes.

The recycle centre will be moved to 221 & 223 Happy Valley Road. This will allow additional recycling bins to be provided to the public, however, the site will need to be developed, consented and include staff facilities.

This option will require the use of Council owned land currently listed in the Outer Green Belt Management Plan.

The estimated cost of this option is \$2.3M

Option B - Redevelop Tip Shop, move recycling facilities to 221&223 Happy Valley Road.

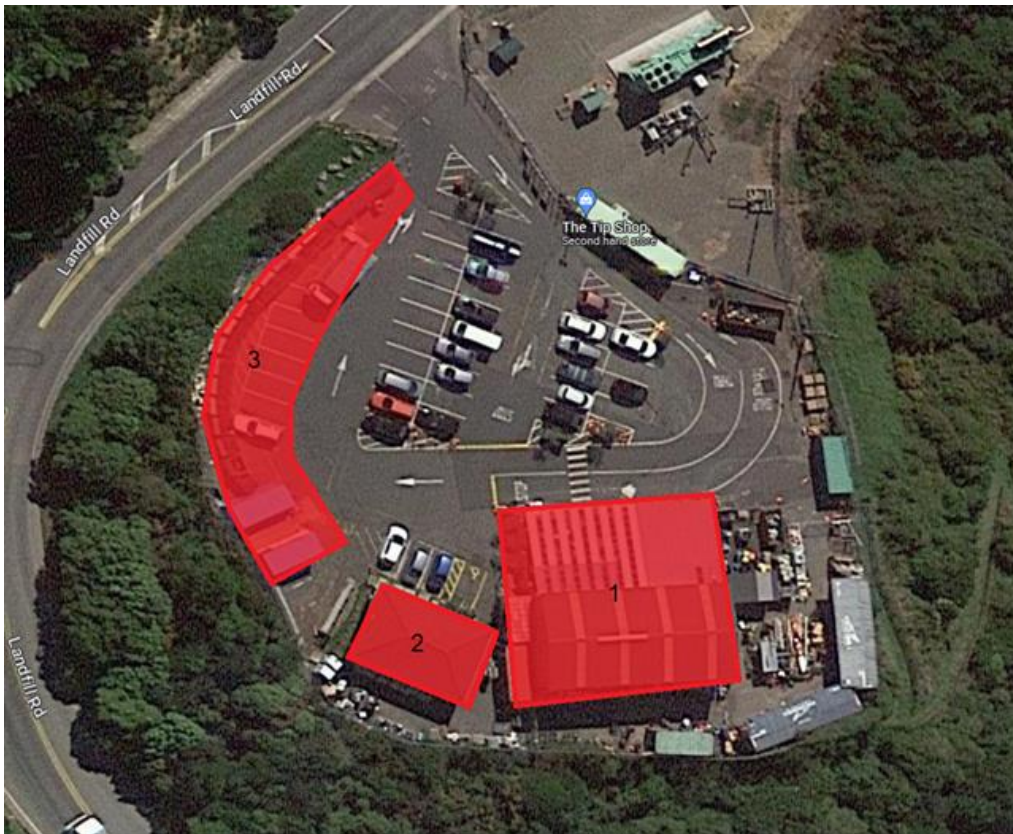


Figure 4 – Option B

This option involves the redevelopment of the Tip Shop site. The existing Tip Shop (labelled #1 in Figure 4 above) and staff room buildings (labelled #2 above) would be demolished and a purpose built two-storey building constructed with a 600m² footprint.

This will provide a total 1,200m² space to house the Tip Shop operations and staff facilities.

This may also provide space for an additional drop-off lane for the Tip Shop given the smaller footprint required for the buildings, and better placement. The existing carpark will be resealed.

The recycle centre (labelled #3 above) will be moved to 221 & 223 Happy Valley Road. This will allow additional recycling bins to be provided to the public, however, the site will need to be developed, consented and include staff facilities.

This option will require the use of Council owned land currently listed in the Outer Green Belt Management Plan.

The estimated cost of this option is \$4.6M.

Option C – Move Tip Shop to 221 & 223 Happy Valley Road, locate timber and building material processing on current Tip Shop site. **Preferred option**

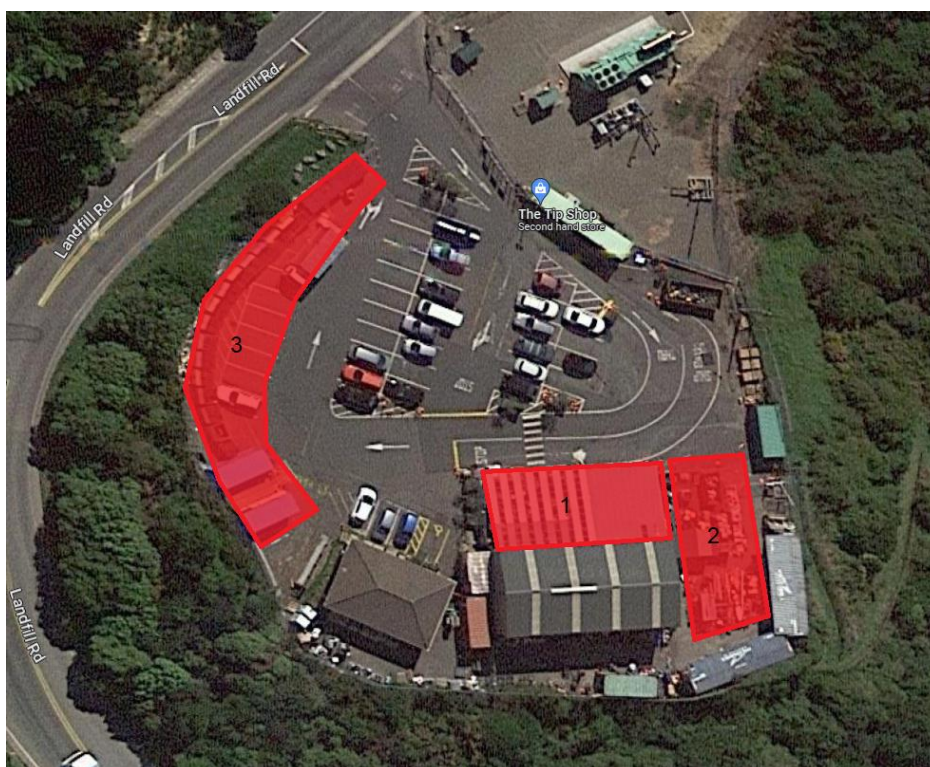


Figure 5 – Option C

This option involves continuing to use the existing main 260m² Tip Shop Building and enclosing the existing 200m² covered area in front of the Tip Shop (labelled #1 in Figure 5 above) and

extending to the east by 200m² (labelled #2 above). This will increase the weatherproof building area from 260m² to 660m². This building will be used to receive, process and sell recycled building materials.

The Recycle Centre will remain where it is (labelled #3 above), with the ability to increase capacity. Due to the relocation of the Tip Shop, a single drop-off lane is adequate.

This option involves building a new single storey purpose-built 1000m² building for the Tip Shop at 221 & 223 Happy Valley Road.

This option will require the site at 221 & 223 Happy Valley Road to be removed from the Outer Green Belt Management Plan and will require a resource consent as it is currently zoned partly Outer Residential and partly Open Space.

The estimated cost of this option is \$4.2M. Noting that the cost to construct a single storey building is less than a double storey.

Option D - Move all operations to a commercial site near the Southern Landfill.

This option involves relocating both the Tip Shop and the recycle centre to a commercially zoned site near the Southern Landfill.

To pursue this option will require the purchase of land and potential redevelopment or construction of buildings.

It is anticipated that resource consent complexity will be low if the hub is established on commercially zoned land.

This option allows for further resource recovery works to occur at the current Tip Shop site which do not involve so much public interactions, e.g., timber recycling and processing.

The estimated cost of this option is \$8.3M including any land acquisition costs (estimated to be \$2M)

Status Quo – No changes to the Tip Shop or Recycle Centre.

The cost of this option is no change to existing operations, but it does not meet strategic objectives of the Zero Waste Strategy.

High level comparison of options:

	Build Cost	Diversion Potential (Tonnes p/a)	Increase in size	Accessibility
<i>Option A – extend existing Tip Shop and relocate the recycle centre to Happy Valley Rd</i>	\$2.3M	684	161%	<i>Recycle centre will be more accessible to non-car users. Tip Shop remains inaccessible to non-car users</i>

	Build Cost	Diversion Potential (Tonnes p/a)	Increase in size	Accessibility
<i>Option B – demolish and replace Tip Shop, relocate recycle centre to Happy Valley Road</i>	\$4.6M	1293	304%	<i>Recycle centre will be more accessible to non-car users. Tip Shop remains inaccessible to non-car users, however purpose-built building can include accessible design features.</i>
<i>Option C (preferred) – relocate Tip Shop to Happy Valley Road, expand recycle centre and repurpose current Tip Shop</i>	\$4.2M	1386	326%	<i>Improved access to Tip Shop. Can be accessible by alternative means of transport and purpose-built building can include accessible design features. Recycle centre remains only accessible by car.</i>
<i>Option D – relocate both Tip Shop and recycle centre to a site near the Southern Landfill which has commercial zoning.</i>	\$8.3M (includes \$2M for land acquisition)	1926	453%	<i>Provides best access to Tip Shop and recycle centre. May be accessible by alternative means of transport and purpose-built building can include accessible design features</i>
<i>Status Quo</i>	<i>Nil</i>	425	0%	<i>Remains inaccessible.</i>

The implementation costs are discussed in detail in the financial implications section below.

Resource Recovery Centres

Option A – Partner with Sustainability Trust for a three-year pilot. **Preferred option.**

It is recommended to partner with Sustainability Trust to establish a joint resource recovery centre at their Forresters Lane facility in 2023/24. This would be established as a three-year pilot, funded from the waste minimisation component of landfill revenue.

Option B – Establish two more resource recovery centres. **Preferred option**

It is recommended that two more resource recovery centres – one in 24/25 and one in 25/26 be established. This can be funded from the waste minimisation and waste levy component of landfill revenue, with top up funding from the Landfill Surplus Fund if required.

Depending on the results of the pilot and the two further resource recovery centres, further recommendations may be put forward for the 2027-37 Long-term Plan.

Councillors could choose to fund additional resource recovery centres in 2026/27 and outyears in this Long-term Plan. It is not recommended to fund more than one new resource recovery centre per year due to implementation challenges.

Option C – do nothing.

The option to continue operating the Tip Shop with no changes is not recommended due to the lost opportunity for diverting more materials from landfill.

Living Earth Joint Venture Building:

The Living Earth Joint Venture building previously housed a composting facility that processed biosolids. It is located at the top end of Landfill Road (circled in red in Figure 6 below) and is approximately 5000m².

The building is used as a storage area for Capital Compost at present.



Figure 6 – Living Earth Joint Venture building

There is potential for the existing large Living Earth Joint Venture building located towards the north east of the Southern Landfill working area to be used for additional diversion activities. The two main options identified in the Tonkin+Taylor report are mattress deconstruction and textile processing (Attachment 3).

The location of the building means that it is not suitable for public access, as you would need to go through a working landfill. However, due to the size and location of the building it may be required for other activities such as organics processing. If redevelopment of this site is not required, then a proposal for mattress and textile recycling (and other potential resource recovery uses) will be brought in the Long-term Plan 2027-37.

Commercial Case

If the recommended options are approved then additional work will be completed to prepare a detailed business case for May 2024.

This will include developing options for partnership, operating, and funding approaches to the new resource recovery centres. This will be informed by the negotiations that are underway with Sustainability Trust to partner with them on the first resource recovery centre. The intention is for this resource recovery centre to be jointly funded, jointly branded and jointly staffed by Sustainability Trust and Wellington City Council.

Once decisions are made about the preferred approach to developing the next resource recovery centres a procurement process can be established seeking partnership offers in the chosen priority locations.

If councillors choose to investigate using the council owned land at 221 & 223 Landfill Rd then the process for removing these sites from the Outer Green Belt Management Plan will begin.

If land acquisition is preferred then council staff will begin enquiries with landowners of suitable sites near the Southern Landfill. This work will be done in conjunction with the Council's Property Team and will follow standard procedures for land acquisition.

A design brief will need to be prepared for the preferred site and design services will need to be procured. Standard procurement policy will be followed for the design services contract.

Additional professional services such as land surveyors or quantity surveyors may also be required to develop a proposal for the detailed business case. Standard procurement policy will be followed for any professional services contracts that are required.

The detailed business case will include a procurement approach for any detailed design work, consenting, professional services, and construction services needed to deliver the preferred option for an expansion to the resource recovery hub. The procurement approach will be developed with the the Commercial Partnerships team and following all relevant council procedures.

Responsibility for managing delivery under the various contracts as well as the supplier relationship will lie with the Waste Operations Manager.

Financial Case

No additional funding is sought for the projects recommended in this business case. These costs can all be met within existing funding.

Capital costs and Funding

The indicative capital cost of the recommended options in this business case is \$5.9M.

There is currently \$2.2 million capital expenditure allocated in the 2024/25 financial year for a resource recovery hub at the Southern Landfill. We propose that this funding is carried forward into future years to fund the recommended projects.

The Landfill Surplus Fund was established to manage the operational risk of landfill operating deficits. Landfill fees are set at the start of the year with the aim of collecting the same amount of revenue from the landfill operating component of the fee as is needed to cover the operating costs of the landfill for the year. If waste volumes are lower than forecast, or if operating costs are higher than expected then an operating deficit for the landfill can occur. If volumes are higher than forecast or operating costs are lower, the landfill will achieve an operating surplus.

The intention of the fund was that surpluses would be paid into the fund when they occur and then deficits could be funded from this money when there was a deficit. The Landfill Surplus Fund would smooth out any landfill operating surpluses and deficits.

In the past five years the landfill has recorded operating surpluses every year. Over the years any surplus waste minimisation funds were also paid into the Surplus Fund. Therefore, the Landfill Surplus Fund now exceeds the amount needed to manage the risk of future deficits.

The Landfill Surplus Fund was \$13.7M at 30 June 2022, the provisional landfill operating surplus for 2022/23 is \$7.0M, which will bring the Landfill Surplus Fund total to \$20.7M.

Officers recommend that \$2 million is retained in the Landfill Surplus Fund to manage operational funding risks. \$15.0M is recommended to fund the new bins and organics processing facility required for new collections services. Therefore \$3.7M is available to fund resource recovery projects, combined with the \$2.2 million already allocated, this makes a total of \$5.9M.

The total inflation adjusted operating costs, capital costs and expected revenue of the recommended three new resource recovery centres are as follows is available to fund resource recovery projects.

\$ million	2023/ 24	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Opex Costs Resource Recovery Centres	\$0.25	\$0.52	\$0.80	\$0.82	\$0.84	\$0.85	\$0.87	\$0.88	\$0.90	\$0.92	\$0.93	\$8.58
Capex Cost - Fit Out Resource Recovery Centres	\$0.00	\$0.10	\$0.11	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.21
Capex Cost - Implementation Resource Recovery Centres	\$0.00	\$0.03	\$0.03	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.05
Revenue - Resource Recovery Centres	\$0.03	\$0.05	\$0.08	\$0.08	\$0.08	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.86

The total inflation adjusted operating costs, capital costs and expected revenue of the recommended expansion to the resource recovery hub are as follows:

\$ million	2023/ 24	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Opex Costs Resource Recovery Hub	\$0.00	\$0.00	\$0.00	\$1.09	\$1.12	\$1.14	\$1.16	\$1.18	\$1.20	\$1.22	\$1.24	\$9.35
Capex Cost - Tip Shop expansion (option C)	\$0.00	\$0.00	\$4.18	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.18
Capex Cost - Implementation Resource Recovery Hub	\$0.00	\$0.26	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.26
Capex Cost - Project Delivery	\$0.40	\$0.42	\$0.43	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1.24
Revenue - Resource Recovery Hub	\$0.00	\$0.00	\$1.74	\$1.78	\$1.81	\$1.85	\$1.88	\$1.92	\$1.95	\$1.98	\$2.02	\$16.93

Therefore, these projects can be funded from existing sources and no additional capital expenditure funding is sought through the LTP for these projects.

Operating costs and funding

Based on a report from Morrison Low and the partnership proposal from Sustainability Trust, estimated operating costs are \$250,000 for each resource recovery centre (in 2023 dollars).

Resource recovery centre capital costs are based on a fit-out of an existing space, with no allocation for 2023/24 and \$100,000 in each of the following two years.

Resource recovery centres will generate some revenue from the sales of goods. It is highly uncertain what the level of this revenue might be. An indicative estimate of \$25,000 per centre per year has been included.

The total inflation adjusted operating costs, capital costs and expected revenue of the recommended three new resource recovery centres are as follows:

\$ million	2023/ 24	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Opex Costs Resource Recovery Centres	\$0.25	\$0.52	\$0.80	\$0.82	\$0.84	\$0.85	\$0.87	\$0.88	\$0.90	\$0.92	\$0.93	\$8.58
Capex Cost - Fit Out Resource Recovery Centres	\$0.00	\$0.10	\$0.11	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.21
Capex Cost - Implementation Resource Recovery Centres	\$0.00	\$0.03	\$0.03	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.05
Revenue - Resource Recovery Centres	\$0.03	\$0.05	\$0.08	\$0.08	\$0.08	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.09	\$0.86

The cost of a new building at 221 & 223 Happy Valley Rd is estimated to be \$4.2M in 2025/26, with an additional cost for design, consenting and other related costs.

An expansion of the resource recovery hub will result in an increase in revenue from the sale of goods. The current Tip Shop has annual revenue of \$1 million. An indicative estimate an

additional \$1,625,000 (before inflation) per year has been included. This project can still be funded from existing waste levy and waste minimisation revenue if this revenue forecast is not fully achieved.

The total inflation adjusted operating costs, capital costs and expected revenue of the recommended expansion to the resource recovery hub are as follows:

\$ million	2023/ 24	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Opex Costs Resource Recovery Hub	\$0.00	\$0.00	\$0.00	\$1.09	\$1.12	\$1.14	\$1.16	\$1.18	\$1.20	\$1.22	\$1.24	\$9.35
Capex Cost - Tip Shop expansion (option C)	\$0.00	\$0.00	\$4.18	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.18
Capex Cost - Implementation Resource Recovery Hub	\$0.00	\$0.26	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.26
Capex Cost - Project Delivery	\$0.40	\$0.42	\$0.43	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1.24
Revenue - Resource Recovery Hub	\$0.00	\$0.00	\$1.74	\$1.78	\$1.81	\$1.85	\$1.88	\$1.92	\$1.95	\$1.98	\$2.02	\$16.93

Project delivery costs to support both the new resource recovery centres and the expansions to the resource recovery hub are expected to be \$400,000 per year for three years starting in 2023/24.

The waste minimisation component of the landfill fees will continue to generate revenue that can be used to fund the operating expenses of the projects recommended in this business case. This revenue is not currently allocated to any projects.

Council will also continue to receive the local share of the waste levy funds collected from the Southern Landfill via the Ministry for the Environment.

The waste levy is imposed on every tonne of waste that comes into the Southern Landfill that is not diverted or recycled. Each month the council calculates and reports on our waste tonnages to the Ministry for the Environment. A local share of this funding is paid back from the ministry to the council based on population size. As stated above, these funds are legally required to be spent on waste minimisation activities aligned with the approved Waste Management and Minimisation Plan. The council reports to the Ministry for the Environment each year on the projects funded.

Approximately \$1.4 million of the waste levy funding has already been allocated to other waste minimisation projects.

The ten-year forecasts for these revenue sources are in the table below.

\$ million	2023/ 24	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Waste levy local share	\$2.90	\$2.92	\$3.47	\$3.60	\$3.60	\$3.60	\$3.60	\$3.60	\$3.60	\$3.60	\$3.60	\$38.08

\$ million	2023/ 24	2024/ 25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	2030/ 31	2031/ 32	2032/ 33	2033/ 34	Total
Waste levy funds committed	\$1.40	\$1.40	\$1.40	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$12.20
Waste levy funds available for RR	\$1.50	\$1.52	\$2.07	\$2.60	\$2.60	\$2.60	\$2.60	\$2.60	\$2.60	\$2.60	\$2.60	\$25.88
Waste minimisation landfill revenue (Base 2)	\$0.33	\$0.33	\$0.33	\$0.28	\$0.26	\$0.26	\$0.27	\$0.27	\$0.27	\$0.27	\$0.27	\$3.13
Resource Recovery available revenue	\$6.13	\$6.16	\$7.26	\$7.48	\$7.46	\$7.46	\$7.47	\$7.47	\$7.47	\$7.47	\$7.47	\$79.30

Therefore \$1.8 million in waste minimisation revenue is available to fund the operating costs of projects recommended in this business case in 2024/25, rising to an estimated \$2.8 million in 2026/27.

No additional rates funding is requested to fund the projects in this business case.

Management Case

Planning for successful delivery

The approach to project management for the project will be in keeping with the requirements of the Investment Delivery Framework, Zero Waste Programme and Project Management Office governance and reporting framework and agreed assurance plan, i.e.

- fortnightly meetings are being held to bring the project team together,
- key decisions and actions are recorded in meeting minutes,
- all project documents, are stored on SharePoint for all project and Programme team members to access,
- project risks and issues recorded on the project risk register in Paiaka (Project 356 tool).

A Project Brief, providing foundation information for the proposed project was approved by the ZWP Management Group on 30 November 2022. The project brief's purpose was to provide information sufficient to inform discussion about next steps including progressing this business case.

The approach for this project has multiple phases:

1. Morrison Low were commissioned in mid-2022 to provide a detailed options analysis to identify the gaps and opportunities for further expansion of the resource recovery network, including resource recovery centres and large-scale diversion facilities within the Wellington region.
2. A series of workshops to understand the current operations at the Southern Landfill and the constraints of the current Tip Shop and recycle centre.

3. In their report, finalised 16 November 2022 they stated the options analysis considers the existing and planned facilities provided by the council, as well as those currently provided, or planned, by other councils in the Wellington region and third parties, with a view to meeting the following agreed investment objectives:
 - To support the circular economy
 - To reduce carbon emissions from waste
 - To ensure residents and businesses have access to services they want and need
 - To support community-led facility design and operation (for resource recovery centres)
 - To improve resilience in Wellington City's wider waste network (for diversion facilities)
4. Build on and utilise components of this report to assist in shortlisting options.
5. Understand what has worked well, and what hasn't worked so well with other local authorities.

Governance arrangements

The Council established the Zero Waste Programme to oversee its zero waste projects. The programme is led by a steering group that consists of a mix of external and internal members with a balance of skills, experience, and industry knowledge (see table below). This group reports through the Environment and Infrastructure Committee to Council. The Resource Recovery Network Expansion project team comprises a mixture of external and internal technical resources. The Council maintains overall project control and direction through the Zero Waste Programme management team and steering group.

Zero Waste Programme

Programme RASCI View by project

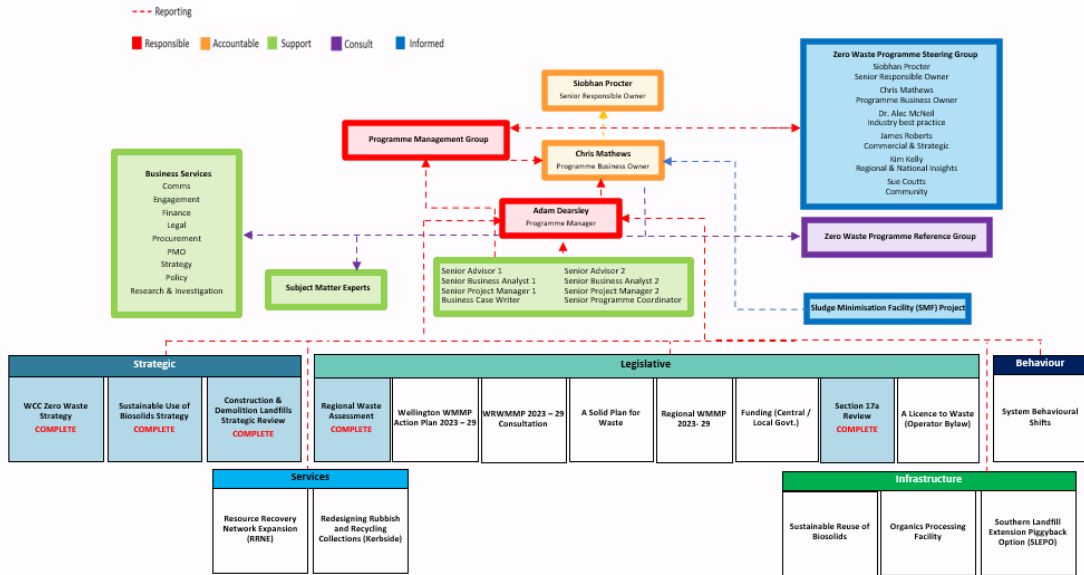


Figure 7 - Zero Waste Programme RASCI

Programme governance

Body	Membership	Purpose
Environment & Infrastructure Committee	<ul style="list-style-type: none"> Elected members 	Governance (6-weekly)
Senior Responsible Owner Briefing	<ul style="list-style-type: none"> Programme Business Owner Programme Manager 	Governance (6-weekly)
Zero Waste Programme Steering Group	<ul style="list-style-type: none"> Chair - Chief Infrastructure Officer Commercial & Strategic Community Industry best practice Regional and National Insights 	Strategic guidance (3 monthly)
Zero Waste Programme – Programme Management Group	<ul style="list-style-type: none"> Chair – Programme Business Owner Project Business Owners Chief Advisor to Chief Infrastructure Officer Programme Manager 	Governance (fortnightly)
Zero Waste Programme Team meeting	<ul style="list-style-type: none"> Chair - Zero Waste Programme Manager Programme team 	Management (weekly)

Body	Membership	Purpose
	members <ul style="list-style-type: none"> Subject matter experts, Project Management Office, Comms & Engagement 	
Resource Recovery and Network Enhancements project team meeting	<ul style="list-style-type: none"> Senior Project Manager Project team members 	Management (fortnightly)

Risk and issues management

The approach to all project risks and issues consists of:

- Identifying risks and issues at any time during the management and delivery of the project
- Assessing the probability of each risk or issue and the impact this may have on the project and outcome.
- Determining current controls in place to manage the risk or issue and mitigation required to address this.
- Implementing the steps required to mitigate the risks.

Risk and Issues are identified and recorded as follows:

- Project risk and issues register kept in Paiaka.
- Key project risks and issues are identified and communicated to the Zero Waste Programme manager.

Figure 8: Ratings and mitigations for main risks ordered highest to least on residual risk

#	Risk Description	Initial Rating			Residual Rating			Treatment & risk management strategies
		Likelihood	Impact	Overall	Likelihood	Impact	Overall	
1	Working Regionally: IF we work regionally THEN compromises on time, cost and scope may be needed Resulting in reduced ability to deliver Wellington	Likely	Major	High	Moderate	Possible	Medium	<ul style="list-style-type: none"> Stay active in regional conversations, look for opportunities that serve Wellington rate payers. Consider multiple models Weigh up costs and benefits of working

#	Risk Description	Initial Rating			Residual Rating			Treatment & risk management strategies
		Likelihood	Impact	Overall	Likelihood	Impact	Overall	
	city specific outcomes and benefits.							regionally, taking into account our Zero Waste Strategy outcomes and Councillor expectations.
2	Lack of available sites: IF there is a lack of available sites THEN we will have limited options for the Hub and material storage RESULTING in delays or limits to what can be delivered.	Likely	Major	High	Moderate	Possible	Medium	<ul style="list-style-type: none"> Take time to work with the land/space that council and community already have to utilise this to achieve the best outcomes. Seek advice from other council teams.
3	Community Involvement: IF the community is not involved early enough in design and planning THEN they may see this as a 'do to' activity RESULTING in new resource not aligned to community needs, social and economic benefits not realised.	Likely	Major	High	Unlikely	Moderate	Low	<ul style="list-style-type: none"> Develop an engagement plan for the life of the project Engage early with community to gauge interest in this active partnership and the project outcomes.

#	Risk Description	Initial Rating			Residual Rating			Treatment & risk management strategies
		Likelihood	Impact	Overall	Likelihood	Impact	Overall	
4	Territorial Local Authority Boundary Risk: IF we don't communicate closely with neighbouring TLAs THEN we may be in competition for the same sites on/near a boundary RESULTING in increased competition for large-scale infrastructure within the region.	Likely	Major	High	Unlikely	Minor	Low	<ul style="list-style-type: none"> Keep officer conversations occurring regularly and improve relationships between councils. Be proactive in discussing, and taking part, in projects to ensure Wellington City's needs are taken into account. Maintaining positive contact with Porirua City Council and Hutt City Council.

Schedule management

Key project milestones are provided in the table below.

Project milestones

Key project milestones	
Redesigning Rubbish & Recycling Collections project	Planned completion date
Indicative Business Case DRAFT Ready for review	4 August 2023
Executive Leadership Team Briefing	14 August 2023
Indicative Business Case FINAL Ready for review	28 August 2023
Council Briefing	30 August 2023
Indicative Business Case SRO approval	7 September 2023
E&I Committee approval	14 September 2023
Commence Procurement activity	18 September 2023

Change Management

Change management practices are in place. Refinement of these practices to suit the relevant parties will be made throughout the procurement phase to align with the contractual agreement for the works contractors.

Change management will be facilitated through the Zero Waste business owner, Programme Manager and Project Manager. The Zero Waste Programme has identified stakeholders for each project to ensure that updates, including any changes, are appropriately communicated. At this stage no change management requirements have been identified.

Stakeholder communications and engagement management

An Engagement and Communication Plan has been developed for the project and approved by the Business Owner. This will be a living document reflecting the need for the project to be capable of delivering relevant and positive information to all interested parties during the various phases.

A Zero Waste Programme overarching Engagement and Communications Strategy and Plan has been developed to align the project with other Zero Waste projects and initiatives and is provided.

Dependency management

The diagram below illustrates the interdependent relationships between the Resource Recovery project and other Zero Waste Programme projects. (See Resource Recovery bottom left.)

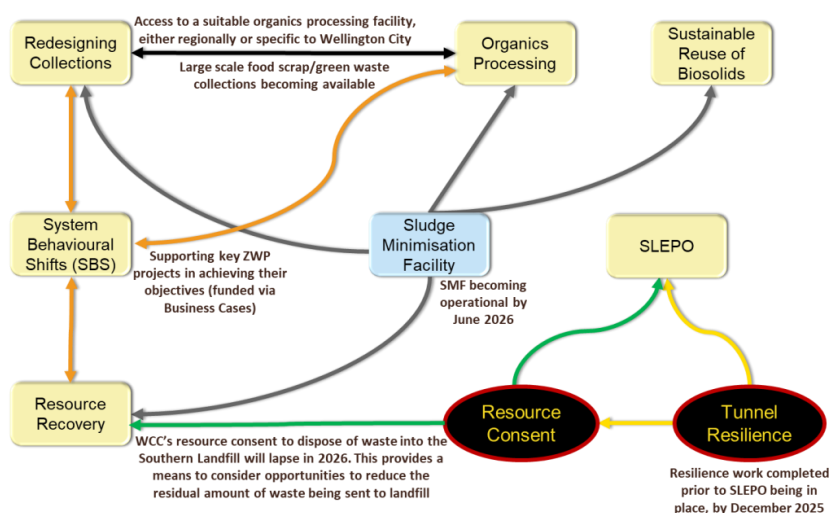


Figure 9 8 - Dependencies are managed via regular project meetings and monthly reporting.

Reporting and assurance

Reporting process and control

The project will report in accordance with the Investment Delivery Framework guidelines set out by the council's Project Management Office. This includes a suite of reports covering the breadth of traditional project reporting. Reporting cycles will align with monthly Executive Leadership Team meetings and Project Management Office reporting timelines.

Monitoring and assurance

The project team and Zero Waste Programme team are working closely with the Council's Project Management Office and will follow all guidance and assurance activities required, as instructed by the Project Management Office, in line with agreement from the Zero Waste Programme Business Owner and Senior Responsible Owner.

Project milestones

Preliminary project milestones have been developed. The schedule will be regularly reviewed and reported on, and further refined during the design, procurement, and construction phases.

Post-project evaluation

A post-project evaluation plan will be developed at conclusion of the project.



Wellington City Council

Resource Recovery Business Model Options

Prepared for: Wellington City Council

Prepared by: Tonkin + Taylor

Document Control

Title: Wellington City Council Waste Business Model Options					
Date	Version	Description	Prepared by:	Reviewed by:	Authorised by:
8 Aug 2023	1.0	Draft	CHP	HEC	
24 August	2.0	Final	CHP	HEC	

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

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1 Introduction

1.1 This report

Tonkin + Taylor has been engaged by Wellington City Council (WCC) to identify gaps in the market for processing of materials for resource recovery and to assess the options for Council involvement in resource recovery and/or materials processing.

Wellington City Council, as part of delivering on its Zero Waste Programme (ZWP), seek to maximize the opportunity for resource recovery and/or materials processing activities. At the same time WCC, as owner of the Southern Landfill, wishes to optimise the use of the site for resource recovery related activities that will best achieve diversion outcomes for the city.

This report provides analysis of market gaps, possibilities for Council involvement and discussion on opportunities at a high level. This will reflect range of key considerations drawing on a range of supporting analysis and evidence. Where opportunities are identified, Council is also interested to understand whether there is potential for processing to be located at Southern Landfill.

¹ (Wellington City Council, 2021)

1.2 Wellington City

Wellington (Pōneke) is New Zealand's capital city, located on the south-western tip of the North Island (see Figure 1-1).



Figure 1-1 Wellington City Council Boundaries

It is the third most populous city in New Zealand, with a current population of approximately 550,000. The 2018 census showed 202,000 residents residing in the central City.

Long-term population forecasts for the central City predict a growth of between 50,000 to 80,000 residents over the next 30 years, with population expected to reach around 248,000 by 2043. The ratepayer base is also predicted to increase, from around 86,600 in 2021/22 to approximately 92,500 by 2032/33¹.

1.3 Objectives for Wellington City Council

Key objectives for Wellington City Council in delivering waste and resource recovery services, informed by this work include:

- Increased capture and diversion of material streams over and above status quo.
- Self-sustenance of the waste system, i.e. a revenue generating system that can ensure increased diversion for the next 30 years, complimentary to rates without putting sole onus on rates funding to achieve diversion targets.
- Maximise and monetise commodity value of our material waste streams.
- Reduced emissions from waste capture and diversion.

2 Drivers for change

A range of initiatives and drivers combine to create significant capital and operational costs for Council in delivering waste and resource recovery services. Many of the services can be provided on a cost recovery basis through user charges or targeted rates but Council is looking for opportunities to reduce the net impact on service users.

2.1 National policy

The national policy environment has an impact on services that Council is able to, or is required to, provide including:

- A signalled intent to mandate organic materials recovery from households and businesses.
- Standardising materials collected for recycling from households.
- An increasingly challenging environment for gaining consent for waste recovery and disposal activities under the Resource Management Act.

2.2 Changes in Wellington City

Waste minimisation and management in Wellington is undergoing significant change. This includes:

- The recent adoption of the Zero Waste Strategy.
- Planning for an extension (piggy back option) at Southern Landfill.
- Working with territorial authorities across the Wellington Region on a joint Waste Minimisation and Management Plan.
- Working on a redesign of waste, recycling and organic materials collections within Wellington City.
- Collaborating with Porirua and Hutt City Councils on developing options for organic materials recovery.

These initiatives are intended to reduce waste to landfill, reduce waste related emissions and ensure that there is provision for appropriate disposal of residual waste in the short term.

2.3 Materials processing requirements

The system changes being developed through the initiatives noted above mean that Council will need to access a range of processing or disposal infrastructure. This includes:

- Glass sorting. Glass is currently colour sorted at kerbside or the tip shop and then transported to Auckland for recycling. Glass could be collected without sorting and processed in Wellington.

- Recyclable materials processing through a Materials Recovery Facility (MRF). Mixed materials excluding glass are currently processed by Oji Fibre Solutions Limited at their Seaview MRF. There may be a need to additional capacity and/or a facility that can also handle glass.
- Organic materials processing. Green waste is currently collected by private operators and dropped off for windrow composting Southern Landfill. Food waste collected by Council and similar materials generated by businesses will require new processing, for example in-vessel composting or anaerobic digestion, that could take place in Wellington.
- Residual waste disposal – currently Southern Landfill, anticipated to be Southern Landfill Extension piggyback option through to at least 2031.

Council collects materials (and is likely to collect a wider range of materials) from households in Wellington City. Waste companies collect a range of materials from multi-unit developments and business across the City.

Similar material streams are generated and collected across the Wellington Region. These materials could be processed by a facility controlled wholly or in part by Wellington City Council.

3 The current situation

3.1 Materials processing landscape

As noted in Section 2, there are several material streams controlled by Council. In most cases other councils and the private control similar materials streams. These materials are:

- Green waste (from drop off and private collections).
- Mixed paper, cardboard, plastics and cans (from kerbside and commercial recycling).
- Glass (mixed from commercial collections, colour sorted at kerbside for Council collections).

There are also 'new' materials streams that may require processing including mixed glass (from commercial collections and if there is a kerbside mixed glass collection), mixed recyclables including glass (if there is a fully co-mingled recycling collection) and food organics (as a food only or mixed food and garden stream).

Green waste is currently composted at the Southern Landfill by Wellington City Council's Capital Compost operation. This operation will

need to shift from the current location (on top of Stage 2 of the landfill) when construction of the piggyback extension starts. The former Living Earth Joint Venture area has been identified as a potential location for windrow composting.

Mixed paper/cardboard, plastics and cans are currently processed at Oji Fibre Solutions Seaview MRF (Lower Hutt). Materials are transported in collection vehicles to the MRF with an approximately 20 - 40 km round trip.

Glass collected from households is colour sorted at the kerbside and then transported to Seaview for consolidation prior to transport to Auckland.

Mixed paper/cardboard, plastics cans and glass (colour sorted) from Porirua, Kapiti and the Hutt Valley are also processed in Seaview. Materials from the Wairarapa are processed by Earthcare Environmental Limited (the Wairarapa Councils' collection contractor).

There are several companies collecting recyclable materials from businesses including cardboard, glass and mixed recyclables. In some cases materials are sorted at the contractor's premises with access to Oji's MRF not available for all contractors.

Green waste from the Wellington Region is also windrow composted by Composting New Zealand (Otaihanga, Masterton and depot in

Plimmerton) and McMud Earthworks (Grenada). McMud note on their website that they process paunch grass alongside wood chips, shavings and pine mulches.

3.2 Materials flows

Wellington City Council kerbside recycling materials through the Oji facility are summarised in Table 3-1. Other council materials and commercial recycling are estimated using Wellington City per capita figures. Commercial recycling quantities are estimated based on total facility throughput.

Table 3-1 Estimate material quantities (T/yr)

Material	Wellington	Other Council	Commercial
Card	1,832	1,950	6,744
Paper	1,706	1,816	6,281
PET	388	413	1,430
HDPE	264	281	971
PP	237	252	871
Steel	268	285	985
Aluminium	166	177	611
Glass	3,842	4,089	5,082
Contamination	1,008	1,073	3,711

The flow of recyclable materials from Wellington City Council kerbside collection, other Council and private sector collection/processing is presented in Figure 3-1.

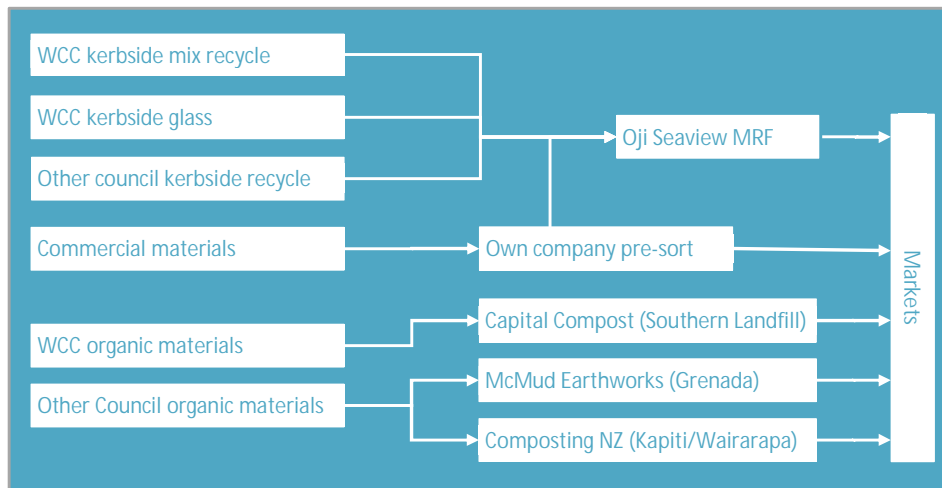


Figure 3-1 Recovered material flows

3.3 Materials currently landfilled

In addition to materials that are currently captured for recycling or composting, a range of other materials are currently landfilled at Southern Landfill or elsewhere. In some cases these materials are likely to be targeted for separate collection or drop-off in the future with processing required in Wellington or elsewhere.

Examples of materials that could be processed in Wellington, including at Southern Landfill, and are currently targeted but with potential for improved capture include:

- Garden organic materials.
- Tyres.
- Recyclable materials.
- Food organics
- Untreated timber

Examples of materials that could be targeted in the future include:

- Textiles
- Mattresses
- Treated timber (as part of a construction and demolition stream).
- Degradable or recyclable materials present in residual waste (currently landfilled).

3.4 Processing occurring elsewhere

It is relevant to consider processing of various material streams elsewhere in New Zealand and internationally.

Examples include:

- Organic materials processing.

Windrow composting of green waste, aerated and/or in-vessel composting of mixed food and green waste or similar putrescible streams.

Anaerobic digestion of food waste and other putrescible material streams.

Vermi-composting of food and 'soft' green waste and other putrescible material streams.

- Tyres
Shredded for use as playground matting, horse arena bedding and/or fuel.
Baling for export for processing into crumb (remanufacturing).
- Textiles
Use as rags for engineering or padding.
Developing for use as fibre reinforcement in paving systems. (emerging technology)
- Mattresses
Dismantling to recover textiles, padding and metals. A system has recently been established in Auckland and other local authorities in New Zealand are considering schemes. Mattresses are banned from landfill in some States in Australia, driving dismantling and recycling.
- Construction and demolition materials
Sorting and some processing of materials including rubble/concrete, metals, plasterboard and timber. While mixed urban timber can be used as biofuel in Whangarei there is no current outlet for treated timber unsuitable for reuse from the Wellington Region.
- Mixed residual waste processing

There are examples internationally of processing of mixed residual waste. The objective is usually to stabilise degradable material and recover some recyclable materials (such as metals).

The examples noted here are implemented by councils, by the private sector and through various public and private sector partnership models. Examples of partnerships including infrastructure co-investment including Resource recovery Hubs in Auckland and making space available for private operations (Treadlite - New Plymouth, Revital – Tauranga).

3.5 Potential suitable locations in Wellington

Materials processing could potentially occur in areas Zoned Business 1 and Business 2 across Wellington City (refer Figure 3-2).

Establishing any processing activity will be subject to the specific activity, availability of land and any regional planning requirements.

Business 1 and 2 areas (purple in Figure 3-2) include:

- Ohiro Bay (Landfill Road).
- Kilbirnie (Kingsford Smith St, Rongatai Rd/Batten St, Kemp St/Tacy St).

- Miramar (Portsmouth Rd/Southampton Rd, Park Rd, Manuka St).
- Ngaio Gorge (Ngaio Gorge Rd/Hutt Rd).
- Ngauranga Gorge (Tyers Rd, Glover St, Jarden Mile).
- Grenada North.

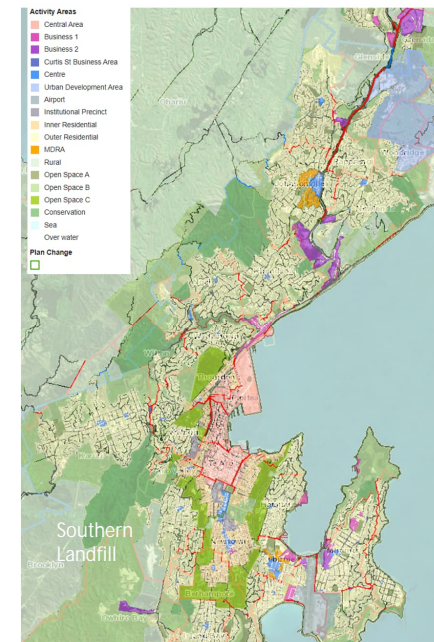


Figure 3-2 Southern Landfill – existing layout (WCC GIS – District Plan)

Rural areas (light green in Figure 3-2) may also be suitable, particularly for organic materials processing. Southern Landfill may also be a suitable location (refer Section 3.7).

It may also be possible to establish processing activity in a suitable location in other parts of the Wellington Region or further afield. This would likely involve some form of collaboration with other local authorities and/or the private sector.

Example industrial zoned areas are shown in the figures below and include:

- Porirua - Keneperu, Elsdon
- Hutt City - Seaview, Petone, Gracefield, Wingate
- Upper Hutt City – Trentham, Wallaceville



Figure 3-3 Hutt City Industrial Zones (purple)

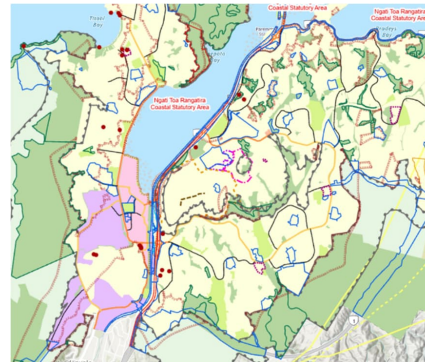


Figure 3-4 Porirua Industrial Zones (purple)

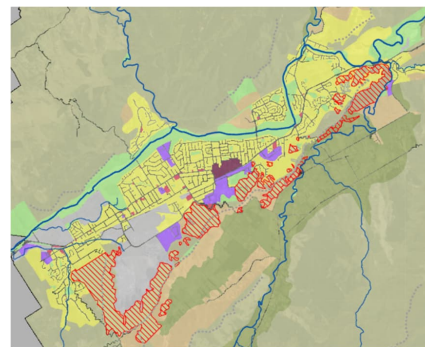


Figure 3-57 Upper Hutt Industrial Zones (purple)

As for Wellington City, rural areas in other parts of the Region may also be suitable for some organic materials processing options (windrow composting, vermi-composting) with potentially suitable locations in Judgeford (Porirua) and Moonshine Valley (Upper Hutt).

3.6 Proposed development in the Wellington Region

There are several resource recovery related developments proposed or underway across the broader Wellington Region potentially accessible from Wellington. Based on a range of sources examples include:

- Waste Management NZ development of the Manor Park Resource Recovery Park. Based on resource consent applications this comprise a transfer station, C&D waste processing and a 'MRF'. The equipment lists for these facilities imply a simple commercial materials sorting operation rather than a MRF targeting kerbside material.
- A proposal to develop an anaerobic digestion plant in Manawatu – target food waste and primary sector by-products.
- Existing and proposed composting activity in Horowhenua targeting mixed food and garden waste alongside primary sector by-products.

3.7 Space available at Southern Landfill

The focus of this report is on opportunities to deliver resource recovery / materials processing in a way that enhances processing availability and Council revenue. There may be opportunities to make use of the various facilities at the Southern Landfill facility. This assumes that the Southern Landfill Extension piggyback option will proceed.

The Southern Landfill has multiple activities occurring on the site. In addition to waste disposal these include:

- The tip shop and recycle centre
Accepting and selling reusable items, recyclable materials and e-waste.
- Capital compost - Windrow composting of green waste and a small amount of food waste.
- Transfer station
Drop off facility for domestic and small commercial quantities of general waste, green waste and hazardous wastes.
- Sludge centrifuge facility

The site layout is shown in Figure 3-6.



Figure 3-6 Southern Landfill – existing layout

The proposed Southern Landfill Extension piggyback option will have an impact on current operations and space available for new activities at Southern Landfill.

Specifically:

- The current windrow composting area and sludge centrifuge facility will be impacted by the piggyback extension.
- The current expectation is that the composting activity will shift to the former Living Earth Joint Venture area. This building and the surrounding area are approximately 1.5 Ha in total including the 5,000 m² building).

The centrifuge facility will no longer be required once the sludge minimisation project (advanced digestion, dewatering and drying) is implemented at Mōa Point.

The transfer station, tip shop and landfill gas power generation facility will not be impacted by the piggy back extension. In all cases these activities will continue in their current locations.

3.8 Potential impact of a Container Return Scheme

There is a proposal to introduce a container return scheme (CRS) in New Zealand targeting a range of beverage containers. Development of the CRS has been paused with no clear timeline for finalising the scheme design. Details of scheme design will define the impact on any materials processing opportunities for Wellington City Council.

Examples include:

- Recovery of targeted materials, particularly those currently recovered through kerbside recycling collections.
- Return arrangements i.e. could Council operate one or more CRS return depots or reverse vending machines.
- Any funding available to support kerbside collections and processing.

The design and regulatory impact work completed to date provides an indicator of potential CRS design for New Zealand. The performance of similar schemes in Australia provide some indicators although there may be design differences that impact on material recovery.

The NZ CRS proposal is that each targeted container will pay a deposit. The funds will then be used to fund the CRS scheme with unclaimed deposits used to fund the scheme administration and potentially to support kerbside recycling activity.

The NSW scheme (in place since 2017) claims refunds from beverage suppliers when containers are recycled. This approach risks incentivising low recovery rates (to reduce the cost to beverage producers). In NSW Councils have reported around 50% drop in eligible containers equating to around 30% drop in total volume in kerbside containers.

4 Options development

4.1 What is the opportunity

There are two groups opportunities for resource recovery and materials processing that are considered in this report.

The first group involves existing activity, undertaken on a commercial basis. For these activities there is potential for Council to process materials from their own operations and from other Councils or the private sector. This group includes mixed recyclables processing and green waste processing.

There are also resource recovery activities that are not currently occurring in the Wellington Region that could support new diversion and emissions reductions. In some cases these may be commercially viable but will be more likely to establish in Wellington with Council support (for example food waste processing, textile recycling, tyre re-processing). In other cases activities are only occurring elsewhere when financially supported by Council or others. Examples include mattress recycling, processing of some construction waste materials.

4.2 Potential material streams

There are several materials streams that could be targeted for processing at the southern landfill.

Potential target materials streams include:

- Mixed recyclables (paper, cardboard, plastics, steel cans, aluminium cans).
- Glass – colour sorted or mixed.
- Organic materials
- Garden organics.
- Food organics.
- Mixed food and garden organics.
- Textiles.
- Mattresses (textiles, steel).
- Construction and demolition materials.
- Tyres.

For each material stream, we have considered materials controlled by Wellington City Council, total materials generated in Wellington City (estimated) and total materials generated metropolitan Wellington (Wellington, Hutt Valley, Porirua, Kapiti).

Feedstock quantities provide a basis for estimating facility space requirements (building and surrounding area). We have used several data sources to develop facility options. These include:

- Published information on recent facility developments around New Zealand (referencing capacity and indicative capital spend).
- Standard calculators for facility space requirements (for example BioCycle).

At a high level, the options we have identified for processing materials are:

- 1 Organic materials processing – in-vessel composting, anaerobic digestion and/or windrow composting.
- 2 Materials Recovery Facility (MRF) – targeting mixed paper, cardboard, plastics and cans with or without glass.
- 3 Glass beneficiation facility – targeting mixed glass collected from households and/or businesses.
- 4 Mattress dismantling and materials recovery.
- 5 Textile processing.
- 6 Tyre processing.
- 7 Construction and demolition materials processing.

In the following sections we have noted space required for Wellington City specific and regional material quantities of the relevant target materials(s). Other considerations for each option are discussed in Section 5.

As noted above, these activities may be suitable for industrial or rural zoned areas across the wider Wellington region. It would be possible to make use of the former Living Earth Joint Venture space and building for each of these options with the space and infrastructure available defining capacity.

4.3 Organic materials

It would be possible to process a range of organic materials in a location with suitable space and buffer distance from sensitive neighbouring land use (residential, offices, schools) could be identified. This includes space available at the Southern Landfill, possibly land zoned for industrial activities and some rural land.

Processing options relevant for potentially available materials include windrow composting, in-vessel composting, anaerobic digestion and vermi-composting. In all cases consideration needs to be given to transport connections for feedstock and products (compost, vermi-compost, digestate and biogas).

Windrow composting

The current windrow composting operation at Southern Landfill processes several thousand tonnes of green waste and some food waste. This could be relocated to the available area at Southern Landfill with windrows in the yard area or placed inside during early stages of composting.

A new site would ideally have around 2Ha available to allow for feedstock preparation, windrows and product screening/storage. Location with respect to neighbouring land use is important with windrow composting ideally located with significant buffer distance from other activities to reduce the impact of any fugitive odour emissions during feedstock preparation, turning of windrows and screening of finished product.

In-vessel composting

The Living Earth Joint Venture operation processed around 40,000 tonnes of material each year (biosolids, separated green waste delivered to Southern Landfill and bulking agent brought in from elsewhere). The process was aerated and mechanical agitated tunnel (in-vessel) composting system with maturation and storage in the yard area.

Our analysis looking at organic materials processing in the Wellington Region suggests there is around 17,000 tonnes per year of

food and garden organics in kerbside waste currently disposed of at Southern Landfill. A capture rate of 50% would provide 8,500 tonnes per year. This is on top of the several thousand tonnes of material currently composted by Capital compost.

Pulling in materials from Porirua, Hutt and Upper Hutt would increase this figure to around 47,000 tonnes per year to landfill and capture of material around 23,000 tonnes per year.

A new site with capacity for the upper end of the figures noted above would require 1.5 – 2.0 Ha of space for feedstock acceptance, in-vessel processing, maturing and product screening/storage. Similar to windrow composting, an in-vessel system should have a reasonable buffer distance from sensitive neighbouring land users to minimise the impact of any fugitive odour emissions.

An in-vessel composting system could be established in the available space at Southern Landfill (building and yard area) with capacity to manage materials generated in Wellington City and the surrounding areas. Key considerations will include managing odorous feedstocks and transport costs for compost product to markets.

Anaerobic digestion

The Ecogas anaerobic digestion facility in Reporoa provides an indicator of the space required for a large scale anaerobic digestion facility. The facility has a design capacity of 75,000 tonnes of material per annum and total area of 2.3 Ha. Food waste from Wellington City has been estimated at around 10,000 tonnes per year, increasing to a total of over 30,000 tonnes when Porirua, Hutt and Upper City materials are included.

50% capture of this material would translate to 5,000 – 15,000 tonnes of food waste requiring processing. 1.5 – 2.0 Ha would be adequate for process food waste from across the region with potential to work with a more constrained site if needed. This could be accommodated at Southern Landfill.

The existing building at Southern Landfill may be suitable for digestion, biogas handling and digestate management. Biogas storage would likely be outside the building. Considerations include managing odorous feedstocks and minimising the transport costs for digestate.

Biogas could be fed into the existing biogas to power facility (adjacent to the Tip Shop). Digestate could be dewatered or transported as a liquid for use in horticulture or agriculture with large scale markets potential accessible in the Wairarapa and Horowhenua and further north.

Vermi-composting

MyNoke are a large scale vermi-composter operating on multiple sites in the North Island. Their model relies on having access to a range of materials (to create the right blend for the earthworms), space and time to allow the worms to process materials.

Based on published information we estimate this model can process in the range 1-2,000 tonnes per Ha each year. This suggests that 5-10 Ha or more would be required to process materials from Wellington City or the broader Wellington area. This means that the available space at Southern Landfill is insufficient for a vermi-composting operation of sufficient scale.

Vermi-composting operations elsewhere in New Zealand are typically located on production land with significant buffer from surrounding land uses. This suggests that this type of operation would be best suited to rural parts of the region. Taking transport connections and markets into account Judgeford, Moonshine Valley or further north (Kapiti, Wairarapa, Horowhenua) are the most likely locations.

4.4 Recyclable materials

It would be possible to process recyclable materials at suitable industrial zoned land or

the space available Southern Landfill. Processing options of relevance include a materials recovery facility for mixed paper, cardboard, plastics and cans or a similar facility with capability to handle a mixed stream including glass.

The Oji facility in Seaview has a capacity of around 35,000 tonnes of mixed paper, cardboard, plastics and cans each year (from across the Wellington Region). The Oji facility comprises a 4,000 m² building with a surrounding yard of approximately 5,500 m².

The New Plymouth MRF provides an indicator for a facility with capacity suitable for Wellington City Council household only materials only (excl glass). This facility processes around 6,000 tonnes per year and is around 3,600 m² with minimal yard space i.e. largely internal storage.

The Timaru MRF is a 2,000 m² facility. The site processes a mixed paper, cardboard, plastics and cans stream and mixed glass with a capacity of around 10,000 tonnes per year. Our analysis suggests that Wellington City contributes around 10,000 tonnes per year of recyclable materials from households and businesses.

Impact of the CRS

As noted in Section 3.8, the introduction of a CRS will have an impact on materials available for processing. The impacts are uncertain but experience in Australia suggests that kerbside materials may reduce significantly. The impact on kerbside materials quantities will depend on target materials but could result in 20-30% reduction in material quantity.

It is also possible that a CRS will primarily impact on containers used outside of homes i.e. have minimal impact on kerbside quantities.

There is some discussion in Australia about using additional capacity in kerbside recycling bins to target other recoverable or recyclable materials. Approaches suggested including upgrading MRF to capturing a wider range of materials and/or bagging materials for removal at a suitable configured MRF. Potential candidates include:

- Soft plastics (bagged) – being trialled in Australia.
- Clothing (bagged).
- Small items targeted by product stewardship schemes, for example coffee pods or small electronics, most likely bagged.

² 5,000 m² at \$1,250 / m² is \$6.25M

4.5 Glass beneficiation

It would be possible to process mixed glass at a suitable facility located in an industrial zone across the Wellington Region or at Southern Landfill. In terms of space required and indicative capital spend, a recent beneficiation plant development in South Australia provides one example with a capacity of 150,000 tonnes of glass per year and capital investment of AU\$25M in 2022. This compares with total glass currently collected in the Wellington Region of around 15,000 tonnes each year. Similar facilities in NSW and Queensland also provide an indicator of the investment and space requirements for a beneficiation facility of suitable scale for the Wellington Region.

Typically facilities are owned by glass packaging manufacturers (such as Visy or Orora) and located adjacent to the packaging manufacturing operations. The facilities in Australasia also tend to be large scale with the existing Auckland facility handling around, 100,000 tonnes of glass each year.

A glass beneficiation plant of a scale suitable for the Wellington Region could be located in industrial zoned land and is unlikely to require all of the building footprint or yard space current available at Southern Landfill. This

means a beneficiation process could potentially work alongside other processing activities at Southern Landfill.

It is also worth noting that the capture rates for glass are high across the country. This means that there is no shortage of feedstock for the beneficiation and recycling plants in Auckland from across the country. This is reflected in the current value of colour sorted glass and represents a risk for any glass processing facility with limited margin between processing costs and material revenue.

4.6 Mattress recovery

Mattress recovery (dismantling) is established internationally and emerging in New Zealand. It would be possible to establish a dismantling operation in Wellington using a suitable warehouse or similar enclosed space. The existing building at Southern Landfill is a potential candidate as are sites in industrial areas across the region. Detailed process design and storage requirements would need to be developed, but a 5,000 m² space is likely to more than adequate for this activity.

The existing building at Southern Landfill is this size, construction of a similar facility elsewhere would likely cost in excess of \$6M²

plus land costs. Leasing costs will vary by location but for a 5,000 m² space are likely to be over \$600,000 per year.

An average mattress is 20 – 30 kg with key components including steel, textiles, foam and untreated timber. The dismantling process tends to be labour intensive with 3R estimating that 90% of materials are recoverable. Council have existing outlets for steel (metal recycling) and untreated timber (potentially chipped for composting/mulch). Markets would need to be developed for other materials.

4.7 Textile processing

It would be possible to process textiles at any industrial space including the building at the Southern Landfill. Typical operations sort textiles into resaleable items (already occurring at the Tip Shop) and a range of material grades suitable as rags or for the manufacture of low grade textile products such as felt, furniture blankets and cushion filling.

Textiles present in landfilled material from Wellington City are estimated at almost 5,000 tonnes each year. At a regional level this increases to over 12,000 tonnes. Source separated material will be easier to process and there is potential to process textiles

removed from residual waste, for example at transfer stations across the region.

Textile Products in Auckland process a range of materials – provided free at their site in Onehunga Auckland. Their finished products including felts, removal blankets, geotextiles, various wadding products and insulation mats.

This type of operation could potential operate in a larger warehousing space alongside mattress recovery or similar activities. As for mattress recovery the existing building at Southern Landfill is potentially suitable.

4.8 Tyre processing

It would be possible to establish tyre processing, or make space available for existing processors looking to establish in the Wellington Region at Southern Landfill. The space required would depend on the ‘catchment’ for tyres to be processed with potential to service Manawatu, Wairarapa and the Wellington Region from Wellington.

4.9 Construction and demolition materials

It would be possible to process mixed construction and demolition materials at Southern Landfill – sorting mixed loads to recover concrete/rubble, metals, timber,

plasterboard and potentially other recoverable materials.

Activity at Southern Landfill could include sorting of mixed loads or focus on processing specific materials. Examples of potential materials for processing include timber (reusable lengths de-nail and/or re-machining) and plasterboard (crushing and contaminant removal).

4.10 Residual waste processing

There are international examples of residual waste processing. These are typically focussed on stabilising degradable materials within the residual waste and recovering recyclable materials such as metals. Examples include a range of variations of mechanical biological treatment (MBT) and mechanical heat treatment (MHT). Thermal treatment processes such as conventional incineration and advanced thermal processes (gasification, pyrolysis) could also be included, converted combustible materials to gas and ash and enabling the recovery of metals from bottom ash or char.

There are also examples of facilities targeting specific materials streams. A facility targeting ‘dry’ construction and demolition materials is an example of this approach with similar materials from other commercial sources also a potential target.

The residual waste processing operation will typically target a relatively low capture rate reflecting the mixed input stream and damage to potentially recoverable materials during collection and transport.

Other points to note include:

- In most case, sorting and processing equipment is under cover or inside a warehouse style building.
- Biological or heat stabilisation processes will produce significant odour, so enclosed processes, odour treatment systems and suitable buffer distances are required.
- While stabilised degradable material may be usable in theory, it often is only suitable for low grade uses (for example mine rehabilitation) or disposal to landfill. This means the benefits may be related to stabilisation and volume reduction rather than diversion.
- Mixed 'dry' materials may be sorted to produce recyclable materials suitable for existing markets, particularly metals.
- Mixed materials including degradable or wet materials are likely to produce low grade recyclable materials. Marketable products may be limited to hard items such as metals and washable plastics.

4.11 Options summary

Most of the options discussed here could be located on land zoned industrial or for similar land use (such as at Southern Landfill). Organic materials processing sites will require a suitable buffer distance from sensitive land uses to address the risk of odour and may be suitable for rural zoned land.

Table 4-1 provides a summary of the options discussed above.

Table 4-1 Options summary

Option	Location	Space	New Diversion	Notes
Organic materials – in-vessel composting	Industrial, Rural	1.5 - 2.0 Ha	>8,000 t	Depends on throughput, Buffer required.
Organic materials – anaerobic digestion	Industrial, Rural	1.5 - 2.0 Ha	>5,000	Food only, depends on throughput, Buffer required.
MRF – glass out	Industrial	0.2 – 0.5 Ha	Existing	
MRF – glass included	Industrial	0.2 – 0.5 Ha	Existing	Product quality impacts (glass fines).
Glass Beneficiation	Industrial	0.2 – 0.5 Ha	Existing	Typically significantly larger scale.
Mattress recycling	Industrial	Warehouse space	300 t (50% capture)	Potential co-locate with other resource recovery activity.
Textile recycling	Industrial	Warehouse space	Existing	Potential co-locate with other resource recovery activity.
Tyre processing	Industrial	0.1 – 0.2 Ha	Existing	
Construction and demolition waste recovery	Industrial	> 0.5 Ha		Depends on throughput, range of possible approaches
Residual waste processing	Industrial		Est 15-20%	Unproven in New Zealand, limited markets for some outputs.

5 Options Assessment

5.1 Approach

We have set out a number of considerations for the options identified in Section 4. For each consideration a range of evidence has been used to evaluate the options. In some cases we have been able to provide a semi-quantitative assessment, in others we have drawn on evidence to provide commentary but no quantified assessment.

Key questions we have considered are:

- Does this option address a gap in current arrangements?
- Is this a commercial opportunity or is processing not commercially viable?
- Are there any implementation risks that need to be considered?
- What are the benefits of this option (emissions, diversion,)
- What are the likely capital costs, operational costs and revenue streams?

Each key consideration is discussed below.

5.2 Organic materials processing

Current arrangements

There are several windrow composting operations in the Wellington Region including Capital Compost at Southern Landfill. These operations can handle green waste but are not able to handle the projected future quantity of food waste and similar material streams requiring processing. We are not aware of any proposals to establish food waste processing closer to Wellington.

Paranui Organics (Foxton) process a range of primary sector materials streams and may be in a position to process food materials. They have been the subject of enforcement action regarding odours and water management.

There is a proposal to establish a wet anaerobic digestion process in Fielding drawing on food waste and similar materials from across the lower North Island. This facility is seeking WMF Grant funding to support establishment and is also reporting access to private sector co-funding.

Based on the comments here, establishing organic materials processing suitable for food waste from the Wellington Region would address a gap in current arrangements. There is potential that a Wellington based operation

would compete with the proposed facility in Fielding and/or Paranui Organics in Foxton.

Establishing organic materials processing suitable for food waste would address a current gap in services available within the (or for) the Wellington Region but may end up competing with similar facilities that are working towards establishment.

Commercial viability

The existing operations and proposed new facility illustrate the commercial viability of organic materials processing in Wellington and further afield servicing Wellington. The existing operations across New Zealand demonstrate that the right combination of gate rate, facility configuration and product marketing organic materials processing can deliver a commercial return.

A new organic materials facility suitable for food waste would be a commercial activity. This means that capital (after any WMF grant funding) and operational costs would be fully funded through user charges. This also means that a Council owned facility could compete with private sector facilities. This is the case with Capital Compost and green waste processing (competing with McMud Earthmovers and Composting NZ).

Establishing organic materials processing suitable for food waste is a commercial opportunity. This means that any new facility may end up competing with other facilities established by the private sector.

Implementation risks

Organic materials, and in particular food waste and similar highly putrescible materials, can be challenging to process. Odour and management of leachate are key focus areas for most facilities. Strategies to manage these include providing a suitable buffer distance from sensitive land uses, enclosing processing (particularly materials acceptance, feedstock mixing and the initial pasteurisation stage of composting) and managing turning of materials.

In addition to processing risk, transport logistics can pose a challenge with feedstock potentially odorous during transport. Suitable processing locations can be distant from materials source (for example kerbside collections), impacting on the gate rate that can be charged for accepting materials.

It is difficult to identify suitable locations for organic materials processing suitable for food waste within the Wellington Area. The Southern Landfill site has neighbouring

³ incorporating amortised capital costs, operating costs and reflecting product sales revenue

residential properties and some history of odour challenges related to specific weather conditions and operational procedures. Other sites close to urban areas are likely to face similar challenges. Rural areas may be more suitable but will pose transport logistics challenges.

Key risks for organic materials processing in Wellington are:

- Processing and transport odour impacts.
- Transport logistics – balancing proximity to organic materials generation with transport impacts.

Key option benefits

Organic materials processing is targeted at producing beneficial products including biogas (anaerobic digestion) and soil amendments (composting, vermi-composting, anaerobic digestion). A key driver from a waste policy perspective is the removal of organic materials from landfill disposal with associated emissions reductions. The diversion and emissions reductions achieved will be defined by the nature and quantity of feedstock.

As noted above, this option has the potential to provide a commercial return to Council

subject to detailed analysis of capital costs, operational costs and product sales revenue.

Key benefits are anticipated to be:

- Enabling Councils and other organisations to divert organic materials from landfill disposal.
- Reducing organic materials loads to landfill
 - Reducing emissions.
 - Reducing odour and leachate risk.
- Council can achieve a (commercial) return on capital and operational spend.

Cost analysis

The costs for this option are highly dependant on the location selected, processing technology adopted and scale of processing activity. We have focussed on processing system with land casts additional to any processing capital costs.

It is important to note that

- Recently published information provides guidance on likely capital costs. Typical gate rates³ are also useful in understanding the likely cost impact for Council.
- Windrow composting is not considered given there are existing operations and this

approach is not suitable for large quantities of food waste.

In-vessel composting

In-vessel composting example developments include the Living Earth/Christchurch City council plant at Bromley (currently considering re-location), Timaru District Council composting facility and Enviro NZ's composting facility at Hampton Downs (Waikato).

Adopting an 8% finance rate and 25 year asset life suggests amortised capital costs in the range \$30 – over \$100 per tonne. The lower end of the range is based on the Timaru system, employing covered windrows and forced aeration. The higher end of the scale reflects published costs for the relocation of the Christchurch City Council facility and includes an allowance land purchase alongside a fully enclosed processing system with extensive odour management arrangements.

Timaru covered windrow operation would be best suited to a rural location or site with large buffer distance to neighbouring land users. More constrained sites will require more complex odour containment including for maturation stages of the composting process.

⁴⁴ Mark Abott Consulting Analysis

Operational costs will be in the range \$50 - \$100 per tonne of feedstock, depending on the processing approach adopted. Quality compost will sell in the range \$50 - \$100 per m³ (\$100 or more per tonne).

In both cases cost on a per tonne of feedstock processed will increase for smaller scale processing. Table 5-1 summarises the application of these numbers to aerated static pile and in vessel facilities for 50,000 tonnes each year⁴.

As noted above, the lower capital and operational costs reflect a relatively simple approach, most suited to rural areas or large sites with a large buffer between processing

As noted above, the lower capital and operational costs reflect a relatively simple approach, most suited to rural areas or large sites with a large buffer between processing areas and neighbouring land users. The higher costs are likely to be reflective of the investment require to establish an operation at Southern Landfill⁵.



Figure 5-1 Timaru composting facility

Table 5-1 Composting indicative cost ranges

Component	Aerated static pile	In-vessel composting	Note
Throughput	50,000 TPA	50,000 TPA	WCC, PCC, HCC
Capital	55 M	70 M	Covered, aerated windrow / Fully enclosed
Operating	\$50 / t	\$100 / t	
Product value	\$505 / m ³	\$80 / m ³	Needs to account for transport to market
Indicative gate rate	\$100 / t	\$180 / t	Covering capital and operating costs i.e. assuming minimal revenue on sale.

⁵ This costs reflect a new development, there may be capital cost savings where existing building or equipment can be used.

Anaerobic digestions

With limited examples of anaerobic digestion plants focusing on food waste available, developing a reasonable cost range is difficult. Published costs for the EcoGas facility in Reporoa (processing food waste from Auckland) is \$42M in 2022. Based on published capacity numbers this translates to an amortised capital cost of around \$50 per tonne.

The EarthPower facility in Sydney provides another indicator. The site was developed in 2003 with a reported capital cost of AU\$35M. This would translate to NZ\$75-80M or an indicative amortised cost of around \$145 per tonne. This higher cost in part reflects the Sydney location.

Processing costs are anticipated to be at the higher end of the range noted for in-vessel composting reflecting the active management of the digestion process and digestate handling required. Revenue will also be relatively high based on use of biogas (off setting other energy sources) or sale of biogas. A facility would ideally be located where biogas can be used in existing power generation or heat plant.

Using the Ecogas and Earthpower figures provides a basis for some indicative cost ranges for anaerobic digestion.

Table 5-2 Digestion indicative cost ranges

Component	Lower	Upper	Note
Throughput range	5,500 TPA	50,000	Lower, WCC only, Upper WCC, PCC, HCC
Capital cost	10 M	35 M	Lower EcoGas, Upper 30,000 TPA, Earthpower
Revenue	\$30 / t	\$50 / t	Digestate minimal value, biogas
Indicative gate rate	\$200 / t	\$150 / t	Covering capital and operating costs

An anaerobic digestion facility will need to be designed and located to manage odour risk. This implies an area with primary processing activities or similar activities, for example waste management or wastewater treatment.

5.3 Recyclable materials processing

Current arrangements

As noted previously, there is a single materials recovery facility processing kerbside and commercial recyclable materials in the Wellington Region. Based on discussions with collection contractors for the WCC Re-Designing collections project we understand that other companies are considering establishing process capacity that could service the Wellington Region.

The consent application material for Waste Management's proposed development in Manor Park (Lower Hutt) includes a 2,500 m² 'MRF Operations Warehouse' and a 1,600 m² space for building and construction

operations. The public material suggests provision for basic sorting (materials handler, baling) rather than a multi material sorting process as currently implemented by Oji in Seaview.

The interest in investment by the private sector indicates that there is a gap in the market – driven by access to the existing facility and potentially the current pricing structure. This means that establishing a materials recovery facility for mixed recyclable materials from the Wellington Region would replicate (or refine) the current arrangements. A new Wellington based operation would compete with the existing Oji Fibre Solutions facility in Seaview and with any new facilities established by the private sector.

If Council opts for a single bin, mixed recycling collection (glass included) there is no facility in Wellington that can process the collected materials. In this scenario there is a gap in the market that Council could address in establishing a suitably configured materials recovery facility. The collection and processing of a fully mixed stream has implications for

markets for fibre (paper/cardboard, likely impacted by glass fines) and glass (significant proportion of glass fines and/or mixed colour glass that is not suitable for recycling into new glass containers in New Zealand).

Commercial viability

The existing operation and possible new facilities illustrate the commercial viability of recyclable materials processing in Wellington and further afield servicing Wellington. The existing operations across New Zealand demonstrate that the right combination of gate rate, facility configuration and links to product markets can deliver a commercial return.

A new recyclable materials facility suitable for paper, plastics and cans would be a commercial activity. This means that capital (after any WMF grant funding) and operational costs would be fully funded through user charges. This also means that a Council owned facility would compete with private sector facilities. Scale will be important with as facility processing materials from Wellington City losing some economies of scale compared the a regional facility.

A facility suitable for a fully mixed recyclables stream may be commercially viable subject to negotiating suitable processing charges. As noted above, some product streams are likely

to be more difficult to market suggesting processing costs will need to be higher than a paper/card, plastics and cans only sorting facility.

Implementation risks

A materials recovery facility can be located in suitable zoned industrial land/warehouse space across the wider Wellington region. Key considerations from a consenting perspective will be logistics, traffic movements (materials drop-off, product to markets). If the facility is targeting materials from across the region a centrally located site (for example in Ngauranga Gorge) may be preferred. For Wellington City a similar location would work well balancing distance from Tawa, Karori and the eastern and southern suburbs.

An important consideration is the trading of materials separated through the facility. This requires access to markets in New Zealand and off shore. The commercial model for the facility needs to provide for variations in material value over time relating to commodity markets (New Zealand and International) and the quality of product achieved at the facility.

A key issue is markets for glass. Glass managed as a kerbside sorted stream is currently shipped to Auckland for processing with a small return to Council after processing

and shipping. Glass from a full mixed recyclables processing line is likely to be a cost to Council after shipping and processing through beneficiation in Auckland. Local reuse (as an aggregate replacement)

As noted previously, the implementation of a Container Return Scheme in New Zealand will have an impact on the materials passing through a materials recovery facility. The scheme is likely to target higher value kerbside streams (PET and aluminium cans) meaning that the feasibility analysis should consider the impact of reduced quantities of these materials.

Key option benefits

The benefits of this option for Council include having control over the handling of recyclable materials collected at kerbside and through the Southern Landfill drop off area. Where the facility also processes commercial recyclables Council will have improved visibility of commercial recycling activity within Wellington City.

Key benefits are anticipated to be:

- Control of the processing and marketing of recyclable materials including visibility of end markets.
- Improved visibility of commercial recycling in Wellington City.

- Council can achieve a (commercial) return on capital and operational spend.

Cost analysis

The current arrangement with Oji Fibre Solutions for processing of materials from Council kerbside collections provides an indicator of current costs in Wellington. These costs include an unspecified margin for Oji Fibre solutions.

With current materials value Council is received a small rebate from processing i.e. the sale of materials produced by MRF off set processing cost including transport of materials and disposal of residual waste (contamination) collected with recyclable materials.

The New Plymouth MRF noted earlier, a facility with capacity suitable for Wellington City Council household only materials only, was developed with approximately \$4M capital investment in 2015.

The Timaru MRF was completed in 2022 with a capital investment of around \$4M This facility has a capacity of around 10,000 tonnes per year similar to the estimated 10,000

⁶ Based on reported investment in Timaru and New Plymouth, the amortised capital cost per tonne is likely to be in the range \$50 - \$100 per tonne processed.

tonnes per year of recyclable materials from households and businesses in Wellington City.

Drawing on the reported capital costs we expect that a facility sized for Wellington City materials (kerbside and commercial) would require capital investment in the \$5 - \$10M. This would increase to \$XX - \$YYM if the facility was sized to process materials from across the Wellington Region.

The current processing cost for mixed recyclables excluding glass is around \$260 per tonne including disposal of contamination. This is consistent with our assessment of the impact of capital investment⁶ and operational costs for a MRF of this type.

A facility capable of processing glass will have a significantly higher throughput⁷ and potentially reduced product value as noted above. This means that capital cost will be higher and operational costs will scale with the quantity of materials processed.

We have used data from Council's current processing contract to provide an illustration of processing cost (including an allowance for amortised capital cost) and revenue. We have used the same base data to provide an indication of how this would change for a MRF

⁷ Glass makes up around 40% of the total collected materials by weight.

processing mixed recyclables including glass. Figure 5-2 presents processing costs and revenue only. It is important to note that a single bin mixed recycling collection will be lower cost than a bin and kerbside sorted glass crate or glass only bin. This means that while the picture looks less positive for mixed recycling including glass processing this may not be the case when collection costs are also considered.

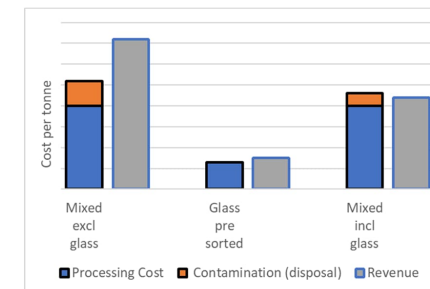


Figure 5-2 Indicative processing costs and revenue

5.4 Glass beneficiation

Current arrangements

Glass collected for recycling in the Wellington Region is colour sorted at kerbside

(Wellington, Lower Hutt, Kapiti) or by collection contractors. This material is then sent to Auckland for further processing in Visy's beneficiation plant prior to manufacturing into new glass packaging. Some material is collected as a mixed stream (Porirua kerbside, commercial and multi-unit collections). Some of this material is partially sorted and sent to Auckland for further processing. Other material is treated as contaminated material and disposed of to landfill.

This means that there is a gap in that there is no beneficiation occurring in Wellington. We are not aware of any proposals to establish a beneficiation process in Wellington (or elsewhere in New Zealand) beyond the existing facility in Auckland.

Commercial viability

As noted in Section 4.5, glass beneficiation plants are typically located in close proximity to glass packaging manufacturing facilities and target high volumes of glass. This reflects the relatively low value of the product and the impact of logistics (glass is relatively heavy with associated transport costs).

The total quantity of glass 'available' in Wellington is estimated at 20,000 t with current kerbside quantities in the range 5,000-10,000 tonnes each year. This is

significantly lower than existing beneficiation plants are design to process.

As noted above, there is a significant amount of glass captured for recycling across New Zealand providing feedstock for the glass recycling process in Auckland. This has the impact of maintaining a relatively low price for recycled glass.

This suggests that glass beneficiation is unlikely to be commercially viable for materials available in the Wellington Region alone.

Other matters

Because our analysis concludes that there is insufficient glass available in the Wellington Region to make beneficiation viable in Wellington we have not considered the other matters.

5.5 Other recovery activities

In Section 4 we have noted several other materials streams that could be targeted by recovery activities. These activities are not currently occurring in Wellington (mattress recycling) or there is potential to expand or introduce complimentary approaches to current activity (textile recycling, tyre processing, construction waste processing).

Mattress recycling

Services for removal of mattresses are available and All Heart NZ are working with bedding manufacturers on a trial take back scheme (free to consumers). There is no specific data on mattress disposal in Wellington but based on available services and national estimates there are likely to be a significant amount of mattresses still disposed of to landfill from Wellington City.

The involvement of manufacturers and All Heart NZ indicate that mattress recycling is not commercially viable.

From an infrastructure perspective, the key requirement is covered space. This is required for

- Storage of incoming mattresses.
- Processing of mattresses – removal of textile cover, padding, springs and timber.
- Storage of separated components, particular those that are not suitable for outside storage – textiles, padding, timber.

The core benefit of undertaking mattress recycling is diverting materials from landfill disposal alongside retaining those materials in circulation. The trial work completed by All Heart reported almost 80% recovery and international initiatives have reported up to 90% recovery of materials. Mattress recycling

will also create jobs for unskilled labour as well as supervisory positions.

The capital cost requirements are low for mattress recycling, limited to dismantling equipment and generic warehouse/processing space. Operational costs will be dominated by staff costs with equipment, consumables and residual materials disposal also likely to be significant. Current pricing for mattress disposal (around \$100 per mattress) is a good indicator of operational costs.

Textile processing

Textiles unsuitable for reuse in their original form or as rags are currently shipped out of Wellington (off shore or to other parts of New Zealand) for re-processing. We are not aware of any re-processing activity in Wellington. Any re-processing in Wellington will compete with operations elsewhere in New Zealand.

Re-processing activity elsewhere in New Zealand illustrates that textile recycling can be commercially viable although scale is likely to be an important factor. Relatively small scale re-processing activity in Wellington may require ongoing funding i.e. revenue from sale of reprocessed materials is unlikely to cover the full cost of processing.

From an infrastructure perspective, the key requirement is covered space. This is required for:

- Storage of incoming materials.
- Processing of materials – removing non textile components (zips, buttons), shredding, manufacture into new products.
- Storage of intermediate product and finished product.

The core benefit of undertaking textile recycling is diverting materials from landfill disposal and retaining those materials in circulation. Textile Recycling report that around 1% of the materials they receive (no longer suitable for reuse) are disposed of to landfill. Textile recycling will also create new jobs for unskilled labour, machine operators and supervisory positions.

The capital cost requirements will depend on the processing undertaken. Shredding of incoming textiles will require a suitable shredder and associated dust control measures. Each end product will require suitable machinery, for example felt production line or foam boxing machine. Operational costs will be dominated by staff and equipment costs. Consumables and residual materials disposal also likely to be significant.

Subject to more detailed analysis, we anticipate that individual process steps are likely to involve machinery in the order of \$100 – 250,000 for each process step. This suggests that on top of warehousing space

machinery costs for an operation involving shredding and several end products is likely to be in excess of \$1M.

The business model for Textile Products relies on clean input materials delivered to their site at no cost and established markets for their end products. A processing operation in Wellington may benefit from a partnership with an established operator. Target textiles in the residual waste stream may be possible, most likely involving a washing step to ensure that feedstock for end product manufacturing is clean i.e. similar to source separated material.

Tyre processing

Tyres from the Wellington region are variously transported to Whangarei for use as tyre derived fuel, shredded for bedding (e.g. in horse arenas) or baled for export. With tyre shops charging a tyre disposal fee and several companies offering collection services it is clear that tyre collection and processing is commercially viable. This means any Council operation would compete with existing services.

Given all material is currently exported from the Wellington Region there is potential to establish processing within the region. This has the potential to improve transport logistics, shifting from transporting full tyres to processed material, typically at a much

higher density. Treadlite (Cambridge) have indicated they are considering establishing a processing operation in Wellington. New Plymouth District Council are providing space for Treadlite to establish a tyre processing operation at their Colson Road Commercial Waste facility (the Sorting Depot)

Tyre processing can take place in a suitably zoned land (industrial or heavy commercial) across the Wellington Region. Key implementation risks include access to markets and ensuring materials are processed as they arrive to avoid creating stockpiles that exceed thresholds set by the National Environmental Standards for storing tyres outdoors.

Published information on the Treadlite's facility in Cambridge suggests capital costs for processing equipment will require investment in the range \$3-5M with the ability to process 5,000 tyres per day⁸. There is no data available on tyres generated in the Wellington Region but Tyre Disposal Services (now part of Treadlite) have reported collecting around 2,500 tyres a day in the lower North Island.

Construction and Demolition

Construction and demolition material in the Wellington Region is currently disposed of at dedicated disposal sites (C&D Landfill, TnT

Landfill). There is limited sorting or recovery of material reflecting low cost disposal and relatively cheap combined aggregate and transport costs from Kiwi Point and Horokiwi Quarries.

Porirua City Council have led a regional project to establish C&D waste processing at Spicer Landfill with 'feeder depots' in Kapiti and Lower Hutt. The future of the existing disposal sites is uncertain with TnT Landfill schedule to close and C&D Landfill yet to confirm a proposed expansion.

There is potential sort and process material within Wellington City. This could link to the regional network being established by Porirua City Council or act as a standalone operation. Key products typically included recycled aggregate (already produced at Kiwi Point Quarry), metals and reusable timber. Available materials with limited existing markets include insulation, plasterboard and mixed or treated timber.

Capital investment for C&D process is highly dependant on the level of processing undertaken. Concrete crushing requires a crusher, screen (to produce products to specification) and excavator/loader for move materials. Sorting can be a simple excavator/grab arrangement on a compacted

aggregate or concrete slab sorting area. Covered storage is likely to be required for some materials (plasterboard, reusable timber). Sorting lines increase cost with automation adding additional complexity and cost.

Recognising the range of potential approaches, capital cost could range from several million to several 10s of millions. Processing cost will be in the range of \$25 - \$100 per tonne depending on scale and complexity of the sorting operation. The higher processing cost will only be justified where high value materials (metals, native timbers) are recovered.

Residual waste processing

If Council are to meet the diversion targets set out in the Zero Waste Strategy, collection of recyclable and organic waste materials at kerbside and through the recovery operations at Southern Landfill. There is limited dry waste sorting occurring in Wellington (Daily Waste in Kaiwharawhara, proposed by Waste Management at their new Manor Park facility). There is no sorting of mixed general waste occurring in New Zealand.

The commercial model for mixed waste sorting internationally relies on avoided

⁸ An average 15kg per tyre translates to 75 t per day.

disposal costs (influenced by waste levy and emissions trading scheme costs) and revenue from recovered materials.

The quantity of materials for disposal are reduced by removing materials for recycling and in many cases by reducing the weight and volume of degradable material through biological or heat treatment

- Metals recovered from mixed waste (2-5%) are suitable for trading with other scrap metal.
- Other materials (plastics, rubble) are likely to be contaminated with organic and/or hazardous materials and therefore have limited markets.
- Stabilised degradable material and residual waste are likely to require landfill disposal.

With relatively low material value the savings in landfill disposal costs need off set processing costs. Processing costs will reflect sorting costs, any stabilisation process and any revenue from sale of recovered materials. These costs will be function of throughput, approach adopted and any downstream upgraded of recovered materials.

A residual waste processing facility could focus on dry waste (similar to a construction waste sorting facility). This represents the lower end of investment required, processing costs and also recovery achieved.

A facility could also be configured to process mixed general waste. A common approach adopted internationally involves:










- An automated sorting process (similar to conventional Materials Recovery Facility) to remove metals and other saleable products.
- Biological (aerobic or anaerobic) or heat treatment to stabilise degradable materials including paper/cardboard, food and garden waste).

This type of facility is both capital intensive and expensive to operate. Internationally these facilities have been developed where disposal costs are high (over \$300 per tonne) and there are strong policy drivers such as mandatory targets.

International information suggests that capital cost for a 50,000 tonner per year facility is likely to be in the range \$15M – over \$50M depending on configuration. Gate rates are likely to be in the range \$150 - \$300 per tonne.

5.6 Assessment summary

Table 5-3 Assessment summary

Option	Existing	Commercially viable	Implementation risks	Benefits	Capex	Opex
Organic materials – aerated static pile	✘	✓	Site, Odour, Logistics	CO ₂ , \$, 	Est \$55M	\$80 - \$120 / t
Organic materials – in-vessel composting	✘	✓	Site, Odour, Logistics	CO ₂ , \$, 	Est \$70M	\$80 - \$120 / t
Organic materials – anaerobic digestion	✘	✓	Site, Odour, Logistics, Energy user(s)	CO ₂ , \$, 	Est \$35M	\$120 - \$150 / t
MRF – glass out	✓	✓	Logistics, CRS	\$, Control	Est \$5-25M	\$200-\$250 / t
MRF – glass included	✘	?	Logistics, CRS	\$, Enable collections	Est \$10-25M	\$200-\$250 / t
Glass Beneficiation	✘	✘	Scale, CRS	\$ 	NA	NA
Mattress recycling	✘	?	Markets		NA	Est \$100-150 per mattress
Textile recycling	✓	✓	Markets		Est \$1-5M	Est \$50-\$100 / t
Tyre processing	✓	✓	Scale, Markets, Logistics	\$, 	Est \$3-5M	Est \$100 - \$150 / t
Construction and demolition waste recovery	✓	✓	Scale, Markets, Processing approach		Est \$5-25M	Est \$25-100 / t
Residual waste processing	✘	✘	Scale, Odour, Markets, Technology	CO ₂ , 	Est \$15 - > \$50M	Est \$150 - > \$300 / t

Benefits:


- CO₂ delivers emissions reductions
- \$ potential revenue stream for Council
-  Increased material capture

Table 5-4 Option advantages and disadvantages

Option	Advantages	Disadvantages	Comment
Organic materials – in-vessel composting, aerated static pile	Addresses a gap in current arrangements Can provide a 'commercial' return	Requires site with suitable buffer distance High capital cost Requires secure markets (not Council core skill)	
Organic materials – anaerobic digestion	Addresses a gap in current arrangements Can provide a 'commercial' return	Requires site with suitable buffer distance High capital cost Requires secure markets (not Council core skill)	
MRF – glass out	Can provide a 'commercial' return	Replicates existing facility in the Wellington Region CRS impacts are uncertain High capital cost Requires secure markets (not Council core skill)	
MRF – glass included	May provide a commercial return Would enable a single bin recycling collection	Market risk for paper/cardboard and glass Requires secure markets (not Council core skill) High capital cost CRS impacts are uncertain	
Glass Beneficiation	Addresses a gap in current arrangements	CRS impacts are uncertain Unlikely to have sufficient scale Anticipated very High capital cost	Over supply of glass in NZ is a significant factor
Mattress recycling, textile recycling	Addresses a gap in current arrangements Could potentially co-locate with similar activities Low capital cost	Requires access to markets for materials	Co-located recovery activity (mattress recycling, textile recycle)
Tyre processing	Addresses a gap in current arrangements	Requires access to markets for materials	
C&D waste recovery	Addresses a gap in current arrangements Potential lower capital investment approach	May compete with proposals already in development Requires access to markets for materials	
Residual waste processing	Addresses a gap in current arrangements	High capital and operating costs Requires markets for materials	

6 Implementation considerations

6.1 Operations approach

Operating context

The broader operating environment for waste and materials recovery in the Wellington region is an important consideration in developing operating models for each of the new facilities. Any new facilities will 'compete' with waste disposal and other resource recovery activities in the region (largely Porirua, Kapiti, the Hutt Valley and Wellington City). The options available to households and businesses vary by material stream. Decisions on materials handling are influenced by direct cost (gate rate) as well as transport distance.

Council vs contractor delivery

When considering options for operating a resource recovery facility there are multiple possibilities. These include:

- In house – operations managed and delivered by Council employees.
- Contracted – operations delivered by a contractor or community organisation under Council direction. This could take the

form of a conventional operations contract (NZS 3917, NEC or similar) or a collaborative framework.

- Partnership model with the private or not for profit sector – operations delivered by the private sector with varying levels of Council control. Examples range from contracted operations (as above) is to Council using private sector owned infrastructure to deliver public services.
- Leasing land or a facility to a private operator for them to operate independent of Council.

- Procuring processing of materials i.e. contractor owned and operated facility.

The selection of the appropriate approach for a facility is critical to achieving the objectives of the investment. In some cases a facility would compete with existing private sector facilities meaning operation by Council staff has the advantage of avoiding the perception that the facility is under contractor control. This and other advantages and disadvantages are presented in Table 6-1.

Table 6-1: Contractor vs council staff

	Contractor operated	Council staff
Advantages	<p>Provides access to resource recovery expertise across the contractor organisation.</p> <p>Provides access to suitable plant and equipment including back up equipment.</p> <p>Potential to share plant and operators with other activities.</p>	<p>Operational activities do not need to return a profit.</p> <p>Potential to combine operational management with other council activities.</p>
Disadvantages	<p>Operation not 100% in Council control.</p> <p>Contractor will charge a margin on time, costs and plant.</p> <p>Commercial imperatives are potentially stronger than waste diversion focus.</p> <p>Commercial operator will charge a margin to address risk.</p>	<p>May require specialist equipment - could be sub-contracted.</p> <p>Requires employment of specialist staff (machine operators, materials sale/marketing).</p> <p>Council does not have existing skills or relationships for marketing of recovered materials.</p>

Level of control over operations

Council retaining full control of the facility, including for pricing and markets for materials, allows the operator to focus on maximum use of the facility and waste diversion. Council can also invest to support and develop markets with community organisations, grants and/or industry engagement. Council taking responsibility for marketing materials carries some risk, this means an approach where the operations contractor owns, and trades materials may be preferred.

For some options, operators with extensive materials processing experience are likely to be an attractive option for Council, drawing on the contractor's operations experience and access to markets. For materials without existing markets (in or accessible from Wellington) Council and/or a contractor will need to develop suitable products and establish markets. Any contract needs to provide incentives to develop new markets i.e. reward materials recovery and increasing quality/value of materials recovered.

Contracting approach

Where operations are contracted, a range of contract models can be adopted. Examples include:

- A conventional operations contract with a well-defined specification – the contractor is required to undertake specific activities. This can use a range of contract forms include NZS 3917, NEC or similar.
- A collaborative framework focussed on outcomes rather than specified activity. Examples open book or alliance style arrangements that may use modified conventional contract forms or bespoke terms.
- Processing services delivered by the contractor on agreed cost of service (per tonne rate, availability, ...). This can take the form of a simple agreed cost at a contractor owned and operated site, leasing of Council land to develop a processing operation or operation of a Council developed site.

Where a partnership model is adopted the level of control will influence the contract form adopted. There is potential for an operations contractor to have a role in, or deliver completely, detailed design and/or construction of the facility to be operated as part of the partnership arrangement. This is relevant for contracted operations and for other examples of partnership style arrangements. Table 6-2 notes how various approaches link to the level of control exercised by Council.

Council should seek legal advice on the form of contract employed. We have worked with the NZS 3917 framework to develop outcomes-based contracts including risk allocation (related to markets and market development). We have also worked with bespoke contracts to deliver a similar framework.

Regardless of the contract approach adopted, Council will need to work closely with the operator of any facility to maximise the recovery of materials and develop new markets. This means the agreement and delivery of services needs to provide for a collaborative and flexible approach.

Facility construction

Where a facility is to be developed, it will be possible to procure design and construction as separate packages, as a combined package (Design – Build) or in combination with operations (Design Build Operate or DBO).

It is also possible to introduce financing components, for example procuring a contractor design, build, own and operate a facility. This is often for a defined period with ownership transferred to the principal (Council) at the completion of the arrangement (Design – Build – Own – Operate – Transfer or DBOOT).



Table 6-2: Contract Models

Approach	Defined specification	Outcomes based specification	Agreed processing cost basis
Design / Construction / Operations	✓	✓	✓
Design-Build / Operations	✓	✓	✓
Design-Build-Operate (DBO) ⁹	~ ¹⁰	✓	✓
Lease site for development			✓
Procure processing			✓

Decreasing control

Incentivising recovery

For any facility a key objective is to increase the recovery of materials. This relies on the capture of materials at a quality that meets market requirements and secure markets for materials. Operations arrangements need to be designed to ensure that there is effective collaboration for all involved in the facility operations to maximise recovery.

To maximise recovery, there are several components that should be considered:

- Clearly stated service objectives, so all involved in the service have a common understanding of what is to be delivered.

⁹ Council retains ownership of the facility, an alternative or variation is a Design-Build-Own-Operate-Transfer (DBOOT) where the contract develops and operates the

- Appropriate collaboration arrangements in the contract. This should provide a mechanism for stepping away detailed service delivery considerations and focus on the RRN objectives.
- Clear KPIs, linked to service objectives (including innovation) and with incentives and penalties to ensure meeting the KPIs is a focus for the operations staff and management.
- Provision for innovation – we are aware of contracts and partnerships where there is provision for funding innovation that supports the broader service objectives. For example, Council may make provision for an innovation fund that can be used to develop new methods to capture materials

site with ownership transferred to Council at the end of the contract term.

or develop markets. Access to 'innovation funds' could be subject to a simple investment case that is reviewed and approved by the contract governance group.

- Incentives – in addition to rewards or penalties associated with KPIs, it is possible to define incentives directly related to materials recovery and associated costs or savings. An example could be payment based on a share of avoided disposal costs (including levy and ETS) for any 'additional' diversion achieved at the facility.

Facility construction

For basic infrastructure (yards, processing buildings/warehousing) the focus should be on securing best value for money through clear quality measures, alongside pricing a defined scope of work. The required civil (roads, utilities) and structural (buildings, retaining walls) construction work.

For more complex facilities, processing equipment and overall process design is likely

¹⁰ DBO and DBOOT are likely to be outcomes based, particularly for the operations component.

to be more specialised. This means design is likely to be most effectively delivered in close consultation with one or more specialist equipment suppliers. Construction of the processing equipment will require appropriate enabling works (as part of civil works) with equipment installed and commissioned by the selected equipment supplier.

If Council staff will operate a site, then a Design-Build arrangement may be appropriate although it is more likely that construction will be a conventional build only contract for civil and structural works with specialist equipment installed by the supplier or under their direction.

Selection of the processing approach could involve the operator of the site, implying that they have involvement in the design and construction of the facility. This could take the form of a Design-Build-Operate arrangement or appointing the operations contractor prior to confirming the processing approach so they can be involved in the design process.

6.2 Operating model

Governance vs. delivery

The focus of this analysis is on the impact of governance models on the key objectives for the RRN (capture of materials for diversion, managing risk and delivering broader

community outcomes. The relationship between the governance model and the arrangements for delivery of services (in house or contracted) are closely related. A key distinction is the drivers for behaviour.

- Those tasked with exercising governance over facility or network of facility in operation are required to consider the best interests and objectives of the organisation that they represent.
 - Those representing a local authority need to consider community outcomes and objectives as set out in the Council's Long Term Plan and other relevant strategic documents.
 - Those representing a private entity need to deliver the best outcome for shareholders, typically combining an acceptable return on investment alongside other strategic objectives. A key objective for most private sector entities is maximising profit while delivering on other strategic outcomes.
- Those tasked with delivering services will focus on delivering agreed activities for a defined price (typically set out in a Service Level Agreement or Contract). For the private sector the price should provide for a reasonable profit margin.

The role of a delivery contractor

For the options identified in Section 4, we suggest that Council should work with external contractors to ensure that the appropriate skills are available and to secure access to markets for target materials. This means that the operating model options have been considered in the context of contractor delivery of services.

In our view, the operating model should:

- Focus on cost effective delivery of Council objectives.
 - Efficient and effective service delivery (business discipline).
 - Capture of materials for recycling or recovery.
 - Create economic opportunity.
- Encourage and enable innovation including looking for opportunities beyond what is simply commercially viable.

For this discussion, we have assumed that facility development is a Council initiative. This means the focus is on how Council will ensure appropriate governance is in place and any role a contractor partner may have from a governance perspective. This is distinct from a contractor having a role in delivery of services with appropriate key performance indicators and incentives.

Private sector partners

A key decision, that will inform the operating model options, is whether Council wants to enter into a formal partnership with a private sector partner (who would operate and potentially part own a facility). A formal arrangement with a private sector partner could take the form of a CCTO (Council as the controlling party) or other structures such as a Limited Partnership, Limited Liability Company (Council not a controlling party) or unincorporated Joint Venture.

For a partnership with the private sector, those in governance roles would be expected to focus on the matters noted above (cost effective delivery, innovation) and delivering a return to their respective organisations. The benefits of this approach include a focus on commercial discipline including delivering on outcomes agreed with the owning entities and maximising return. For this approach careful consideration needs to be given to ensure that commercial and non commercial objectives are given appropriate weight at a governance level.

Examples of local authority and private sector partnerships include:

- The Northland Regional Landfill Limited Partnership (NRLLP, a CCTO). NRLLP is a joint venture between Whangarei District Council and Northland Waste Limited.

NRLLP owns Puwera Landfill and the ReSort Resource Recovery Park in Whangarei) and contracts the private sector partner to operate the assets.

- Transwaste Canterbury Limited (a CCTO). Transwaste is jointly owned by several Canterbury Council and Waste Management New Zealand Limited and is the owner of the Kate Valley Landfill with Waste Management NZ contracted to operate the landfill and transport waste from partner transfer station.

Local government partners

There is potential for other local organisations to be involved in resource recovery facility development at an operating model level.

Formal partnership between local government organisations can take place under the oversight of a Joint Committee established under the relevant provisions of the Local Government. This involves an agreement between the participating organisations and may involving delegation of some decisions from the individual local authorities. A joint committee provides governance or oversight but cannot own assets.

There is also potential for a CCO or CCTO to be jointly owned by two or more local authorities. The CCO or CCTO is a discrete entity, often employing business management

approaches including competency based board setting direction for the organisation, to deliver specific services or activities for the owner Council(s) and potentially other parties. A CCO or CCTO can manage assets on behalf of owning Councils or own and manage its own assets. A CCO can also seek its own funding if required although CCO financials form part of each owning Council's financial position.

In both cases, there is potential for the participation (Joint Committee) or ownership (CCO/CCTO) to change over time. This means that Council could establish an entity with other Council partners joining at a later stage.

Examples, in addition to Transwaste, of CCO/CCTO jointly owned by multiple local authorities include:

- Wellington Water Limited (WWL) – a CCO established to manage water assets for owner Councils. WWL deliver a range of service with their own staff and also work with consultants and contractors.
- BOPLASS Limited is a local authority shared services focused limited liability company jointly owned by local authorities across the Bay of Plenty Region.
- Co-Lab (formally WCLASS) is a local authority shared services focused limited liability company jointly owned by local authorities across the Waikato Region.

Discussion

If Council is seeking formal partnership at operating model level with service delivery contractors the partnership approach will need to be defined. If not, a conventional project development and governance approach is likely to be fit for purpose while any facility remains a Wellington City Council initiative.

If Council progresses with contractor delivery of a Wellington City only facility, moving to a CCO or CCTO structure would mitigate some commercial risk but at some cost for establishing a new management structure to then manage one or more service delivery contract(s). Council does not have an existing CCO or CCTO that could pick up this role. If facilities are restricted to Wellington City Council ownership/partnership, establishing a CCO to manage service delivery is unlikely to provide good value for money.

If Council is seeking a formal partnership with service delivery contractor(s) a new model will need to be adopted. A CCTO model is one that has been adopted elsewhere and should be considered further for this scenario. More complex arrangements such as a limited partnership offer similar benefits (business

discipline, some separation from Council) with additional complexity.

If Council anticipates partnering with other local authorities moving to a Joint Committee or jointly owned entity are both possibilities.

Council participates in several existing Joint Committees¹¹ with oversight but limited decision-making roles. With a collaborative operating model involving a Joint Committee, one of the participating Councils or another entity would need to provide contract management for service delivery.

A jointly owned CCO or CCTO would be able to set direction for investment and operations and provide for pooling expertise and coordinate delivery of similar initiatives with partners. Partners joining a CCO would provide a mechanism for introducing new local authority partners and an entity for managing contracts for service delivery. The CCO structure provides for limited liability structure that mitigates risk for Wellington City Council and other local government partners.

A pragmatic approach could involve exploring of potential investment and partnership opportunities under the existing

arrangements (in-house management) with a view to potential future partnerships.

¹¹ Including the Wastewater Treatment Plant and Landfill Joint Committee | Komiti Ngātahi Mihini Whakapai

Waipara me te Ruapara and the Wellington Region Waste Management and Minimisation Plan Joint

Committee, Wellington Regional Transport Committee, Wellington Water Committee

7 Next steps

The discussion presented in this report identifies a number of possible materials recovery activities that Council could undertake or support. Some of the options are commercial activities, these are an opportunity for Council to recover materials and provide a return on investment. Other options are unlikely to be commercially viable i.e. would require Council investment to deliver resource recovery with no commercial return.

In determining which options to progress, Council needs to consider:

- Whether to undertake commercial activities, alone or in partnership with others.
- Council's ability to contribute capital, land, and/or feedstock to support an investment.
- The potential to locate one or more activities at Southern Landfill.
- Alternative locations (industrial or rural zoned as appropriate) for processing activities.
- Potential partnership models in more detail.
 - With other local authorities.
 - With the private sector

To progress, the key next steps are to:

- Confirm the Council view on the considerations noted above.
- Complete more detailed analysis of one or more options. This will focus on:
 - Available feedstock.
 - Improving capital and operational cost information (pre-feasibility analysis).
 - Confirm markets for process outputs.
- Evaluate and select an operating model approach.
- Depending on Council's view on formal partnerships, initiate discussion with potential local authority partners.

SUBMISSION ON THE DRAFT GOVERNMENT POLICY STATEMENT ON LAND TRANSPORT

Kōrero taunaki | Summary of considerations

Purpose

1. This report to Kōrau Tūāpapa | Environment and Infrastructure Committee presents the Council's submission on the Draft Government Policy Statement on land transport 2024-34 (set out in Attachment One) for the Committee's consideration and approval.

Strategic alignment with community wellbeing outcomes and priority areas

Aligns with the following strategies and priority areas:

Strategic alignment with priority objective areas from Long-term Plan 2021–2031

- Sustainable, natural eco city
- People friendly, compact, safe and accessible capital city
- Innovative, inclusive and creative city
- Dynamic and sustainable economy
- Functioning, resilient and reliable three waters infrastructure
- Affordable, resilient and safe place to live
- Safe, resilient and reliable core transport infrastructure network
- Fit-for-purpose community, creative and cultural spaces
- Accelerating zero-carbon and waste-free transition
- Strong partnerships with mana whenua

Relevant Previous decisions

-

Significance

The decision is **rated low significance** in accordance with schedule 1 of the Council's Significance and Engagement Policy.

Financial considerations

- Nil Budgetary provision in Annual Plan / Long-term Plan Unbudgeted \$X

Risk

- Low Medium High Extreme

Authors	Ben Henderson, Chief Advisor to CIO Sean Audain, Manager Strategic Planning Joe Hewitt, City Insights Manager Sandra Mandic, Principal Advisor Transport Strategy
Authoriser	Liam Hodgetts, Chief Planning Officer Siobhan Procter, Chief Infrastructure Officer

Taunakitanga | Officers' Recommendations

Officers recommend the following motion:

That the Kōrau Tūāpapa | Environment and Infrastructure Committee:

- 1) Receive the information.
- 2) Approve the submission, as set out in Attachment One: Wellington City Council's submission on the Draft Government Policy Statement on Land Transport 2024-34.
- 3) Agree to delegate authority to the Chair and Deputy Chair of the Kōrau Tūāpapa | Environment and Infrastructure Committee and the Chief Executive to finalise the submission, including any amendments agreed by the Kōrau Tūāpapa | Environment and Infrastructure Committee and any minor consequential edits.

Whakarāpopoto | Executive Summary

2. The purpose of this report is to present to the Kōrau Tūāpapa | Environment and Infrastructure Committee the Council's submission on the Draft Government Policy Statement on Land Transport 2024-34 (GPS) for the Committee's consideration and approval.
3. This report summarises the purpose of a GPS, a summary of the strategic differences between the Draft GPS and the current 2021-31 GPS, and how the Draft GPS is proposed to be funded.
4. The current 2021-31 GPS has four strategic priorities: safety, better travel options, climate change, and improving freight connections. Four investment priorities were identified to support these priorities: Auckland Transport Alignment Project (ATAP), Let's Get Wellington Moving (LGWM), Road to Zero (with the majority of funding targeted at regional and rural areas), Funding contributing to implementing the New Zealand Rail Plan.
5. The Draft GPS 2024-34 proposes six strategic priorities for land transport: maintaining and operating the system, increasing resilience, reducing emissions, safety, sustainable urban and regional development, and an integrated freight system. To deliver on these, the Government has identified a Strategic Investment Programme of fifteen specific projects to deliver on the Draft GPS 2024-34 – the two projects in Wellington City are Wellington CBD to airport state highway improvements and Wellington CBD to Island Bay mass rapid transit. Further information can be found in attachment three of this report.
6. The Government is proposing a substantial increase in funding for the NLTF. This will see total revenue available for the NLTF rise from \$15.5 billion in 2021-22 to 2023-24 financial years to \$20.8 billion in the 2024-25 to 2026-27 financial years. This revenue increase will be raised through a mixture of regular land transport revenue (for example, fuel excise duties and road user charges) as well as Crown loans and grants.

Takenga mai | Background

Purpose of the Government Policy Statement on Land Transport

7. A Government Policy Statement (GPS) is a document that sets out the Government's strategic priorities and objectives for specific areas of public policy.
8. The Government Policy Statement on Land Transport sets the Government's priorities for land transport over the a 10-year period. It also sets how funding should

be prioritised between land transport activities, including public transport, state highway improvements, local road improvements, walking and cycling, and road safety.

9. The core intent of the GPS on Land Transport is to provide long-term strategic direction for transport investments which often have long lead times, high costs and leave long legacies.
10. The GPS outlines how much funding will be provided through the National Land Transport Fund (NLTF), how the funding will be raised, how funding will be allocated across the different land transport activities, and the outcomes the Government wants to see as a result of land transport investments.
11. NLTF funding is predominantly raised through the fuel excise duty and road user charges. Smaller revenue amounts come from vehicle registration and licensing fees, sale of surplus land and property, road tolls and freight rail track user charges. The Crown can also opt to provide additional funding and financing.
12. Waka Kotahi NZ Transport Agency determines which projects or investments would be funded through the development of the National Land Transport Programme (NLTP). This programme gives effect to the GPS.
13. Land transport activities and projects need to be referenced in a Regional Land Transport Plan (RLTP) in order to secure funding. RLTPs are developed by identifying specific projects that Waka Kotahi or councils put forward through funding bids. Qualifying transport activities receive approximately 51% financial assistance. Funding Wellington City Council is expected to receive for the 2021/22-2023/24 period is approximately \$100 million.

Government Policy Statement on Land Transport 2021-2031

14. The current GPS on Land Transport was produced in 2021. This GPS has four strategic priorities:
 - Safety.
 - Better travel options.
 - Climate change.
 - Improving freight connections.
15. In the 2021 GPS, the Government applied an underpinning principle of mode-neutrality, while acknowledging that urban, regional and remote rural communities have different needs.
16. To give effect to the 2021 GPS, Central Government committed to four specific investment priorities:
 - Auckland Transport Alignment Project (ATAP).
 - Let's Get Wellington Moving (LGWM).
 - Road to Zero (with the majority of funding targeted at regional and rural areas).
 - Funding contributing to implementing the New Zealand Rail Plan.

17. The National Land Transport Programme funding ranges 2021-22 to 2026-27 in the 2021 GPS were:

	2021-22 \$m	2022-23 \$m	2023-24 \$m	2024-25* \$m	2025-26* \$m	2026-27* \$m
Expenditure target	4,500	4,550	4,650	4,700	4,800	4,850
Maximum expenditure	4,700	4,750	4,850	4,900	5,000	5,050
Minimum expenditure	4,300	4,350	4,450	4,500	4,600	4,650

* 2024-34 GPS period.

Kōrerorero | Discussion

Overview of the Draft GPS on Land Transport 2024-34

18. The Government has produced the Draft GPS on Land Transport 2024-34 (Draft GPS 2024-34). When adopted, this GPS is intended to take effect on 1 July 2024.
19. The Draft GPS 2024-34 proposes six strategic priorities:
- Maintaining and operating the system.
 - Increasing resilience.
 - Reducing emissions.
 - Safety.
 - Sustainable urban and regional development.
 - An integrated freight system.
20. There are three changes in strategic priorities proposed in the Draft GPS 2024-2034 compared to the 2021 GPS. The first is the emphasis on resilience as a strategic priority of its own. As the Draft GPS 2024-2034 notes, New Zealand experiences a wide range of natural hazards, and climate change is increasing the severity and frequency of these events. This is a significant area of focus for the Council, and one which will be ever more important as adverse weather events become more pervasive.
21. The second change is making the climate change-related strategic priority specific to emissions reduction. In particular, the Draft GPS 2024-2034 sets the expectation that Waka Kotahi, through the NLTF, will prioritise interventions across the Draft GPS' strategic priorities which deliver emissions reduction – in particular, focusing on reducing vehicle kilometres travelled. The Draft GPS notes that not all investments within the NLTP will reduce emissions, and that emissions prioritisation reduction will look different across regions. Wellington City is well-prepared to support this strategic priority through projects including the Paneke Pōneke Bike Network Plan and Let's

Get Wellington Moving's focus on public transport, active modes of transport, mass rapid transit and urban density outcomes.

22. The outcomes Let's Get Wellington Moving will deliver for Wellington are also highly related to the sustainable urban and regional development strategic priority. By providing a mass rapid transit corridor in Wellington City, the Council can support sustainable urban growth through density uplift, providing more homes using less land, reducing vehicle kilometres travelled and subsequently carbon emissions, as well as utilising the land available in the city for home building as efficiently as possible. Elevating sustainable urban and regional development as a strategic priority is a shift in thinking compared to previous government policy statements, as they previously have not prioritised the strong correlation between transport systems and urban development.
23. The final key difference in strategic priorities between 2021 GPS and Draft GPS 2024-34 is the inclusion of maintaining and operating the system as its own strategic priority. This is particularly important given the large investments in land transport Wellington City is planning to deliver over the coming decade. Increasing the transport infrastructure and subsequently levels of service provided for residents will require a focus on building forward-looking asset management plans that anticipate long-term changes that will be required of the transport system at a local, regional and national level. The Draft GPS 2024-34 indicates an estimated increase in the forecast NLTF share of road maintenance expenditure from approximately \$1.8 billion in 2023-24 to between \$2.5 billion and \$3.5 billion in 2032-33.
24. The two strategic priorities freight and safety remain and are relatively unchanged, with safety having featured as its own strategic priority in each GPS on land transport over the last decade.
25. One key difference between the Draft GPS 2024-34 compared to the 2021 GPS is that the Government has also signaled a Strategic Investment Programme identifying 15 projects which it considers will meet the Draft GPS' strategic priorities. Two projects from the Wellington Region are included in this list:
 - Wellington CBD to Airport – State Highway 1 – Second Mt. Victoria Tunnel and Upgrades to Basin Reserve/Arras Tunnel.
 - Wellington CBD to Island Bay – Mass Rapid Transit.
26. Of the 15 projects forming the Strategic Investment Programme, four are rail or rapid transit projects which would help to move more people with fewer vehicles (decreasing vehicle kilometres travelled), while the other 11 projects are all state highway-related. The state highway projects would support the resilience, maintenance and operation of the transport system, however they do not directly support a reduction in carbon emissions or vehicle kilometres travelled.

Funding the Draft GPS 2024-34

27. There are multiple funding sources for land transport projects and activities, including central government tax revenue, road user charges and the fuel excise duty, and rates funding – these are displayed in the Figure One below. In addition to the below land transport revenue sources, the Government can choose to provide direct Crown funding and financing over and above the revenue earned.

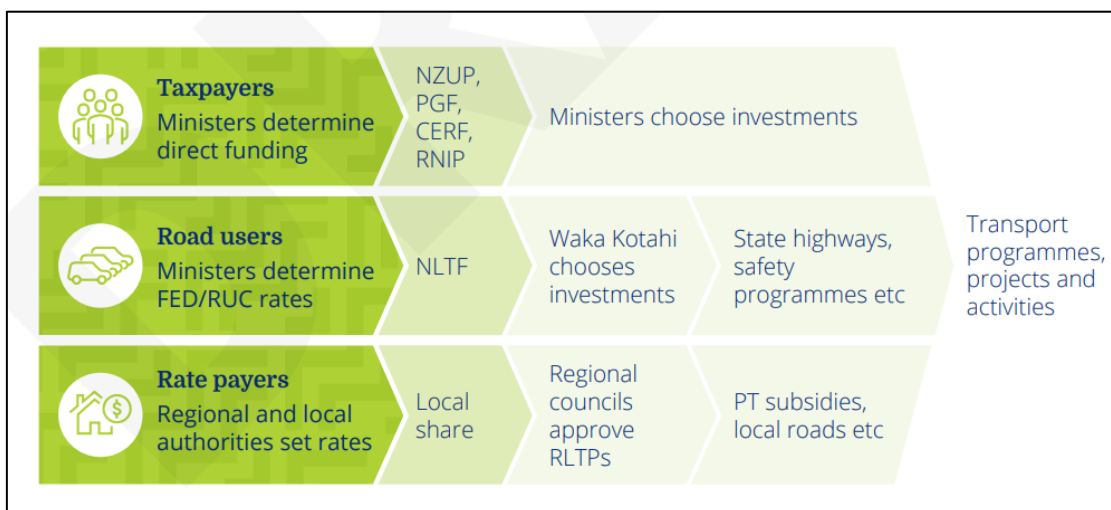


Figure One: Main Land Transport Funding flows. Sourced from page 41, Draft GPS on Land Transport 2024-34.

28. In the Draft GPS 2024-34, the Government is proposing a substantial increase in funding for the NLTF. This will see total revenue available for the NLTF rise from \$15.5 billion in 2021-22 to 2023-24 financial years to \$20.8 billion in the 2024-25 to 2026-27 financial years.
29. The proposed National Land Transport Programme funding ranges 2024-25 to 2029-30 are:

	2024-25 \$m	2025-26 \$m	2026-27 \$m	2027-28* \$m	2028-29* \$m	2029-30* \$m
Expenditure target	5,550 GPS '21: 4,500	6,000 GPS '21: 4,550	6,450 GPS '21: 4,650	4,750 GPS '21: 4,700	5,000 GPS '21: 4,800	5,150 GPS '21: 4,850
Maximum expenditure	5,850 GPS '21: 4,700	6,300 GPS '21: 4,750	6,750 GPS '21: 4,850	5,050 GPS '21: 4,900	5,300 GPS '21: 5,000	5,450 GPS '21: 5,050
Minimum expenditure	5,150 GPS '21: 4,300	5,600 GPS '21: 4,350	5,600 GPS '21: 4,450	4,550 GPS '21: 4,500	4,800 GPS '21: 4,600	4,950 GPS '21: 4,650

* 2027-37 GPS period.

30. The funding increase for the NLTF is proposed to be raised through:
- Gradual increases in fuel excise duties (FED) and road user charges (RUC) – two six-monthly 2 cents per litre increases for the first year, followed by two annual 4 cents per litre increases, totalling a 12-cent-per-litre increase by 2026.
 - Hypothecation of traffic infringement fee revenue to the NLTF – approximately \$100 million per annum in traffic offence fee revenue.
 - Crown grants – the Draft GPS 2024-34 proposes to provide \$2.9 billion in Crown grants from 2024-25 to 2026-27, including \$500 million from the Climate

Emergency Relief fund which will be directed to the walking and cycling activity classes.

- A Crown loan – a \$3.1 billion Crown loan will be provided, to be repaid over ten years from the additional FED and RUC revenue.
31. The Draft GPS 2024-2034 proposes further increases in direct Government contributions to the NLTF through Crown funding. The Domestic Transport Costs and Charges Study 2023 found that 92.7% of New Zealand's domestic transport market in 2018/19 was delivered by cars/ light vehicles (Table S.1 in the Draft GPS 2024-2034), and that user charges only covered 55.2% of public sector costs (DTCC Study, Table S.3 in the Draft GPS 2024-2034). These findings illustrate the dominance of light vehicles in the country's transport system, and that users are meeting approximately half the costs of their share of the system. If reducing vehicle kilometres travelled is a core focus of the Draft GPS 2024-2034, then funding settings may need to be revisited when preparing the final GPS 2024-2034 to consider the drivers in transport system user behaviour they are creating.
 32. Related to the above, Officers also note that, while most central government parties have publicly stated their support for congestion charging, the Draft GPS does not explicitly state the Government's intention to introduce congestion charging as a way to increase NLTF revenue and also to manage demand, reducing vehicle kilometres travelled at peak hours and subsequently reducing emissions. While there are implicit references to congestion charging through reference to 'road pricing' in the Draft GPS, it does not express the Government's intention or otherwise to shepherd legislative change to enable it.
 33. Officers recommend elected members support the hypothecation of traffic infringement fee revenue to the NLTF.
 34. Taking the above into consideration, Officers note and support the Government's review, *Future of the Revenue System*, to determine how land transport should be funded in the future, ensuring sustainability in the long term.

Kōwhiringa | Options

35. **Option One:** approve the submission as proposed in Attachment One (recommended option).
36. **Option two:** approve the submission with amendments.
37. **Option three:** do not approve the submission and opt to not submit on the Draft GPS on Land Transport.
38. Officers recommend the Committee agree to option one (as the preferred option) or option two. Given the importance of the GPS for setting the direction of land transport investments, and given the significant level of investment our Council plans to spend on land transport in our city, Officers recommend that submitting on this draft report is important to ensure Wellington City's 'voice' is taken into consideration when the final GPS 2024-34 is being completed and approved.

Whai whakaaro ki ngā whakataunga | Considerations for decision-making

Alignment with Council's strategies and policies

39. The advice provided in this report aligns with the Council's current strategies, policies and activities, including Te Atakura First to Zero, the Spatial Plan, and Let's Get Wellington Moving.

Engagement and Consultation

40. N/A.

Implications for Māori

41. The Draft GPS 2024-34 recognises that, through the Urban Growth Partnerships, the Crown, iwi and local government have developed joint spatial plans to ensure all Tier 1 cities (of which Wellington is one) grow successfully over time. Underpinning these spatial plans are shifts towards greater use of public transport and active modes. Wellington Region has given effect to this through the Wellington Regional Growth Framework. The Draft GPS 2024-34 supports this direction.

Financial implications

42. There are no financial implications from submitting on the Draft GPS on Land Transport 2024-34. The final GPS 2024-34 will have financial considerations – specifically, funding allocations to local and regional land transport activities and projects.

Legal considerations

43. N/A.

Risks and mitigations

44. N/A.

Disability and accessibility impact

45. N/A.

Climate Change impact and considerations

46. Much of what is proposed in the Draft GPS on Land Transport 2024-34 aligns to the Council's own zero carbon goals. In particular, it aligns with the Council's plans for reducing carbon emissions through investing in infrastructure for public and active modes of transport.

Communications Plan

47. N/A.





Health and Safety Impact considered

48. N/A.

Ngā mahinga e whai ake nei | Next actions

49. If the Kōrau Tūāpapa | Environment and Infrastructure Committee approve the submission on the Draft Government Policy Statement on Land Transport, it will be submitted electronically to the Ministry of Transport by Friday 15 September 2023.

Attachments

Attachment 1.	WCC submission on the Draft Government Policy Statement on Land Transport 2024-34 ↓ 	Page 492
Attachment 2.	Draft Government Policy Statement on Land Transport 2024-34 ↓ 	Page 495
Attachment 3.	Draft Government Policy Statement on Land Transport 2024-34 - Strategic Investment Programme ↓ 	Page 571
Attachment 4.	Draft Government Policy Statement on Land Transport 2024-34 - FAQs ↓ 	Page 592

**Draft Government Policy Statement on Land Transport 2024-34
Wellington City Council submission**

6 September 2023

Online questionnaire to be submitted by Friday 15 September 2023.

Note: Answers are limited to 1,024 characters.

Question 1) - Strategic priorities: Do you agree with the strategic priorities and direction that are outlined in GPS 2024?				
Strongly agree	<u>Agree</u>	Neutral	Disagree	Strongly disagree
Question 1 A) Please provide any comments that support your answer above				
<p>WCC supports the six strategic priorities. However our Council is concerned regarding the insufficient recognition and prioritisation of the need to shift transport systems in New Zealand’s urban centres from the dominance of light vehicles. We note the recent Domestic Transport Costs and Charges Study 2023 (DTCC Study) found that 92.7% of New Zealand’s domestic transport market in 2018/ 19 was delivered by cars/ light vehicles (DTCC Study, Draft GPS 2024-34 Table S.1). The Council suggests more recognition is given to the Emissions Reduction Plan 2022 (ERP) and the short to medium term goal “to reduce total vehicle kilometres travelled (VKT) by the light fleet by 20 percent by 2035 through improved urban form and providing better travel options, particularly in our largest cities” (ERP transport target 1). The Council notes the ERP signalled that the Government would decide whether to progress legislative change enabling congestion charging. This would be one of the most effective measures to reduce congestion and VKT in cities. However, no decision has been made and there is no mention of this in the Draft GPS 2024-34. We urge the Government to decide on this as a matter of priority.</p> <p><i>1,011 characters</i></p>				
Question 2) Strategic Investment Programme: Do you have any comments on the Strategic Investment Programme?				
<p>The Council supports the inclusion of two strategically significant projects for Wellington being delivered as part of the Let’s Get Wellington Moving programme:</p> <ul style="list-style-type: none"> Wellington CBD to Airport State Highway 1 – second Mount Victoria tunnel and upgrades to Basin Reserve/Arras tunnel. Wellington CBD to Island Bay mass rapid transit. <p>While the Draft GPS 2024-34 identifies funding ranges by activity classes, displayed in Table 6 (page 48) and Table 7 (page 49) of the Draft GPS 2024-34, it fails to identify the uncommitted funding that will be available in each class for new projects after already committed funding and debt repayments have been taken into account. This information would be helpful to support our Council’s strategic decision making for land transport activities and projects going forward.</p>				

683 characters

Question 3) Funding increases: Do you agree with the funding increases associated with the GPS 2024

Strongly agree	<u>Agree</u>	Neutral	Disagree	Strongly disagree
----------------	--------------	---------	----------	-------------------

Question 3 A) Please provide any comments that support your answer above

There is little clarity about the actual value of new investment proposed to be provided in the Draft GPS 2024-34. Given the lack of clarity on the scale and timing of funding needs, it is difficult to comment on whether the funding increases are adequate or not. The Council suggests that further transparency around this matter would help observers understand the real additional funding being provided for across the various activity classes, as commented on in our response to Question 2 of this submission.

428 characters

Question 3 B) Do you have any comments on how funding has been allocated across the various Activity Classes in GPS 2024

The Council would like to understand whether the expected debt repayments shown in Appendix 3 of the Draft GPS 2024-34 are a first call on the NLTF or whether they are funded from within the activity classes. If expected debt repayments are funded from the activity classes, what are expected debt repayments and PPP payments (summarised in Table 7) from each activity class?

	2024/25 \$m	2025/26 \$m	2026/27 \$m	2027/28 \$m	2028/29 \$m	2029/30 \$m
Expected debt repayment	650	800	1,300	1,150	950	950

313 characters

Question 4) Ministerial expectations: Do you agree with the Ministerial expectations as outlined in GPS 2024

Strongly agree	<u>Agree</u>	Neutral	Disagree	Strongly disagree
----------------	--------------	---------	----------	-------------------

Question 4 A) Please provide any comments that support your answer above

The Council supports the explicit inclusion of the 'build back better' concept as there are clear opportunities to future proof the system when elements are being renewed rather than just replacing like with like. This is also the Council's own approach to maintaining and renewing assets.

The Council notes the Government's expectation expressed in the Draft GPS 2024-34 that Waka Kotahi will, within each region, ensure the NLTP makes an appropriate contribution to urban light VKT reduction projects and activities. The Council is concerned that the Government is has not expressed a plan to use other regulatory levers, namely congestion pricing or appropriate pricing signals through FED and RUC settings, to support the behaviour change required for VKT reduction projects and activities to be successful. The Council encourages the Government to prioritise this work.

741 characters

Question 5) Further information: Do you have any other comments on GPS 2024

Overall, the Draft GPS 2024-34 is an informative document.

The Council supports the use of the infrastructure intervention hierarchy (outlined in Figure 4 on page 38) to support the value for money principle “*by promoting low-cost investment ahead of more costly physical infrastructure and technological investment*”, especially in the current constrained economic environment.

The Council looks forward to seeing the updated Draft GPS 2024-34 monitoring framework and outcome indicators (detailed in Table 1 on page 36). Worth noting, the indicator “Perceived safety of walking and cycling” would be challenging to measure given the need to differentiate walking and cycling for transport versus for recreation, and the need to analyse and report data by population subgroups (such as by age, gender and frequency of use of different transport modes for transport and recreation).

New or revised indicators may be needed to track outcomes, particularly for the strategic priority “Sustainable urban and regional development”, such as the proportion of individuals living within reasonable walking and cycling distance to key destinations (e.g., workplaces, schools, amenities, open spaces).

1,018 characters

Te Tauākī Kaupapa Here a te Kāwanatanga mō ngā waka whenua | Draft Government Policy Statement on land transport 2024/25-2033/34

August 2023

Not Government policy



Te Kāwanatanga o Aotearoa
New Zealand Government



He kupu nā te Minita | Ministerial foreword

New Zealand's land transport system is among our greatest physical assets. The roading network underpins our economy and provides lifelines for communities and businesses across the country.

The draft GPS 2024 sets out the Government's transport priorities and guides investments of over \$6 billion from the National Land Transport Fund, and around \$1.5 billion from local government, each year.

This is a record increase in investment in our transport network. It includes a significant boost in road maintenance budgets, supporting recovery and strengthening the resilience of the entire transport system.

We recognise cost pressures on the National Land Transport Fund and the need to increase revenue for essential maintenance for our roads. That is why this draft GPS 2024 proposes to increase revenue by 34 percent over 2024 – 2026 compared to the previous cycle of 2021 – 2023. This means expenditure will increase from \$15.5 billion to \$20.8 billion, enabling us to better maintain our roads and services.

The North Island weather events have added a level of urgency to this task. Budget 2023 allocates \$6 billion to fund the initial phase of a National Resilience Plan, focused initially on rebuilding from Cyclone Gabrielle and then on closing the infrastructure deficit that has built up in this country over decades.

To date, we have allocated about \$1.3 billion towards reinstating transport networks affected by the North Island weather events, with a further \$419 million allocated over seven years towards transport resilience.

We are also investing heavily in mass rapid transit projects, rail, and walking and cycling pathways to ensure people have options in the way they move around, while also driving down emissions. The draft GPS 2024 includes a Strategic Investment Programme, which provides a view of some of the most significant sections of the transport network that require intervention and is expected to guide Waka Kotahi's consideration of projects. Signalling the importance of these projects alongside our commitments to road maintenance and public transport services will ensure that we deliver transformative changes to our transport system, without compromising its core functions.

2 Te Manatū Waka | Te Tauāki Kaupapa Here a te Kāwanatanga mō ngā waka whenua 2024/25-2033/34

MINISTERIAL FOREWORD

The draft GPS 2024 proposes significantly more transport expenditure than ever before. However, the land transport funding system is facing significant pressure due to rising demands and costs. The Government has not increased fuel taxes and road user charges since September 2020. Without more funding, we will not be able to restore cyclone-damaged roads and maintain and improve our roading network to the standards that New Zealanders reasonably expect. We must ensure the network is fit for future generations of New Zealanders and able to withstand the damage from the extreme weather events.

We're proposing a two cent per litre increase in petrol taxes and equivalent increases in road user charges for the first six months, another two cent increase the following six months, then four cents a litre more in each of the following two years. This will generate around \$1.4 billion to be fully dedicated to improving our transport network. This is consistent with the historical norm of semi regular increases, prior to 2020. To keep the increases as small as possible, we are also proposing additional top ups of funding and financing over the next three years.

I invite you to provide feedback on the priorities and proposals in the draft GPS 2024 and provide your views about the future of our transport system.



Hon David Parker
Minister of Transport



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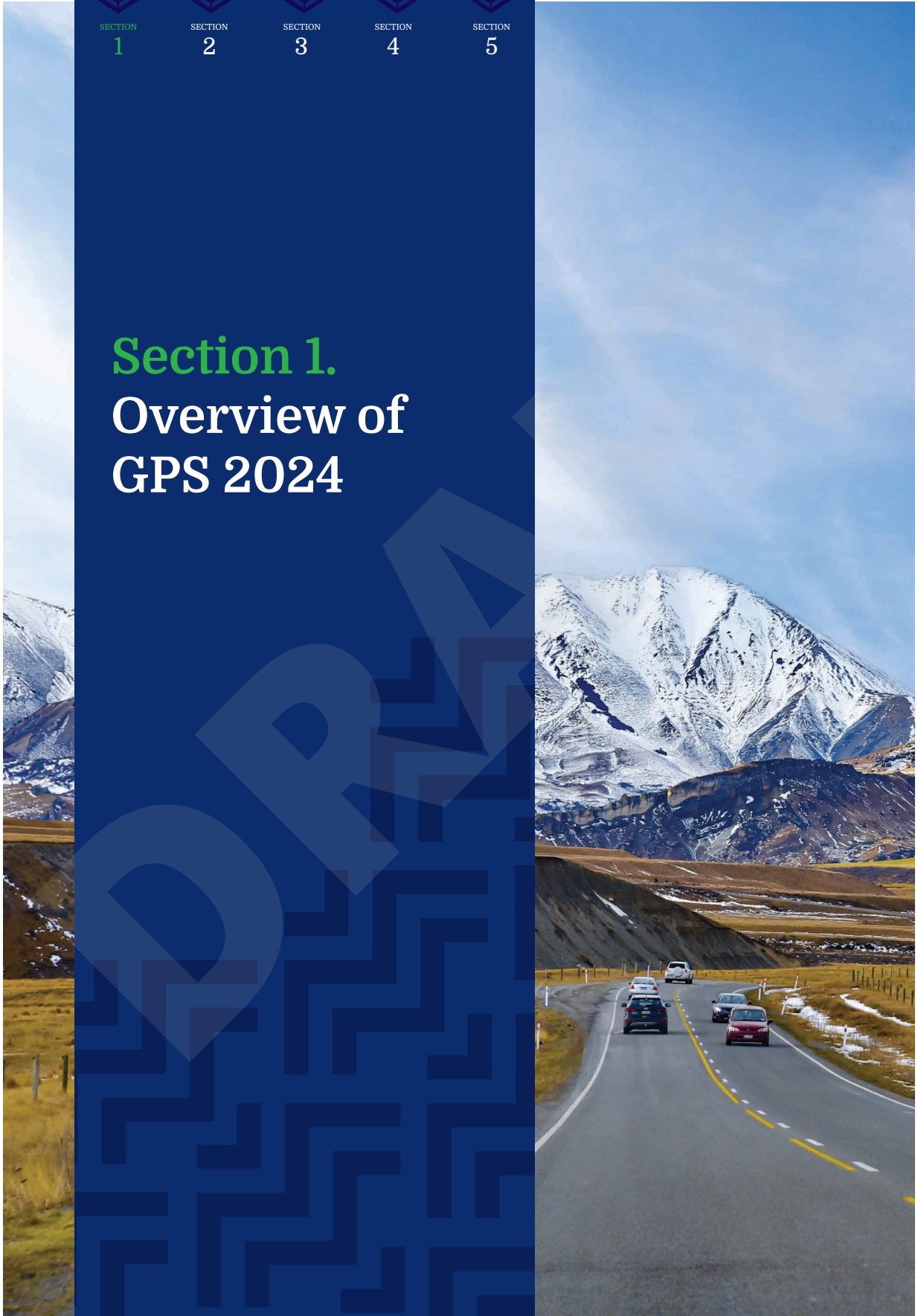
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Section 1.

Overview of GPS 2024



The Government Policy Statement on land transport 2024/25-2033/34 (GPS 2024) outlines the Crown’s land transport investment strategy over the next ten years, the funding available, and where funding should be directed to deliver on this strategy.

GPS 2024 provides direction and guidance to those who are planning, assessing, and making decisions about land transport investment. The roles and responsibilities of the key players in this system are outlined in Section 2.

GPS 2024 expresses the Crown’s land transport investment strategy and consists of five sections:

- 01 Overview
- 02 Roles and responsibilities
- 03 Strategic priorities
- 04 Investment in land transport
- 05 Statement of Ministerial expectations

Section 2: Roles and responsibilities

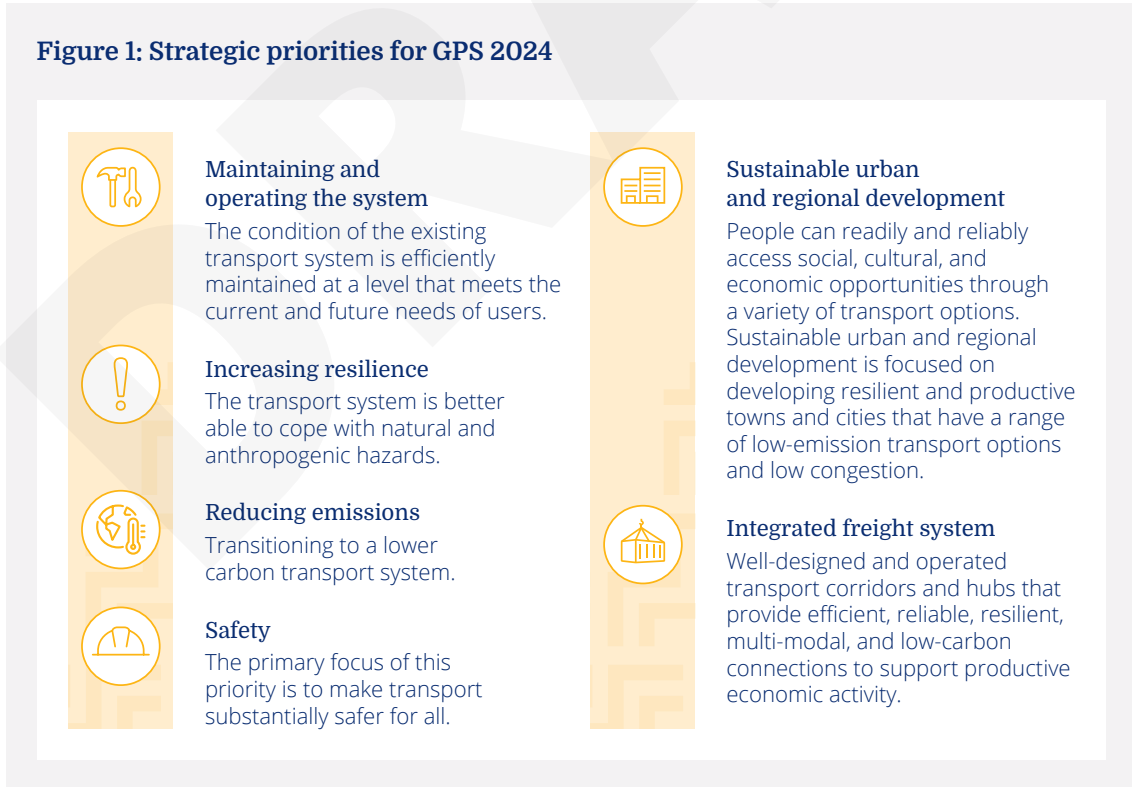
This section describes the role of the GPS in land transport investment and the responsibilities of the different players in the system.

Section 3: Strategic priorities

The six strategic priorities for GPS 2024 are outlined below. These strategic priorities reflect the need to rebuild after recent weather events and strengthen the resilience of the entire transport system. These priorities must be supported by firm foundations, which is why GPS 2024 includes as a priority maintaining and operating our existing transport system, including our roads and public transport services.

The strategic priorities are national land transport objectives under section 68(3) of the Land Transport Management Act 2003 (the LTMA). Together, these priorities support environmental sustainability, resilience and security, economic prosperity, access, and healthy and safe people. These strategic priorities underpin the work of all government transport agencies. The priorities will guide investment decisions by Waka Kotahi NZ Transport Agency (Waka Kotahi) and its co-investment partners, including local authorities and KiwiRail.

Figure 1: Strategic priorities for GPS 2024



OVERVIEW OF GPS 2024

Section 4: Investment in land transport

The Government directs funding to activities that help deliver on these priority areas through multiple funding sources. Different funding sources will focus on contributing to different strategic priorities and programmes. For example, the Government has developed specific funds for emissions reduction and climate adaptation projects. In contrast, the priority for available funding from the National Land Transport Fund (NLTF) is to ensure the ongoing operation and maintenance of the system.

The NLTF receives revenue of over \$6 billion each year. Waka Kotahi determines the specific activities funded from the NLTF based on the direction provided by the GPS. A key focus of GPS 2024 is maximising what can be delivered in the short-term with available revenue, while optimising investment to achieve longer-term objectives. Over the next decade, a significant portion of the NLTF is committed to maintaining and operating the system. This includes continuing to deliver public transport, maintaining state highways and local roads, maintaining the rail network, promoting road safety and road policing. The NLTF also needs to meet its debt repayment obligations (see [page 41](#)).

The Government is increasingly supporting the NLTF with Crown funding. Over the next three years (2024/25 – 2026/27), there is forecast to be \$7.6 billion of Crown investment in addition to the \$20.8 billion in forecast NLTF revenue. Crown investment includes programmes targeting emissions reduction and climate adaptation, funded from the Climate Emergency Response

Fund (CERF). Additional Crown funding supports other programmes including the recovery and rebuild from North Island weather events in 2023, the National Resilience Plan, the New Zealand Upgrade Programme (NZUP), the City Rail Link (CRL), Auckland Light Rail (ALR) and the Rail Network Investment Programme (RNIP).

The Government expects to make further announcements about how it will provide additional funding for Cyclone Gabrielle recovery efforts, and advance other strategic priorities, in the coming months and future Budgets.

Section 5: Ministerial expectations

Section 5 of GPS 2024 includes several specific, formal expectations from the Minister of Transport (the Minister) to Waka Kotahi setting out how the Minister expects Waka Kotahi to give effect to the GPS. In summary, the Minister expects Waka Kotahi to deliver on the results and outcomes sought in GPS 2024 in a manner that:

- delivers value for money
- makes most efficient use of the NLTF to deliver on outcomes aligned with the strategic priorities
- carefully considers the most effective ways to “build back better” so the transport system is optimised to support future expectations, including better resilience to adverse weather conditions. This is likely to include finding ways to make the most of the considerable maintenance and renewals work programme to improve, rather than just replace, the existing asset base.

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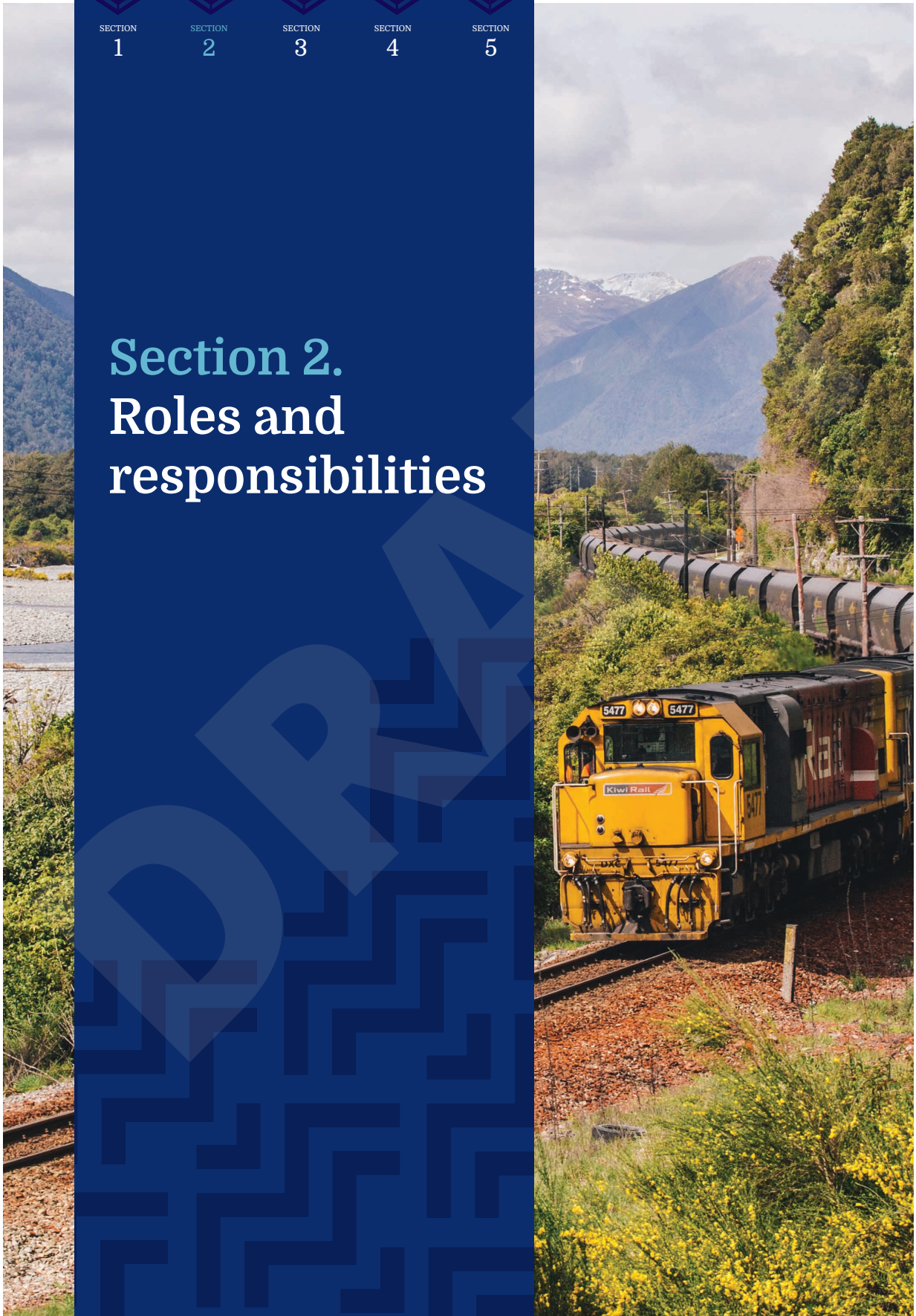
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Section 2. Roles and responsibilities



ROLES AND RESPONSIBILITIES

Role of the GPS

The GPS outlines the Crown’s ten-year land transport investment strategy, the objectives and outcomes the Crown is seeking from the land transport system, and guides Waka Kotahi and local authority investment.

This longer-term strategic approach is necessary because transport investments often have long-lead times, high costs and leave long legacies. The LTMA 2003 sets out the full scope and requirements for the GPS.

The GPS is focussed on making the most of the Government’s transport investment, comprising the NLTF and any additional Crown funding. Waka Kotahi allocates the NLTF to transport investments in accordance with the GPS, while projects delivered through Crown appropriations will generally align with GPS priorities but may also contribute to wider outcomes.

The GPS sets out the expected available NLTF funding to contribute to the outcomes sought, and how the Government wants NLTF funding to be allocated across different types of activities (for example, roads, public transport, active transport, or road safety). It also describes other contributions the Crown has allocated to progress its land transport investment strategy. Local government often supplements the NLTF and other Crown funding with its own funding ('local share') to help meet the cost of investments that benefit their communities. This is discussed further in **Section 4**.

Crown funding commitments vary over time and do not necessarily align with the release of a GPS. **Section 3** signals the types of investments that are likely to attract direct Crown funding in the future, while **Section 4** outlines existing Crown funding commitments.

The land transport investment strategy and direction on allocation of NLTF funding guide local government and Waka Kotahi on the type of activities that should be included in Regional Land Transport Plans (RLTPs) and the National Land Transport Programme (NLTP).

Responsibilities

The Minister of Transport

The Minister of Transport (the Minister) must issue a GPS covering the Crown's land transport investment strategy (among other things), that covers a period of six financial years. The Minister must review the Crown's land transport investment strategy at least once every three financial years.

Except for rail investments and road policing, the Minister is not responsible for individual NLTF funding decisions.

The Minister must be satisfied that the GPS contributes to the purpose of the LTMA 2003. Before issuing a GPS, the Minister is required to have consulted Waka Kotahi, and have regard to the views of Local Government New Zealand (LGNZ) and representative groups of land transport users and providers.

The Minister submits transport investments for Crown funding consideration, through the annual Budget process. Activities delivered through Crown appropriations will generally align with GPS priorities but may also contribute to wider outcomes.

➤ **Te Manatū Waka is responsible for strategy, policy, funding, monitoring and regulation of New Zealand's transport system**

Te Manatū Waka Ministry of Transport

Te Manatū Waka Ministry of Transport (the Ministry) is responsible for strategy, policy, funding, monitoring and regulation of New Zealand's transport system. It advises the Minister on transport matters, including regulation and investment, to improve wellbeing and liveability, as described in the Transport Outcomes Framework.

The Ministry leads advice on the Crown's longer-term land transport investment strategy (for inclusion in GPS and beyond the next decade). This includes advising on the role that transport system revenue sources and investments have in achieving the Government's longer-term goals such as reducing emissions, ensuring climate resilience, and reducing road deaths and serious injuries. The Ministry also provides annual advice on Crown funding decisions.

The Ministry works in partnership with Waka Kotahi to consider how expectations on Waka Kotahi may fit with future GPS's and wider Government priorities.

As part of the wider government commitment to the Māori-Crown relationship, the Ministry has a responsibility to engage with Māori and consider Māori outcomes. The Ministry's commitment to this is expressed in its Māori strategy Hei Arataki.

ROLES AND RESPONSIBILITIES

Local government

Local government works to promote the social, economic, environmental and cultural well-being of their communities.

Regional councils, territorial authorities and unitary councils lead long-term planning for their localities. This includes Long Term Plans, Regional Policy Statements, Regional Public Transport Plans, District Plans, Spatial Plans, and RLTPs.

RLTPs set out objectives, policies and priorities for transport networks and services in each region for at least ten years. RLTPs include activities that seek NLTF co-funding and must also include all regionally significant expenditure to be funded from non-NLTF sources. This may include Crown funding contributions.

Local government collaborates with Waka Kotahi, Kāinga Ora and others to progress investments that align with the Government's land transport investment strategy in the GPS. As the largest co-funder of NLTP projects, local government has an important role in identifying strong, evidence-based projects and programmes for investment. They work closely with Waka Kotahi to make sure projects run smoothly from proposal to delivery. Critically for the GPS, this includes engaging with stakeholders and communities on land transport projects and broader transport strategies, consistent with an array of legislative requirements.

An RLTP must contribute to the purpose of the LTMA 2003, which seeks an effective, efficient and safe land transport system in the public interest. It is also required to be consistent with the GPS.

Local governments are partnering with Waka Kotahi and the Ministry to develop urban light fleet Vehicle Kilometres Travelled (VKT) reduction programmes, with an initial focus on programmes for Tier 1¹ urban environments. Local government engages extensively with local communities as part of its planning processes. Reflecting the LTMA 2003, local government also has a responsibility to engage and partner with Māori and understand the Treaty of Waitangi context in which they operate.

Waka Kotahi NZ Transport Agency

Waka Kotahi works with a range of partners across central and local government to plan, invest in, build, manage and operate the land transport system within the priorities and outcomes set in the GPS. It leads on the state highway programme, nationally delivered programmes (such as speed camera monitoring) and delivers other investments on behalf of the Crown, such as NZUP and several initiatives funded out of the CERF.

Waka Kotahi collaborates with local government and other agencies to develop integrated plans for transport and land use. It supports local government to develop capability and create quality RLTPs, which it draws from to create the NLTP and allocate the NLTF to give effect to the GPS. Waka Kotahi also supports the Ministry in advising Government on how Crown funding could supplement NLTF and local share contributions to better deliver on GPS 2024 priorities (or wider priorities specified by the Government).

1. Tier 1 urban environments include: Auckland (Auckland Council), Christchurch (Canterbury Regional Council, Christchurch City Council, Selwyn District Council and Waimakariri District Council), Wellington (Wellington Regional Council, Wellington City Council, Porirua City Council, Hutt City Council, Upper Hutt City Council, Kāpiti Coast District Council), Tauranga (Bay of Plenty Regional Council, Tauranga City Council and Western Bay of Plenty District Council), and Hamilton (Waikato Regional Council, Hamilton City Council, Waikato District Council and Waipa District Council).

In partnership with the Ministry, Waka Kotahi is developing a national VKT reduction plan that will guide VKT reduction programmes.

Additionally, Waka Kotahi is responsible for advising the Minister of Transport on KiwiRail's RNIP and the funding of rail activities within it, including providing advice on alignment with the LTMA 2003 and the New Zealand Rail Plan. Waka Kotahi has a role monitoring the delivery of the RNIP. It also provides recommendations on Police activities to be funded from the GPS.

In addition to the LTMA 2003 requirements for Māori engagement and in accordance with the principles of the Treaty of Waitangi, Waka Kotahi shares the Crown's commitment to the Māori-Crown partnership, which is expressed in its Māori Strategy: Te Ara Kotahi/Our Māori Strategy.

Waka Kotahi, as a Crown agent, is a participant in the Carbon Neutral Government Programme, along with all government departments and departmental agencies. Waka Kotahi voluntarily reports its climate-related disclosures to demonstrate how the agency is managing climate-related risk.

KiwiRail

KiwiRail owns and maintains the national rail network infrastructure. KiwiRail is responsible for planning, operating and maintaining the rail network. It also provides freight, tourism and commuter services, property services and the Interislander ferry service.

KiwiRail is responsible for developing and delivering the three-year Rail Network Investment Programme (RNIP). Consistent with the GPS and RLTP planning processes, the RNIP also includes an indication of significant rail network activities expected in the next RNIP and a ten-year forecast. The funding signals in the GPS and the investment priorities in the New Zealand Rail Plan guide the development of the RNIP.

The RNIP is funded from the NLTF, through the rail network activity class and the public transport infrastructure activity class for metropolitan rail activities, supported by Crown funding.

Auckland Transport and Greater Wellington Regional Council fund and deliver metropolitan rail public transport services, with assistance from the NLTF. KiwiRail supports these activities, funded by the NLTF and access agreements with these parties, by maintaining, renewing, and improving the metropolitan rail networks.

ROLES AND RESPONSIBILITIES

Ministry of Housing and Urban Development and Kāinga Ora Homes and Communities

The Ministry of Housing and Urban Development (HUD) is responsible for strategy, policy, funding, monitoring and regulation of New Zealand's housing and urban development system. HUD administers and tracks progress on the Government Policy Statement on Housing and Urban Development (GPS-HUD) and the national Māori housing strategy (MAIHI Ka Ora) which set the Government's long-term vision, direction, and priorities for housing and urban development.

Kāinga Ora is the Government's public housing landlord. It also has roles in urban development including delivery, partnering and facilitation.

The vision of the GPS-HUD is that everyone in Aotearoa New Zealand lives in a home, and within a community, that meets their needs and aspirations. The GPS-HUD also highlights that land transport that is good for people and the planet is critical to transforming housing and urban outcomes for New Zealanders, including improving housing supply, choice, and affordability. At the same time, decisions that shape our urban areas play a major role in shaping people's transport options and choices.

Together, this GPS 2024 and the GPS-HUD provide strategic direction to help our towns and cities to function well, support growth and to invest in transport infrastructure and services needed to support this.

Ministry for the Environment

The Ministry for the Environment (MfE) is leading the reforms of New Zealand's resource management system. These reforms will replace the Resource Management Act 1991 with three Acts covering the natural and built environment; spatial planning; and climate change adaptation. Each of these focus areas need to integrate with the development of transport infrastructure and services to provide resilient, liveable spaces and achieve our environmental objectives.

MfE has also led the development of the first Emissions Reduction Plan (ERP) and the National Adaptation Plan (NAP). The ERP sets four transport targets that are approximately equivalent to a 41 percent reduction in transport emissions by 2035 compared to 2019 levels. The transport actions in the ERP and the NAP inform the strategic priorities and results sought in GPS 2024.

The resource management reforms aim to better enable development, while protecting and restoring the environment, give proper recognition to the principles of Te Tiriti o Waitangi and to Te Ao Māori, better prepare New Zealand to adapt to climate change, and improve system efficiency and effectiveness. Under these reforms, the Resource Management Act 1991 will be replaced with three new pieces of legislation, two of which are currently before Parliament.² These reforms are expected to improve transport and land-use investment planning through Regional Spatial Strategies, which will see central government, local government and Māori working together with communities to identify how their region will grow, adapt, and change over the next thirty-plus years.

2. The Spatial Planning Bill and the Natural and Built Environment Bill are both before Parliament. A separate Bill is expected to be introduced to Parliament in 2023 covering climate adaptation, following public consultation on the early policy ideas for the Climate Adaptation Act in mid-2022.

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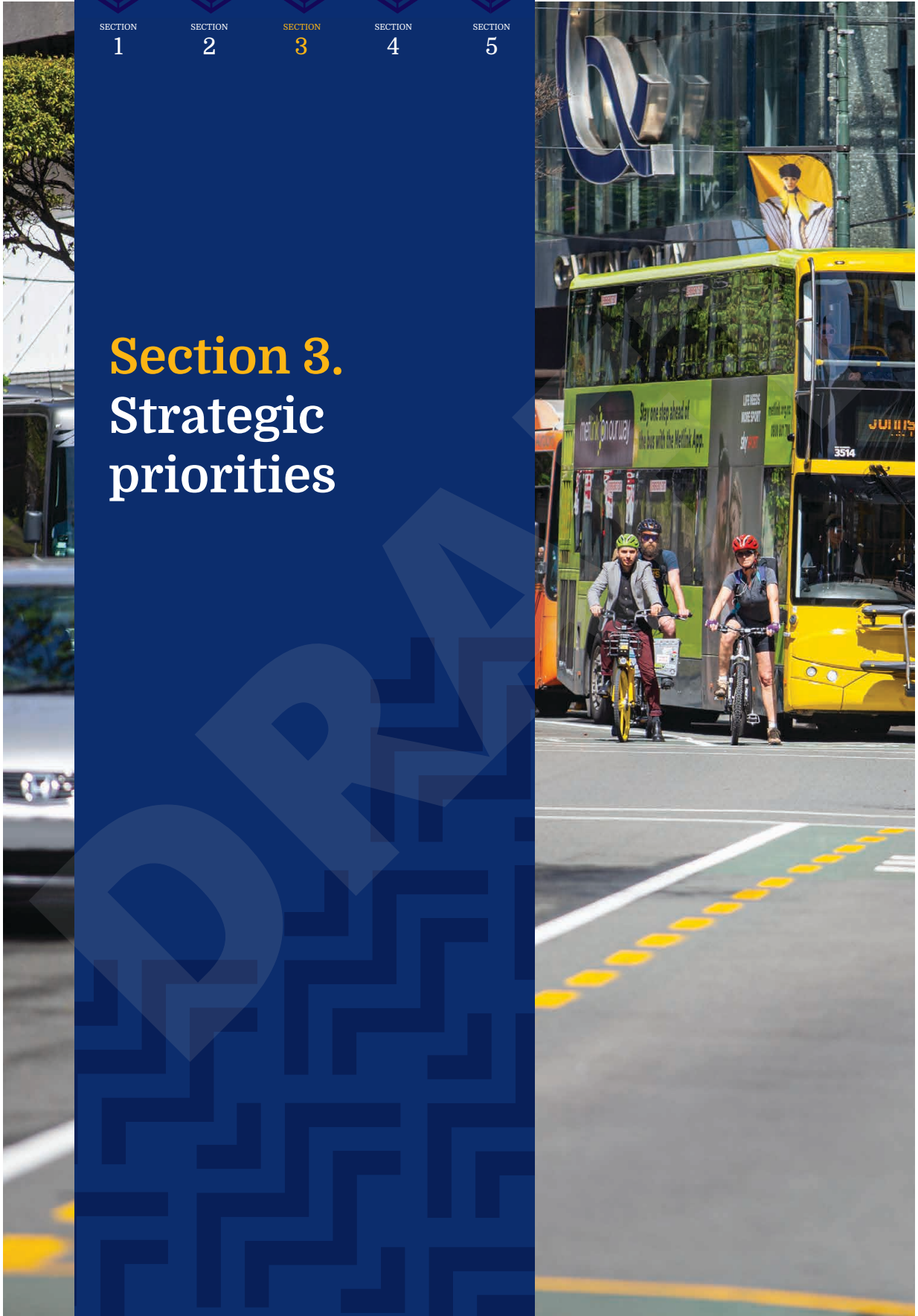
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Section 3. Strategic priorities



STRATEGIC PRIORITIES

This section sets out the strategic priorities, or objectives, for the national land transport system over the next ten years and the expected contribution to longer term outcomes.

The strategic priorities are aspirational, long-term in nature and are expected to be advanced through investment from a variety of different sources.

This section also outlines a strategic investment programme that aligns with the strategic priorities, and is expected to serve as a focus for any new investment.

The strategic priorities and the strategic investment programme reflect the results the Crown aims to achieve from the allocation of funding from the NLTF under section 68(1)(a) and national land transport objectives and policies under section 68(3) of the LTMA 2003 in combination with investment from other sources.

This section also outlines how decision-makers should consider the needs of different users when making investments contributing to the strategic priorities, and how progress will be measured against the outcomes sought.

Strategic Direction



Maintaining and operating the system



Increasing resilience



Reducing emissions



Safety



Sustainable urban and regional development



Integrated freight system

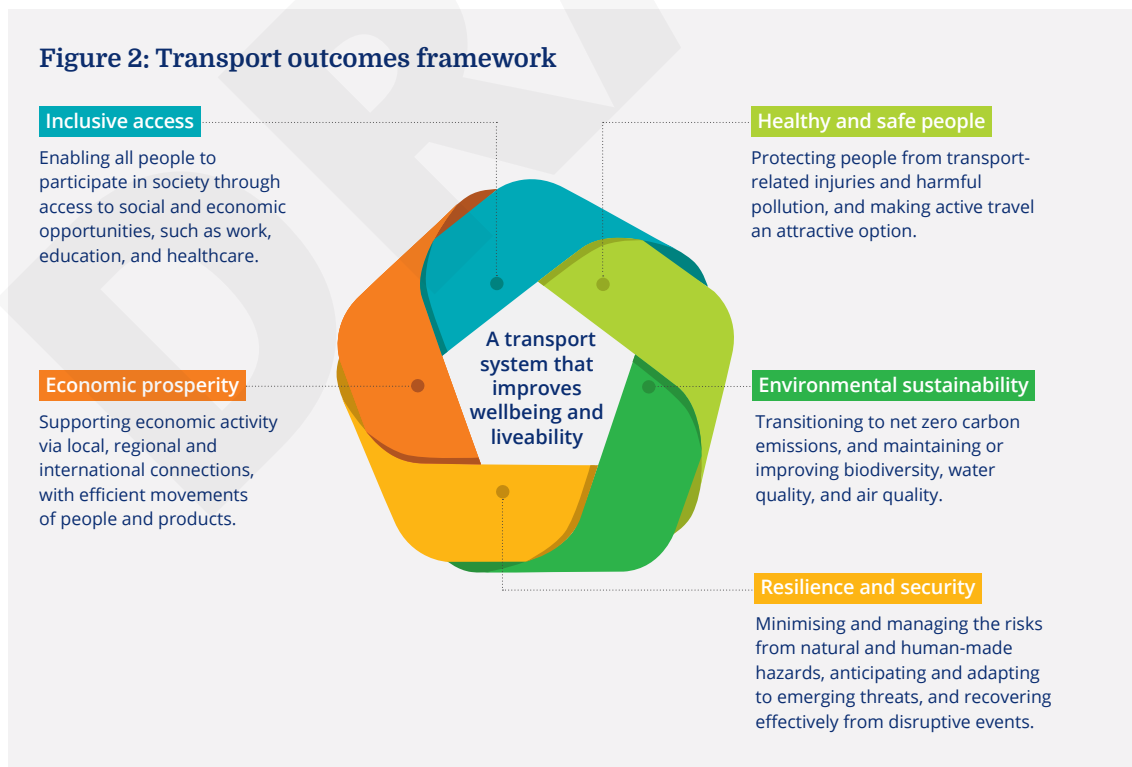
Strategic context

The land transport system needs to improve wellbeing and liveability

Transport is about people. It determines how people get to work and school, influences how they connect with their whānau and communities, and determines when they have the materials, equipment, and services they need. Transport enables and shapes broader social, economic and environmental outcomes. New Zealand’s transport system should support everyone to get where they need to go, access the things they need, spend time with the people they care about, and take part in the activities that are meaningful to them.

Transport is also a critical enabler of new housing supply. Effective integrated land use and transport planning and investment can ensure that the places where people live are accessible and connected to employment, education, social and cultural opportunities.

The Transport Outcomes Framework (Figure 2) describes how the transport system is intended to support and improve intergenerational wellbeing and liveability across five outcome areas. Prioritising interventions that deliver benefits across multiple strategic objectives (rather than simply assessing trade offs between objectives) will help to deliver a range of positive outcomes for New Zealand.



STRATEGIC PRIORITIES

How transport investment contributes to the Government's response to climate change

Our investment approach will support a move towards a low-carbon, sustainable transport system, while also improving our resilience to climate change by protecting against physical risks and making better decisions in the face of uncertainty.

In 2022 the Government introduced the ERP and the NAP to support a whole of government response to climate change. The ways in which the GPS 2024 will guide investment in the land transport system and contribute to the ERP and NAP are outlined below.

The Emissions Reduction Plan sets the context for reducing transport emissions

Reducing transport emissions is critical for reaching New Zealand's net zero emissions target by 2050. In 2019, transport was responsible for 39 percent of carbon emissions and 17 percent of New Zealand's total gross emissions, with most of these emissions coming from light vehicles (e.g., cars) with internal combustion engines.

To deliver the ERP, we need to reduce transport emissions by 41 percent (from 2019 levels) by 2035 and reach net zero emissions by 2050.

GPS 2024 will help deliver on the ERP by guiding appropriate investments

The GPS 2024 guides investment that supports the ERP. Crown funding may support all four of the transport targets listed below, whereas the NLTF will primarily support Target 1 – to reduce VKT by light vehicles.

For example, the NLTF will support changes and improvements that make it easier and more attractive for people to travel by public transport, walking and cycling. To a lesser extent, the NLTF will also support Target 3 to reduce freight emissions by investing in rail and coastal shipping. Target 2 and Target 4 are less likely to be substantively supported by NLTF investment and will require other interventions and funding sources.

The Government is pursuing these targets through broader interventions, including regulatory interventions that are beyond the investment focus of this GPS. For example, the Government has introduced initiatives to accelerate the uptake of cleaner vehicles. Many of these actions are outlined in the transport chapter of the ERP.

The ERP sets four transport targets to be met by 2035 to enable us to meet these commitments:

- | | |
|---|---|
| T1. Reduce total vehicle kilometres travelled (VKT) by the light fleet by 20 percent (relative to projected growth) through improved urban form and providing better travel options, particularly in our largest cities | T2. Increase zero-emissions vehicles to 30 percent of the light vehicle fleet |
| | T3. Reduce emissions from freight transport by 35 percent |
| | T4. Reduce the emissions intensity of transport fuel by 10 percent. |

The National Adaptation Plan outlines how we adapt to climate change to improve resilience and security

Climate adaptation considers our resilience to extreme weather events, and our ability to respond effectively to incremental change, such as rising sea levels. The first NAP contains strategies, policies and actions that will help New Zealanders adapt to the changing climate – reducing the potential harm of climate change, as well as seizing opportunities that arise. The NAP recognises the importance of an integrated approach to management across multiple sectors. The recent extreme weather has highlighted the interdependencies and risks of co-locating multiple forms of infrastructure (e.g., power, water, and telecommunications).

There are a range of transport sector actions in the NAP, including Waka Kotahi developing and implementing a national climate adaptation plan for land transport and integrating adaptation into its investment decision-making. Waka Kotahi published its climate adaptation plan Tiro Rangi in December 2022.

GPS 2024 guides investment that supports the NAP. As with the ERP, Crown funding and the NLTF are both expected to support the NAP and improve the resilience of our transport infrastructure.

The Government has committed an initial \$6 billion towards a National Resilience Plan to support significant medium and long-term infrastructure investments which focus on the resilience of New Zealand's critical infrastructure, including transport, with plans for further funding in future Budgets. Given recent weather events, the programme will first focus on projects that support recovery and building back better.

➤ **The recent extreme weather has highlighted the interdependencies and risks of co-locating multiple forms of infrastructure**

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STRATEGIC PRIORITIES

Strategic priorities for GPS 2024

Six strategic priorities set direction for the system.

These are:

- Maintaining and operating the system
- Increasing resilience
- Reducing emissions
- Safety
- Sustainable urban and regional development
- Integrated freight system.

These priorities overlap and complement one another. For example, investments in the rail system and port infrastructure will lead to stronger inter-regional connections, contributing to sustainable regional development, while making freight movements safer and more resilient. Investment to enable greater mode choice in freight movements will also enhance resilience and reduce emissions.



Strategic priority: Maintaining and operating the system

Primary objective

The condition of the existing transport system is efficiently maintained at a level that meets the current and future needs of users.

Contribution to transport outcomes

- **Healthy and safe people** – the level of safety across the network is maintained and opportunities are taken through maintenance activities to improve the safety, and health outcomes, of the network.
- **Economic prosperity** – efficiency gains are realised from better utilising existing infrastructure, and key routes are maintained to ensure reliable and efficient movement of people and freight.
- **Inclusive access** – the level of service across the network ensures equitable access across all modes, opportunities are taken through maintenance activities to reallocate road space for bus lanes or active transport modes.
- **Resilience and security** – maintenance activities provide a resilient network that is able to adapt to changes over time and incorporate new technologies.
- **Environmental sustainability** – using lower carbon materials, reducing waste, supporting a circular economy, and making use of nature-based solutions to improve resilience to climate change.

How we will deliver these outcomes

New Zealand's existing land transport system is one of our most important and valuable assets. It requires ongoing care to keep at a standard that meets the needs of New Zealanders.

Deferred investment in maintenance can result in the deterioration of assets that can be costly and disruptive to fix. Efficient and effective maintenance and operation of transport networks are crucial investments.

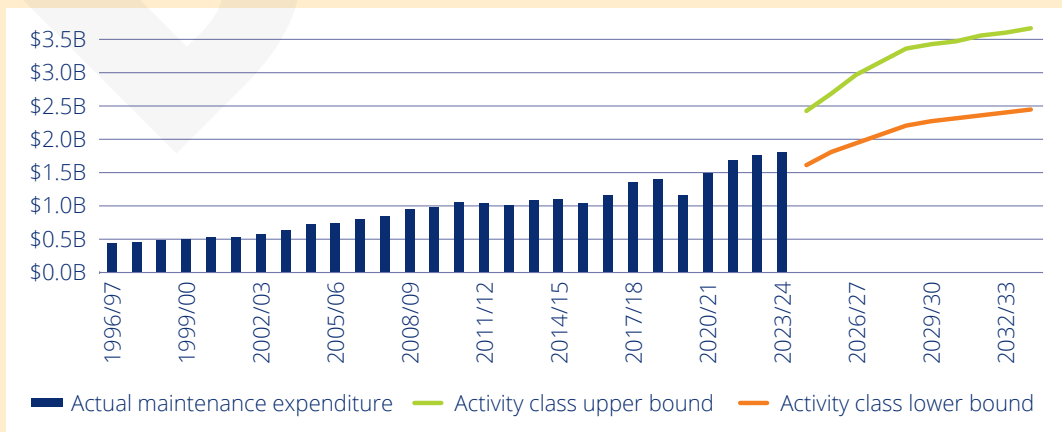
Maintaining and operating the land transport system is a core enabler for the delivery of all other strategic priorities and outcomes. Extreme weather events caused by climate change are taking a greater toll on the condition of the network, increasing the size of the maintenance task. Other threats to resilience and security also need to be considered, including seismic activity and other physical risks.

Figure 3 shows that, after being relatively flat from 2008/09 to 2015/16, funding for maintenance has increased significantly in recent years and received

a further substantial increase in this GPS. The previous period of flat expenditure, and increased pressures on our roading network, mean that we will need to ensure we are investing in the right places at the right time to make the most of the available funding.

The Government expects there will be a focus on achieving value for money through all maintenance and renewals programmes. Decisions need to be based on the needs and contribution within the wider network – rather than necessarily replacing “like-for-like”. This may, for example, mean resilience and safety improvements, or creating additional space for a bus lane or active transport. This requires asset management plans that are forward-looking and outcomes-focused, so that they can anticipate the necessary long-term changes and integrate those changes into maintenance schedules. This should also involve using a maintenance need as a trigger to reshape the network to meet current and future needs, including adjusting the required levels of service to be consistent with the One Network Framework.

Figure 3: Previous and Forecast NLTF Share of Road Maintenance Expenditure



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STRATEGIC PRIORITIES



**Strategic priority:
Increasing resilience**

Primary objective

The transport system is better able to cope with natural and anthropogenic hazards.

Contribution to transport outcomes

- **Healthy and safe people** – improvements to roads, public transport and walking and cycling networks will reduce deaths and injuries, and support more physically active travel.
- **Resilience and security** – anticipating and adapting to natural hazards and the effects of climate change will increase collective resilience and security.
- **Economic prosperity** – transport networks will be less susceptible to disruption, reducing barriers to participation in educational, employment and economic opportunities.

How we will deliver these outcomes

New Zealand experiences a wide range of natural hazards – from earthquakes and volcanoes to extreme weather events, erosion, and landslides. Climate change is increasing the severity and frequency of some of those hazards, including flooding, and gradually increasing hazards associated with rising sea-levels. This is putting increasing pressure on the sector's capacity and resources to respond to climate-related events. The impacts are often particularly acute in rural areas due to a lack of alternate routes and the travel distances to access markets and services.

The strategic priorities work together to improve resilience. For example, maintenance and renewal programmes will recognise the impacts of climate change, with appropriate drainage upgrades and mitigation measures put in place to manage risks. A freight system that better integrates roads, rail and our port infrastructure will improve resilience when land transport disruptions occur.

While it is important to respond to events when they occur, urgent work is also required to proactively reduce the impacts of climate change over time. This includes, for example, considering managed retreat and the retirement of 'at risk' assets, reducing known hazards, and taking measures to reduce future risk, such as nature-based solutions to absorb rainfall.

Aspects of resilience are covered by different strategies including the National Disaster Resilience Strategy, the National Adaptation Plan, the Waka Kotahi 2018 Resilience Framework, Future Development Strategies (and joint spatial plans), the RNIP and the Waka Kotahi Climate Adaptation Plan (Tiro Rangi).

Increasing resilience to the current and future impacts of climate change will be delivered through:

- building capability at central and local government to assess, plan and deliver the necessary investments and services needed for a transport network that is both resilient and contributes to other outcomes
- building a dynamic understanding of the transport system's overall exposure to risks and the interdependencies with other systems (especially lifeline utilities)
- reducing exposure to known hazards and proactively reducing future risk through strategic investment (e.g., by building in locations that are informed by flood/hazard mapping and using climate scenario analysis)
- ensuring all new infrastructure is fit for a changing climate
- strengthening resilience to long-term climate impacts and other hazards when making decisions to maintain, upgrade, repair or replace existing infrastructure
- embedding nature-based solutions, where suitable (for example, creating a wetland to slow run-off)
- implementing Tiro Rangi, the Waka Kotahi Climate Adaptation Plan.



Strategic priority: Reducing emissions

Primary objective

Transitioning to a lower carbon transport system.

Contribution to transport outcomes

- **Environmental sustainability** – land transport investment will contribute to reducing greenhouse gas emissions. This will improve outcomes for the natural and built environment.
- **Healthy and safe people** – people will be less exposed to harmful levels of land transport-related pollution. Improvements to roads, public transport and walking and cycling networks will reduce deaths and injuries and support more physically active travel.
- **Economic prosperity** – transport networks will provide affordable, accessible and low-emissions choices for New Zealanders to participate in educational, employment and economic opportunities, and move freight.

STRATEGIC PRIORITIES

How we will deliver these outcomes

The Government's overall transport investment programme will need to reduce emissions. This will involve NLTF and direct Crown investment. The GPS expects that:

- Waka Kotahi will satisfy itself that each three-year NLTP contains a programme of activities that:
 - makes an appropriate contribution to the 2035 transport emissions reduction targets, within the available NLTF funding, the NLTP's scope of influence, the expectations set out in **Section 4** of this GPS, and other interventions to reduce emissions including land transport investment outside of the NLTF
 - meets the expectations set out in **Section 5** of this GPS, and
 - takes into account other interventions that impact on greenhouse gas emissions (including land transport investment outside of the NLTF).

This will involve prioritising interventions that can deliver emissions reduction and benefits across a range of strategic priorities and outcomes.

VKT reduction programmes will be developed and delivered for urban areas to meet VKT reduction targets. Waka Kotahi, councils, iwi, businesses, communities, and other Crown entities are expected to work together to develop urban VKT reduction programmes that identify investments and other measures that make it easier and more attractive for people to move using public transport or active modes. Investments that reduce VKT are expected to be included in RLTPs to inform investments made under the NLTP and future Crown funding decisions.

For the avoidance of doubt, the GPS does not expect that every individual investment within the NLTP must reduce emissions. For example, we expect the NLTP to include safety improvements, such as median barriers, that will not reduce emissions on their own. Other safety improvements, such as traffic calming and speed management, may be effective ways of delivering safety benefits while also reducing emissions. The right intervention will depend on the circumstances.

Prioritising emissions reduction will look different depending on local circumstances. For example, we expect the NLTF to prioritise activities that improve the reach, frequency and quality of public transport. But we know that shifting travel from cars to public transport will often be easier to achieve and result in larger emissions reductions in urban areas. Improving walking and cycling facilities, and low/zero-emissions vehicles are likely to play a greater role in mitigating climate change in some regions. Increasing adoption of low/zero emissions vehicles is supported by non-NLTF funding levers such as the Clean Car Discount.



Strategic priority: Safety

Primary objective

Transport is made substantially safer for all.

Contribution to transport outcomes

- **Healthy and safe people** – safer roads, streets, footpaths, cycleways and public transport facilities will enable more New Zealanders to travel by active modes, which can help improve people's health, and reduce deaths and serious injuries.
- **Economic prosperity** – well-designed and safe travel networks support productive economic activity as a result of fewer serious crashes, better public health outcomes and more reliable travel times.
- **Inclusive access** – a larger number of New Zealanders will have access to public transport services and safe options for active modes to travel to the places they need to go.
- **Resilience and security** – increasing the range of options people have for travel and reducing the risk from natural and man-made hazards.
- **Environmental sustainability** – safe roads, streets, footpaths, cycleways and public transport facilities will enable more people to travel by public transport and active modes, which will help reduce emissions and manage demand on the transport system.

How we will deliver these outcomes

The Government has committed to a target of reducing deaths and serious injuries on our roads by 40 percent by 2030. This will be delivered through five focus areas:

- Infrastructure improvement and speed management
- Vehicle safety
- Work-related road safety
- Road user choices
- System management.

GPS 2024 will contribute to several of these focus areas by further embedding our road safety principles into infrastructure planning, design, operations, maintenance, and investment decision-making. Safety expenditure will include investment in safe infrastructure (including for public transport and active modes), speed management, road policing, safety cameras and promoting safe behaviour.

➤ **GPS 2024 will further embed our road safety principles into infrastructure planning, design, operations, maintenance and investment decision-making**

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STRATEGIC PRIORITIES



**Strategic priority:
Sustainable urban and
regional development**

Primary objective

People can readily and reliably access social, cultural, and economic opportunities through a variety of transport options. Sustainable urban and regional development is focused on increasing housing supply, choice and affordability, and developing resilient and productive towns and cities through effective transport networks that provide a range of low-emission transport options and low congestion.

Contribution to transport outcomes

- **Economic prosperity** – efficient and effective transport networks, underpinned by reliable and frequent public transport systems, integrated with active travel networks, will help to manage road congestion, enable efficient flows of people and goods, and support housing and urban growth.
- **Healthy and safe people** – more active travel will support physical and mental health. Safe walking and cycling infrastructure and more travel by public transport will reduce deaths and serious injuries, and reduce illness caused by air pollution.
- **Inclusive access** – a larger number of New Zealanders will have access to public transport services and safe options for active modes to travel to the places they need to go.
- **Environmental sustainability** – reduced private vehicle travel and more travel by low-emission modes, such as active modes and public transport will reduce greenhouse gases and pollutants. Improving resilience such as better integrating nature-based

solutions can support broader environmental and biodiversity outcomes.

- **Resilience and Security** – improving transport network design and integrating planning across multiple disciplines will reduce the risk of disconnected communities and reduce the harm caused during emergency events.

How we will deliver these outcomes

Sustainable urban and regional development involves improving the quality of life in our urban and regional centres. By improving access, affordability, community connectivity and environmental outcomes, we will see more efficient land use and resource use. This GPS supports the achievement of well-functioning urban environments as specified in the National Policy Statement on Urban Development 2020.

Transport is a key enabler of housing supply choice and affordability. Urban planning and transport planning/investment will be closely co-ordinated, via current and future Urban Growth Partnerships, to support increased housing supply, and higher density development along well-connected transport corridors and in town centres. It will also give people more choices about where they live and work, and how they travel, by improving access to a range of transport modes and making it easier to access places using public transport and active modes. Traffic and congestion can be better managed by implementing policies and programmes that reduce the need for users to travel long distances and enable others to use dedicated active travel routes and frequent public transport services.

New Zealand's economy is also built on our regions. Ensuring our regional communities have the infrastructure and services they need to thrive and grow, boosts regional economies, and creates jobs. The Government wants to make regional economies stronger and more resilient to improve

the economic prospects, wellbeing and living standards of all New Zealanders. Many of these initiatives, which are designed to better align land use plans with transport, will focus on the biggest urban centres. However, it is also important to consider smaller towns and cities, particularly housing availability, affordability, and equity issues.

This will be delivered by:

- implementation of changes via the resource management system, including those that enable significantly more housing in urban areas (via the National Policy Statement on Urban Development 2020 and implementing Medium Density Residential Standards) close to economic, social and cultural opportunities connected to public transport, walking and cycling routes
- Waka Kotahi, the Ministry of Housing and Urban Development, Kāinga Ora and other Crown agencies partnering with local authorities as they develop their Future Development

- Strategies and VKT Reduction Programmes demand management tools, including greater use of road pricing and parking management
- investing in networks for rapid transit/public transport, cycling, walking and freight, and maintaining them at the required level of service for the demand
 - investing in metropolitan rail as part of the implementation of the New Zealand Rail Plan and support rail investigations and route protection actions to meet the emission reduction challenge
 - investing in new and maintaining existing inter-regional public transport connections
 - ensuring development is resilient to the current and future effects of climate change
 - Waka Kotahi and Public Transport Authorities will adopt the Sustainable Public Transport Framework and commit to decarbonising public transport by 2035.



STRATEGIC PRIORITIES



Strategic priority:
Integrated freight system

Primary objective

Well-designed and operated transport corridors and hubs that provide efficient, reliable, resilient, multi-modal, and low-carbon connections to support productive economic activity.

Contribution to transport outcomes

- **Healthy and safe people** – efficient freight movement and shifting the movement of freight from road to rail and coastal shipping, where appropriate, will reduce the safety risks of travel and improve air quality.
- **Resilience and security** – improving transport connections, alternative and multi-modal routes and integration of freight networks will boost the ability of the transport system to respond to and recover from disruptions.
- **Environmental sustainability** – decarbonising freight by increasing movement of freight by lower emissions transport modes (including rail and coastal shipping) will reduce carbon emissions and other pollutants.
- **Economic prosperity** – improving the resilience and efficiency of freight routes will help to reduce the cost of moving goods and services around New Zealand, easing pressure on people's cost of living and supporting a more productive overall economy.

How we will deliver these outcomes

These outcomes require a long-term and coordinated approach to our national freight network. This will be achieved in part through:

- Finalising and implementing the New Zealand freight and supply chain strategy
- Managing resilience risk on important regional corridors where disruptions cause the highest economic and social cost
- Improving the safe and efficient movement of freight by taking the needs of freight operators into consideration in transport design and urban planning, and through network optimisation and optimal vehicle regulation
- Enabling greater mode choice and efficiency through more integrated networks – to enable freight to travel on the most carbon efficient mode and route, such as the rail network
- Improving mode choice for moving freight by coastal shipping, by investing in infrastructure and supporting services and relevant research.

While it is important to boost the share of freight carried by lower emissions modes like rail and coastal shipping, 70 percent of freight travels under 100 km and is largely in urban settings. Therefore, the road freight sector will continue to carry the largest volume of freight in our supply chain. We will continue to work with the sector to build a resilient network, including through increased investment in maintenance. Consistent with the ERP, the Government will also work on policy options to accelerate the uptake of lower emissions road freight options.

The Government is committed to continuing to invest in rail through the RNIP to achieve the priorities set out in the New Zealand Rail Plan. This includes investing to restore rail freight and provide a platform for future investments for growth where they align with outcomes sought through the GPS.

The Ministry is leading the development of the New Zealand freight and supply chain strategy, which seeks to identify what is needed to optimise the system in the coming decades. The GPS will support this strategy.

Strategic Investment Programme

The Government has identified a number of strategic projects that it considers present an opportunity for transformational change, and to develop an integrated, sustainable, resilient, safe, and low-carbon land transport network.

The projects included in the strategic investment programme are listed below.

The authority to approve a Rail Network Investment Programme (RNIP) and NLTF funding for an RNIP sits with the Minister of Transport. For the non-rail projects, decision rights for funding from the NLTF rests solely with Waka Kotahi. But by highlighting these projects, the Minister expects that their strategic importance will be given particular consideration during NLTP development, given their alignment and potential impact on the wider government priorities outlined in this document.

The Strategic Investment Programme has been used to inform the Activity Class ranges on page 48, and any additional funding provided to the NLTF.

<ul style="list-style-type: none"> • Warkworth to Whangārei State Highway 1, including: <ul style="list-style-type: none"> – Te Hana to Brynderwyns – Warkworth to Wellsford – Whangārei to Brynderwyns 	<ul style="list-style-type: none"> • Napier to Hastings State Highway 2
<ul style="list-style-type: none"> • Auckland Northwest Rapid Transit 	<ul style="list-style-type: none"> • Wellington CBD to Airport State Highway 1 – Second Mount Victoria Tunnel and upgrades to Basin Reserve/Arras Tunnel
<ul style="list-style-type: none"> • Auckland rail third and fourth rail mains 	<ul style="list-style-type: none"> • Wellington CBD to Island Bay Mass Rapid Transit
<ul style="list-style-type: none"> • Avondale to Onehunga rail link 	<ul style="list-style-type: none"> • Nelson (Rocks Road) shared path State Highway 6
<ul style="list-style-type: none"> • Auckland and Wellington Metropolitan Level Crossing Upgrade and Removal Programme 	<ul style="list-style-type: none"> • Nelson – Hope Bypass State Highway 6
<ul style="list-style-type: none"> • Cambridge to Piarere State Highway 1 	<ul style="list-style-type: none"> • Christchurch Northern Link State Highway 1
<ul style="list-style-type: none"> • Tauranga to Tauriko State Highway 29 	<ul style="list-style-type: none"> • Ashburton Bridge State Highway 1

STRATEGIC PRIORITIES

Government commitments

In addition to the Strategic Investment Programme, the Minister expects that, where appropriate, the development of the NLTP should be informed by the following:

- Road to Zero Safety Strategy
- New Zealand Rail Plan
- Auckland Transport Alignment Project (ATAP)
- Let's Get Wellington Moving (LGWM)
- Emissions Reduction Plan (ERP)
- National Adaptation Plan (NAP)
- Disability Action Plan
- Inter-regional public transport

Many of these programmes are expected to be supported by a mixture of NLTF and direct Crown funding. The extent of NLTF funding is subject to Waka Kotahi decisions to approve activities within the programmes (except for the New Zealand Rail Plan, where the Minister approves funding of activities).

Some of these programmes also rely on "local share" contributions. It will be important for councils and Waka Kotahi to consider how NLTF, Crown and local funds can be optimally used to meet the Government's expectations. We expect Waka Kotahi to take an integrated investment approach across funding sources to ensure the NLTF can be leveraged to deliver the greatest benefits across multiple priorities and outcomes.

Waka Kotahi, working closely with approved organisations, is expected to report to the Minister on any investment and delivery progress towards these commitments.

Road to Zero Safety Strategy

'Road to Zero' is focused on making our roads safer, by providing a map for change, with a vision of a New Zealand where no one is killed or seriously injured on our roads. Road to Zero sets a target of a 40 percent reduction in deaths and serious injuries by 2030 (from 2018 levels). It charts a path to achieving this with a focus on infrastructure improvements and speed management; vehicle safety; work-related road safety; road user choices and system management.

Road to Zero activities will be delivered across the state highway and local road improvement and safety activity classes.

New Zealand Rail Plan

The New Zealand Rail Plan outlines the Government's vision and priorities for rail. The vision is for New Zealand's national rail network to provide modern transit systems in our largest cities, and to enable increasing volumes of freight to be moved off the roads and onto rail. Over the next decade investment is needed to achieve a reliable and resilient national rail network. This requires investment in both the national rail freight network and our metropolitan rail networks.

The rail network activity class was created to support investment in KiwiRail's national rail network to restore rail freight and provide a platform for future investments for growth in rail freight. The NLTF is one contributor to funding this alongside the Crown's direct contribution. The public transport infrastructure activity class also delivers rail network investment within the Auckland and Wellington metropolitan networks.

The Government is committed to continuing to invest in rail through the RNIP to achieve the priorities set out in the New Zealand Rail Plan and outlined in this GPS 2024. This includes investing in the national rail network to promote rail freight and future metro investments where they align to the outcomes sought.

Auckland Transport Alignment Project (ATAP)

ATAP is a strategic initiative between the Government and Auckland Council to develop a transformative transport programme that addresses Auckland's key challenges over the next 30 years and beyond. ATAP is funded by a mixture of sources, including the NLTF, Auckland Council local share and Crown funding for the City Rail Link, NZUP and the Covid Response Recovery Fund (CRRF).

Auckland is currently developing the Auckland Integrated Transport Plan, which will present the short and long-term strategic priorities for Auckland across an integrated network. The Minister and the Mayor of Auckland have jointly commissioned this work to develop a set of shared transport outcomes for Auckland and expect key decisions to be finalised prior to 1 July 2024, when GPS 2024 takes effect. Any changes to ATAP will need to reflect the challenging funding environment, with the NLTF and local share under increasing pressure.

It is expected that ATAP will inform the Auckland RLTP and the Auckland component of the NLTP.

STRATEGIC PRIORITIES

Let's Get Wellington Moving (LGWM)

LGWM is a joint initiative between Wellington City Council (WCC), Greater Wellington Regional Council (GWRC), and Waka Kotahi to make major investments over 20 years in mass rapid transit, walking and cycling, public transport, and state highway improvements to support urban development in Wellington City.

Emission Reduction Plan (ERP)

New Zealand's first ERP laid down the challenge: we need to reduce our transport emissions by 41 percent by 2035 (from 2019 levels) and largely decarbonise transport by 2050. The ERP sets four transport targets, outlined in **Section 3**.

To meet these targets, we need to focus on three things:

- Making it easier to get around without a car
- Helping people and businesses make the switch to zero emission vehicles
- Encouraging low-emissions freight options.

National Adaptation Plan (NAP)

The first NAP was published in August 2022. It contains Government-led strategies, policies and actions that will help New Zealanders adapt to the changing climate and its effects.

Major actions signalled in the NAP include:

- a platform to work with Māori on climate actions
- risk, resilience and adaptation information portals which will provide access to information, and a rolling programme of targeted guidance
- a programme of work to unlock investment in climate resilience.

Disability Action Plan

The Disability Action Plan 2019-2023 identifies outcomes and work programmes to advance implementation of the United Nations Convention on the Rights of Persons with Disabilities and the New Zealand Disability Strategy 2016-2026. The GPS 2024 relates most directly to the Accessibility work programme.

Inter-regional public transport

Through this GPS the Government signals its intention to make improvements to the inter-regional passenger transport network through a dedicated activity class that will enable partnership with other parties including local government, KiwiRail, and the private sector, to begin developing new inter-regional public transport services, including rail. In addition, the Government is already investing in inter-regional rail passenger transport, through the Te Huia and Capital Connection services.

Meeting the land transport needs of different users

Users of the land transport system have a diverse range of needs, and it is critical that the system is accessible to all New Zealanders.

This includes, for example, disabled people, low-income earners, and people of different ages, genders, and ethnicities. Transformational change to the transport system creates opportunities to address existing inequities. Care will be needed to avoid further entrenching disparities that already exist.

Māori

Decision-makers across the transport system have responsibilities³ to work in partnership with Māori and in a way that is consistent with the Government's commitments to te Tiriti o Waitangi. In the land transport system, this means:

- demonstrating good governance (kāwanatanga) by ensuring Māori interests are considered and addressed at all levels
- actively protecting tino rangatiratanga and enabling Māori to exercise kaitiakitanga with respect to natural, physical, and spiritual resources
- ensuring equitable outcomes for all users of the land transport system.

A focus for GPS 2024 is on ensuring Māori aspirations for the transport system are better reflected at the strategic level. This will require enduring partnerships across the system – between the Ministry of Transport, Waka Kotahi, KiwiRail and local government, with relevant whānau, hapū and iwi, and national organisations.

3. The principal statutory obligations with respect to Māori are set out under section 4 of the Land Transport Management Act 2003.

STRATEGIC PRIORITIES

Supporting rural and regional communities

GPS 2024 recognises the diverse transport needs of communities across New Zealand. Transport is essential for ensuring connections between primary production and markets, as well as access to social opportunities such as health, education, and work.

Local funding pressures, exposure to natural hazards, and the increasing pressures of climate change are placing stress on our rural and regional communities to maintain these connections. It is critical that sufficient funding is available to maintain networks to the condition required to ensure they are safe, resilient, sustainable, and accessible.

Through the NAP, we expect that new funding and asset management tools will be developed that support councils to better manage land transport infrastructure. New investment to improve resilience will be expected once the necessary plans and strategies are in place. In the short-term, the land transport sector will continue to work collaboratively to share insights and tools and improve decision-making.

Key strategic priorities for rural and regional communities include resilience, maintaining and operating the existing system, safety, and better freight integration. Funding for activities that reduce emissions in these areas should be encouraged where it delivers value for money consistent with the GPS.

Supporting disabled people

'Inclusive access' is one of the main outcomes sought in the Transport Outcomes Framework. Disabled people need access to transport services so that they have equitable access to key locations such as work, study, shops, and community spaces. Transport operators are required to make "reasonable accommodations" so that disabled people have equitable access to the services these companies provide. Investment decision-makers also need to consider how their investments will impact on disabled people so that the transport system enables people with disabilities to access these opportunities.

➤ **Transport is essential for ensuring connections between primary production and markets, as well as access to social opportunities such as health, education and work**

How progress will be measured

The Ministry and Waka Kotahi have together developed a GPS monitoring framework for GPS 2024.

The framework in **Appendix 6** shows how the strategic priorities, action plans and policies work together to deliver the intended outcomes. Draft outcome indicators are detailed in Table 1 below. These indicators will be updated as part of ongoing framework development. Waka Kotahi is expected to report on these outcomes, as well as progress on specific actions that will be required

to deliver the GPS 2024. **Section 5** provides further detail about how the Minister expects Waka Kotahi to plan, manage and report on its investment activity.

Value for money is embedded throughout the framework, recognising that a range of factors influence this. Waka Kotahi is expected to report on how value for money is achieved, depending on the type of investment, the business case phase, the level of complexity, affordability or uncertainty that may need to be considered. Focussing only on traditional indicators of economic efficiency (such as Benefit-Cost Ratio) is not sufficient on its own to improve value for money.



STRATEGIC PRIORITIES

Table 1: Monitoring the outcomes sought

Strategic priority	Contribution to Transport Outcomes	Measures we will use to monitor progress
Maintaining and operating the system	Investments in maintenance renewals and replacements support base asset condition	<ul style="list-style-type: none"> Proportion of the state highway network that meets minimum asset condition requirements Proportion of travel on smooth roads (local roads) Asset sustainability ratio (state highways)
Increasing resilience	Existing infrastructure will have increased adaptive capacity	<ul style="list-style-type: none"> Percentage of high-risk, high-impact routes with a viable alternative (also a measure under “Integrated freight system”) The proportion of unplanned state highway road closures resolved within standard timeframes
	Urban planning and development will minimise risk of climate change to communities	<ul style="list-style-type: none"> Te Manatū Waka will work with Waka Kotahi and other agencies to develop improved adaptation and resilience measures
Reducing emissions	The ERP will be on track to achieve its emissions reduction targets	<ul style="list-style-type: none"> Greenhouse gas emissions from the land transport system Light vehicle kilometres travelled Proportion of light vehicle fleet that are no/low carbon vehicles Emissions from freight transport
Safety	The system is on track to achieve the Road to Zero targets	<ul style="list-style-type: none"> Deaths and serious injuries (DSIs) on the land transport system – Target 40 percent reduction by 2030 Head-on, run-off-road and intersection DSIs DSIs involving low safety rating vehicles
Sustainable urban and regional development	Reduced reliance on cars in urban areas	<ul style="list-style-type: none"> Increase access to social and economic opportunities by public transport and active modes Mode share of PT and active modes Proportion of new housing with access to frequent public transport Perceived safety of walking and cycling Percentage of people that view active modes as an attractive and feasible alternative to driving for their most recent journey Private vehicle occupancy
	Improved transport journeys	<ul style="list-style-type: none"> Commuter length Trip rate (measure of how often people leave their homes) Predictability on key urban roads (good indication of urban congestion) User experience by mode (increasing for shared and active modes)
Integrated freight system	Improved freight supply chain efficiency	<ul style="list-style-type: none"> Rail travel time reliability (freight)
	More freight is moved by low carbon modes	<ul style="list-style-type: none"> Freight mode share
	Freight routes are more resilient	<ul style="list-style-type: none"> Proportion of outages that are restored within agreed timeframes Number of rail freight derailments Percentage of high-risk, high-impact routes with a viable alternative

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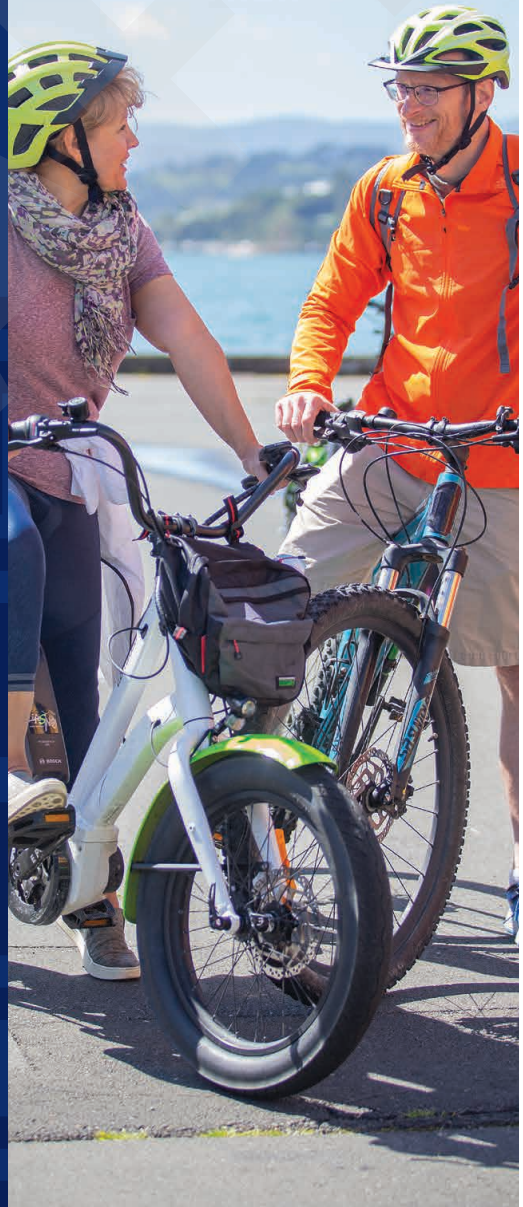
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Section 4. Investment in land transport

This section describes how different funding and financing sources will contribute to land transport investments and sets NLTF activity class funding ranges.



INVESTMENT IN LAND TRANSPORT

Context for investment

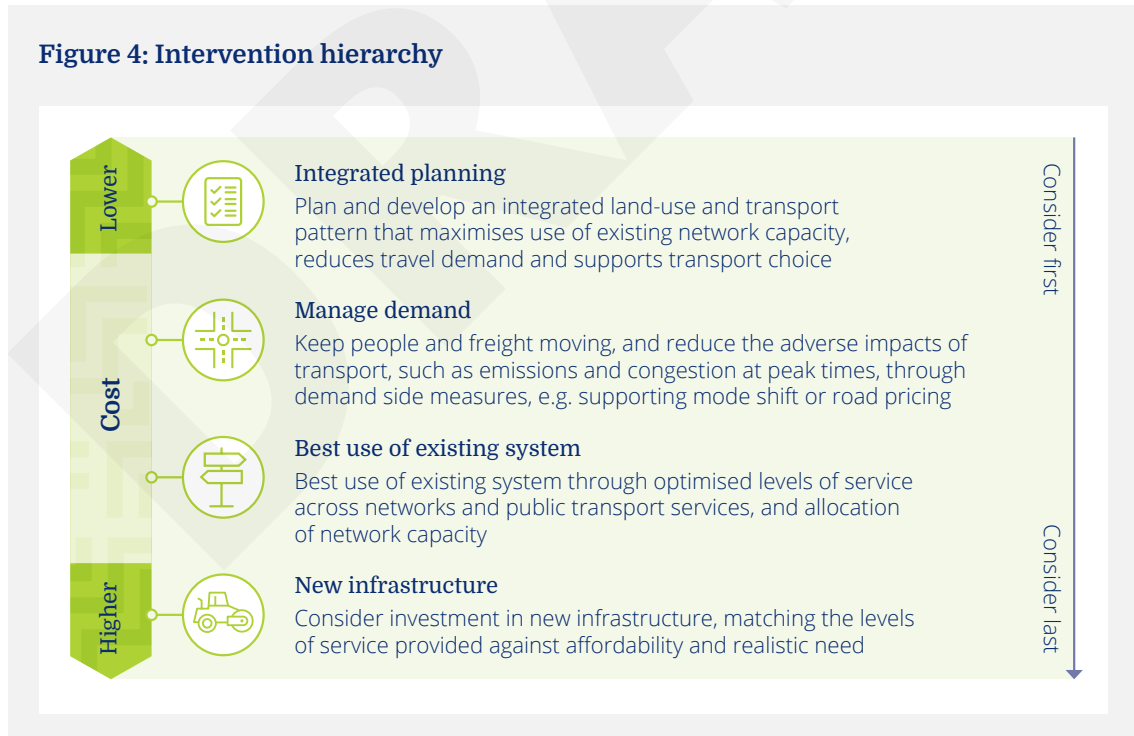
The focus of Government Policy Statements on land transport are on transport outcomes that are addressed by direct and ongoing investment.

For example, regulatory changes such as vehicle safety standards, speed limits and pollution emission standards, also play a critical role in improving safety and reducing emissions. Integrated transport and planning tools and investment in rural broadband can also help to connect communities and help reduce the need to travel. Often a combination of levers will be required to achieve any one outcome.

Infrastructure investment is one of the levers we use to achieve transport outcomes. However, funding of transport infrastructure and services is only one way of achieving transport outcomes – there are many other ways to influence those outcomes.

When it comes to direct investment in land transport services and infrastructure, the following intervention hierarchy applies.

Figure 4: Intervention hierarchy



The infrastructure intervention hierarchy should be applied when generating and considering alternatives and options. The intervention hierarchy is used to help drive value for money by promoting low-cost investment ahead of more costly physical infrastructure and technological investment.

Given the constrained funding environment, it is more important than ever that:

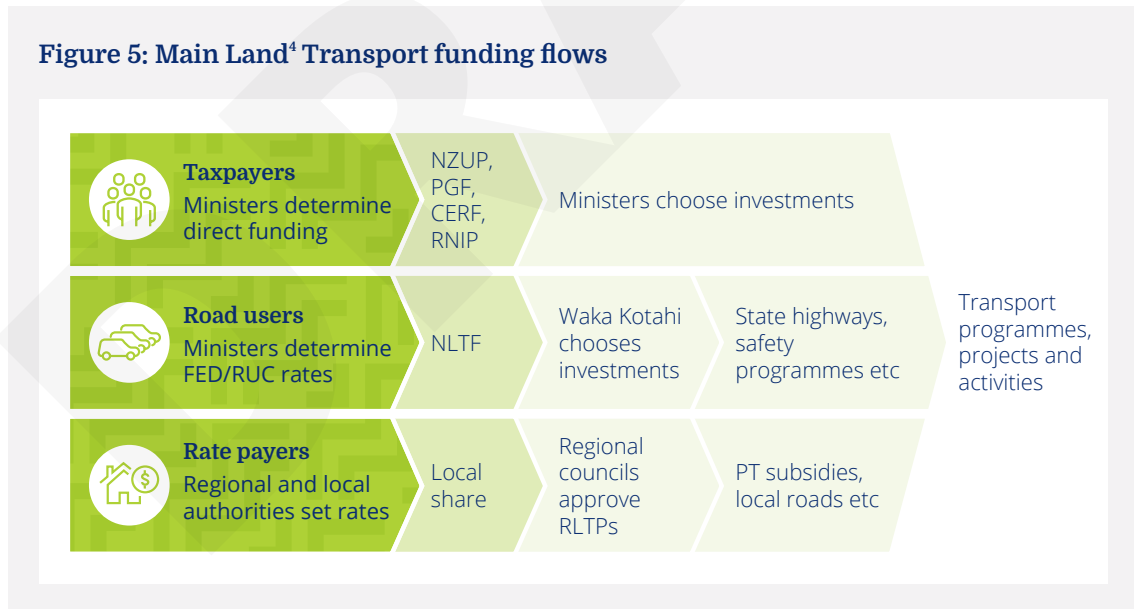
- investment planning works through the intervention hierarchy and considers all the other levers available for the land transport system to influence outcomes, before investing in a transport infrastructure improvement solution

- all spending provides value for money. This means robust options analysis, seeking opportunities to deliver co-benefits across multiple outcomes, and ensuring fit-for-purpose investment processes.

Sources of land transport investment

The table opposite summarises some of the key considerations for how different funding sources are used for land transport investment.

The main funding pathways for land transport investment are shown in Figure 5.



4. For clarity, this diagram does not attempt to show every funding pathway. For example, Ministers determine the Crown 'top-up' for rail to go to the NLTF and approve the RNIP. Ministers have also provided additional funding to the NLTF for flood recovery works.

INVESTMENT IN LAND TRANSPORT

Table 2: Main sources of land transport investment

National Land Transport Fund (NLTF)	<ul style="list-style-type: none"> • The NLTF is a dedicated fund for maintaining and developing local and national transport infrastructure, services and activities. • The NLTF is largely made up of revenue from fuel excise duty (FED) and road user charges (RUC). Smaller amounts of revenue come from motor vehicle registration and licensing, the sale of surplus land and property, tolls and freight rail track user charges. • Waka Kotahi also has access to debt facilities to manage short-term cashflow issues, and for other purposes, as prescribed by the Crown from time to time. • Waka Kotahi is responsible for allocating NLTF funding to give effect to the GPS. This includes contributing to the results sought in Section 3, which guide investments to support the Transport Outcomes Framework: inclusive access, economic prosperity, healthy and safe people, environmental sustainability and resilience and security. • The NLTF will fund activities in accordance with the activity class ranges set in the GPS. • The NLTF is required to fund previously approved activities (subject to narrow exceptions) and debt commitments. • For GPS 2024, the priority for funding from the NLTF is to ensure the ongoing operation and maintenance of the system. The activity class ranges in the GPS allocate approximately 60 percent of funding towards the maintenance, operation and optimisation of the existing land transport system over the next ten years. This is in accordance with the Maintaining and Operating the System strategic priority and as a core enabler for the delivery of all other strategic priorities and outcomes. • Available funding beyond maintenance, operation and optimisation of the existing system will be prioritised to fund improvement activities to contribute to the strategic priorities.
Climate and Emergency Response Fund (CERF)	<ul style="list-style-type: none"> • Revenue from the Emissions Trading Scheme is allocated to CERF. • Cabinet allocates CERF funding to support emissions reductions and reducing vulnerability or exposure to the impacts of climate change, including the implementation of the ERP and NAP. • CERF funding may be used to support the implementation of transport activities, as a means of supplementing investments made through the GPS 2024 with a focus on emission reduction and/or mitigating the impacts of climate change.
Direct Crown funding	<ul style="list-style-type: none"> • Cabinet may choose to allocate additional funding for transport projects to support the achievement of GPS or wider government priorities that are not affordable within the NLTF. • These tend to be investments that are very large; projects that have multiple objectives; or investments that respond to specific events or wider strategic needs. This may include, for example, major infrastructure projects, regional development projects and large-scale system shocks (e.g., COVID-19 or recovery from natural disasters). • There will typically be a broader set of considerations applied to these investments than to projects and activities that centre purely on transport objectives. When proposing investments for Crown funding, Cabinet is responsible for determining the rationale for investment and relative priority. • Officials have responsibility for ensuring that Ministers are well informed before making such decisions, including providing advice about the fit of a proposed investment with relevant government strategies and plans such as the ERP, the NAP and the NPS-UD. The nature of direct Crown funding is such that the timing of its approval does not necessarily align with the publication of a GPS.
Local share	<ul style="list-style-type: none"> • Regional councils, unitary authorities and territorial authorities – collectively known as ‘local government’ – play a key role in the transport planning and funding system. • Local government is responsible for developing, maintaining and operating a large network of local roads and for delivering public transport infrastructure and services. It also has a key role in achieving integrated transport planning. • Local government contributes ratepayer funding towards activities in the NLTF that it is responsible for delivering, and this supplements investment from the NLTF. • These activities include local road construction, operations and maintenance; public transport infrastructure and services; and walking and cycling infrastructure.

Investment delivered through the National Land Transport Fund

The Government is proposing to make a substantial increase in the funds available to the NLTF.

The Government is proposing to make a substantial increase in the funds available to the NLTF. Including all contributions, revenue available to the NLTF will rise from \$15.5 billion in 2021/22-2023/24 to \$20.8 billion in 2024/25-2026/27, an increase of 34 percent.

This additional funding will be used to ensure that New Zealanders have a quality roading network that is resilient, and the transport system is optimised to support future expectations. This includes being resilient to adverse weather conditions. Given the recent weather events, the programme will also focus on projects that support recovery and building back better. Investment in maintenance and operation of the system will also be a key focus for GPS 2024.

In March 2022, the Government cut FED and RUC rates by 25 cents a litre to provide cost of living relief through the global energy crisis, triggered by the war in Ukraine. The FED and RUC cuts concluded on 1 July 2023. Balancing the increase in FED/RUC, following removal of the 25-cent reduction, is critical to minimising the cost increases that households are facing.

A balance has been struck which covers the critical increase in investment by funding this through:

- Proposed gradual increases in FED and RUC
- Hypothecation of traffic infringement fee revenue to the NLTF
- Crown grants
- A Crown loan.

In proposing this combination of revenue sources, the Government has aimed to balance:

- The cost pressures on household and business budgets

- The need for more investment to maintain and improve the resilience of transport infrastructure
- Significant price increases in the sectors that provide transport infrastructure and services
- The absence of a FED/RUC increase to the NLTF since September 2020⁵
- The value of maintaining price signals for road users to help to manage demand
- Delivery constraints.

These factors have led to the proposed funding package, totalling \$20.8 billion of expenditure over the first three years of GPS 2024. While recognising the desirability of additional expenditure, ultimately that must be balanced against affordability and delivery constraints.

Proposed increases to FED and RUC

The Government is proposing to return to the previous practice of regular, small increases in FED/RUC to maintain the spending power of the NLTF (see Figure 6). Officials advised the Government that it should make larger increases to FED/RUC to provide most of the additional funding from this source. However, the amount that would be required to fund the NLTF in full would be a one-off increase of 30 cents per litre to fund the essential expenditure and another one-off increase of 8 cents per litre to fund the Strategic Investment Programme.

Given the significant impact that this would have on the cost of living for many households, the Government does not consider that an increase of this kind would be acceptable. Accordingly, the draft GPS proposes to supplement the NLTF with direct Crown funding and financing to reduce the size of the proposed FED/RUC increases.

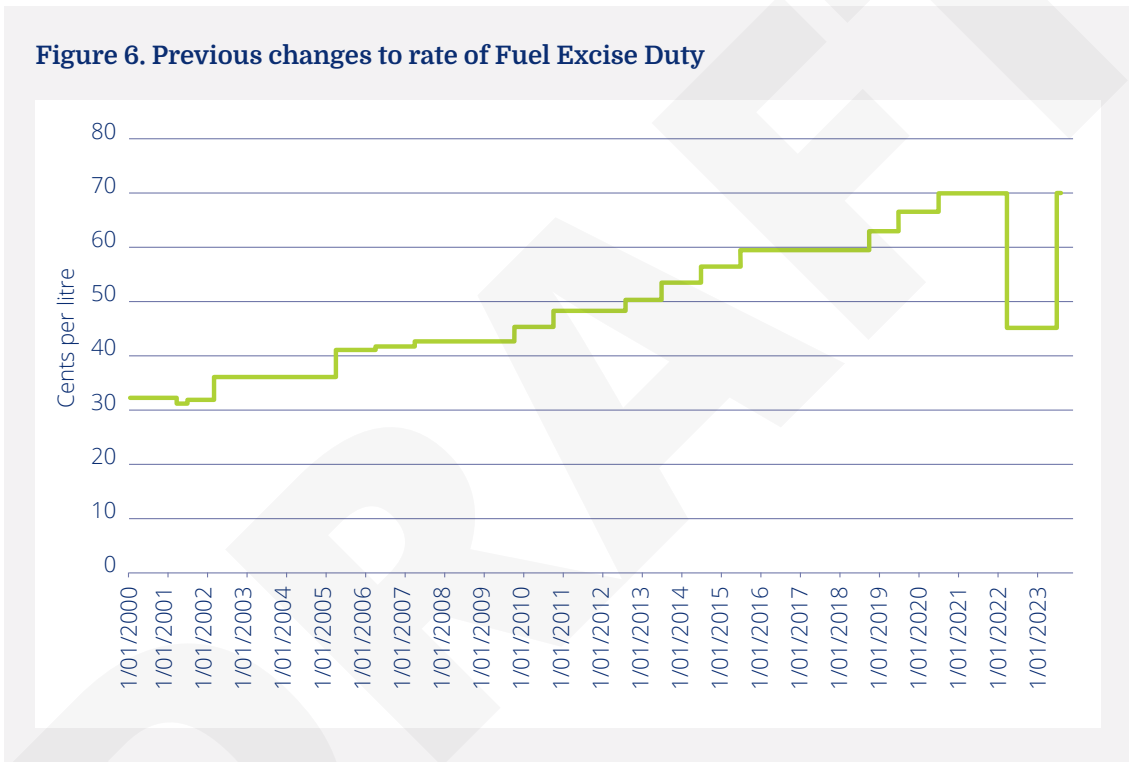
To ensure that revenue matches investment, and the land transport system continues to be maintained, we propose two six-monthly 2 cents per litre increases for the first year, followed by two annual 4 cents per litre increases, reaching

5. Noting that the Government supported households from March 2022 to June 2023 with temporary reductions in FED and RUC. During this time, Crown funding maintained expected cashflows into the NLTF.

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INVESTMENT IN LAND TRANSPORT

Figure 6. Previous changes to rate of Fuel Excise Duty



a total of 12 cents per litre in July 2026. A 2 cent per litre increase is the equivalent to an additional cost per week of \$0.44 to the average motorist, increasing to \$2.64 per week by July 2026.

The proposed increase, phased in by July 2026, will generate an additional \$1.4 billion in revenue over 2024-27. This additional revenue will, in part, be used to meet the rising costs of maintaining roads, which is forecast to cost between \$5.4 billion and \$8.1 billion over 2024-27.

Hypothecation of traffic infringement fee revenue to the NLTF

Fee revenue from traffic offences currently goes into the Crown account. To help deliver on the critical investment in land transport required through GPS 2024 and reflecting the safety-focus of traffic infringement notices, it is now proposed that infringement fees will be hypothecated to the NLTF where it will be directed to support safety investments through the Road to Zero programme. Infringement fees currently amount to approximately \$100 million per annum.

Crown grants

The Government is proposing to provide Crown grants totalling \$2.9 billion to the NLTF over the period 2024/25-2026/27. This will include \$500 million from the CERF, which will be directed to the Walking and Cycling Activity Class to increase uptake of walking and cycling and reduce emissions.

Crown loan

The final funding component is a Crown loan of \$3.1 billion. This will be repaid over ten years from the additional FED and RUC revenue.

Together, FED/RUC increases, Crown grants, a Crown loan and traffic infringement fee hypothecation will ensure the essential expenditure necessary to maintain our land transport infrastructure and the continued operation of transport services.

Future of the Revenue System

The proposals above will provide confirmed revenue for the period 2024/25-2026/27. However, as some of this revenue is coming from one-off grants, expected revenue drops in 2027/28.

The land transport system is undergoing major transitions. This involves: a shift from private cars to active modes or public transport; moving more freight from road to rail and coastal shipping; a move to decarbonise transport modes; and changes in where we live and work. Consequently,

revenue from road users will be impacted. At the same time, additional investment is required to support emissions reduction and safety programmes.

The Government has commenced a review, called Future of the Revenue System (FoRS) to determine how land transport should be funded in the future, to ensure sustainability in the long-term. The Ministry is currently examining options, with a view to public consultation in early 2024. Detailed design work and development of the preferred options, and staged implementation, will come after that. It is expected that this work will be completed in time to inform GPS 2027.

It is expected that the Government's transport funding approach for the period from 2027/28 will be informed by the results of the FoRS review.

National Land Transport Programme

The LTMA requires Waka Kotahi to prepare and adopt a NLTP, for the following three financial years. The NLTP must:

- contribute to the purpose of the LTMA
- give effect to the GPS, and
- take into account any:
 - regional land transport plans
 - national energy efficiency and conservation strategy
 - relevant national policy statement and any relevant regional policy statements or plans that are for the time being in force under the Resource Management Act 1991.

Table 3: National Land Transport Fund expected revenue 2024/25 to 2029/30

	2024/25 \$m	2025/26 \$m	2026/27 \$m	2027/28 \$m	2028/29 \$m	2029/30 \$m
NLTF revenue	6,200	6,800	7,750	5,400	5,450	5,500

INVESTMENT IN LAND TRANSPORT

Table 4: National Land Transport Programme funding ranges 2024/25 to 2029/30

	2024/25 \$m	2025/26 \$m	2026/27 \$m	2027/28 \$m	2028/29 \$m	2029/30 \$m
Expenditure target	5,550	6,000	6,450	4,750	5,000	5,150
Maximum expenditure	5,850	6,300	6,750	5,050	5,300	5,450
Minimum expenditure	5,150	5,600	5,600	4,550	4,800	4,950

Note this expenditure target relates specifically to NLTF spend i.e., Waka Kotahi share (excluding local share contributions and other external funding sources).

Table 4 shows the total expenditure target along with the maximum and minimum for the ten years of GPS 2024. The expenditure target for the NLTP reflects the NLTF funding that can be invested into land transport activities' net of expected debt repayments (see **Appendix 3**). It is based on the expected level of NLTF revenue (noting that additional revenue decisions relating to 2027/28 onwards are yet to be taken), the net impact of borrowing and any surpluses carried forward from one financial year into the next.

Allowable reasons for varying the expenditure targets

The Minister may vary the expenditure targets. Where it is likely that actual revenue levels will vary significantly from expenditure targets or it is not possible to spend at the expected rate (e.g., a pandemic), the Ministry and Waka Kotahi will advise the Minister on options for aligning expenditure and revenue.

Allowable variation

Waka Kotahi is required to match its expenditure to the target expenditure set out in Table 4. However, it is also legally required to limit its spending to the levels of available revenue in the NLTF. Because both the timing and levels of revenue and expenditure are subject to

uncertainty, the LTMA 2003 provides for an 'allowable variation' to be set in a GPS as a way of managing any imbalances that arise.

In practice this 'allowable variation' is determined by the loan facilities provided to Waka Kotahi as these set the limit on the extent to which expenditure from the NLTF can exceed revenue inflows. For the avoidance of doubt, in GPS 2024 the allowable variation is the sum of all borrowing made available to Waka Kotahi by the Minister of Transport and the Minister of Finance, reduced over time as that borrowing is drawn down.

Policy on borrowing for the purposes of managing the delivery of the NLTP

At times borrowing will be required to manage the delivery of the NLTP. Borrowing increases available funding in the short-term, which can be used to manage cash flow, cope with unexpected shocks or to deliver additional activities. However, in the future there will be a corresponding decrease in available funding as the borrowing is repaid.

A change in how borrowing is reported is being implemented in this GPS. The activities funded through borrowing will be reported at the time of the investment as expenditure in the appropriate activity class. Repayment of borrowing will be reported as expenditure from the NLTF, separate from activity class spend. Put simply, although the

INVESTMENT IN LAND TRANSPORT

NLTF will be responsible for repayment of the borrowing, the interest and debt repayments will be reflected separately from the activity class ranges in GPS 2024.

The Ministry will work with Waka Kotahi to develop reporting practices to ensure both the spend on activities funded from borrowing and the repayments of borrowing are clearly reported. This includes borrowing drawn down before 1 July 2024.

At the time of publishing this GPS, formal arrangements are in place for Waka Kotahi to

use several borrowing facilities. Table 5 provides details of these arrangements. A forecast of the expected debt repayments over the next six years is presented in **Appendix 3**. If additional borrowing facilities are required, Waka Kotahi must seek approval from the Ministers of Finance and Transport.

Two of the facilities relate to revolving credit. These provide access to committed funding to manage fluctuations in cash flow – either due to seasonal variations or shocks.

Table 5 Waka Kotahi borrowing facilities

Borrowing Facility	Purpose of borrowing	Size of facility	Amount drawn down*	Repayment Period
Management of cash flow (revolving credit facility)	To manage seasonal cash flow variations in the NLTF	\$250m	\$0	Annually
Revenue and expenditure shocks (revolving credit facility)	To manage any unexpected fluctuation in revenue or expenditure	\$250m	\$150m	Within 4 years of draw down
Auckland Transport Package	To progress the Auckland Transport package	\$375m	\$318m	Before 30 June 2027
Tauranga Eastern Link	To bring forward construction of the Tauranga Eastern Link	\$107m	\$107m	To be repaid through future tolls revenue by June 2050
Housing Infrastructure Fund	To accelerate transport projects that support housing development	\$357m	\$46m	Before June 2031
COVID-19	To manage the shortfall in revenue resulting from COVID-19	\$425m	\$332m	Before 30 June 2027
2021-24 NLTP facility	To address the gap between planned investments in the NLTP and level of investment required to deliver GPS 2021 priorities	\$2b	\$500m	10 years from drawdown
2024-27 NLTP facility	To address the gap between planned investments in the NLTP and level of investment required to deliver GPS 2024 priorities	\$3.1b	\$0	10 years from drawdown

Note: This list does not include lending facilities related to Waka Kotahi's regulatory functions.

*Amounts drawn down as at 30 June 2023.

Activity class framework

The NLTF funds activity classes, each of which represent a grouping of similar activities.

The activity class funding ranges outlined in Table 6 provide signals about the balance of investment expected across the GPS. The focus of the investment in the activity classes is on maintaining and operating the system, with additional investment coming from other sources to support the other strategic priorities.

For each activity class, a funding range is given with an upper and lower expenditure limit. Waka Kotahi is responsible for allocating funding within these ranges to specific activities, while also staying within the overall expenditure target.

There may be additional funding from other sources (such as Crown funding or local government) towards some projects and activities. Except for rail (see page 49), any funding from other sources is additional to the expenditure target and the activity class funding ranges.

GPS 2024 allocates funding ranges to twelve activity classes. The activity classes are:

- Public transport services
- State highway maintenance
- Local road maintenance
- Investment management
- Rail network
- Public transport infrastructure
- State highway improvements
- Local road improvements
- Safety
- Walking and cycling improvements
- Coastal shipping
- Inter-regional public transport.

The activity classes follow on from GPS 2021, with the addition of one new activity class, *Inter-regional public transport* and renaming the Road to Zero activity class to be the *Safety* activity class.

Inter-regional public transport activity class

Inter-regional public transport will play a crucial role in achieving our emissions reduction targets. Currently there are two inter-regional public transport rail services, Te Huia (between Hamilton and Auckland) and the Capital Connection (between Palmerston North and Wellington). The inter-regional public transport activity class provides for investment in existing and new inter-regional services, encouraging Regional Councils and Unitary Authorities to work together to expand and improve inter-regional public transport service offerings.

This activity class also provides funding to support the delivery of new services. This activity class will work in a similar way to the Coastal Shipping activity class in the 2021-24 GPS, by providing a dedicated funding source to partner with other players to develop and deliver new services. It is expected that Waka Kotahi will develop key principles and objectives shortly after the Government has responded to the Select Committee Inquiry into the Future of Inter-Regional Passenger Rail, and that Waka Kotahi will then work with public transport agencies, KiwiRail, and the private sector to support proposals that will extend and improve services. The Government expects this activity class will initiate extensions to inter-regional passenger rail, but it can also be applied to other forms of Inter-regional public transport including bus and ferry services.

Safety activity class

The Safety activity class represents an update to the Road to Zero Activity Class introduced through GPS 2021. Investment through the Safety Activity Class will be targeted towards interventions that support reductions in deaths and serious injuries, including in Road Policing, Automated Enforcement, and Road Safety Promotion.

The difference between the Road to Zero Activity Class and the Safety Activity Class, is that safety infrastructure and speed management will now be funded from the State Highway Improvements and Local Roads Improvements Activity Classes. This will better integrate the wider network and deliver a wider range of outcomes.

Activity Classes are defined in detail in [Appendix 1](#).

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Activity class expenditure upper and lower limits

Table 6 below sets out the activity class funding ranges for 2024/25 – 2033/34.

Table 6: Activity classes and funding ranges

Activity Class	GPS 2024 Funding range						Forecast funding range				
		2024/25 \$m	2025/26 \$m	2026/27 \$m	2027/28 \$m	2028/29 \$m	2029/30 \$m	2030/31 \$m	2031/32 \$m	2032/33 \$m	2033/34 \$m
Continuing programmes											
Public transport services	Upper	850	930	1,020	1,090	1,170	1,270	1,340	1,440	1,550	1,670
	Lower	580	640	700	740	800	870	920	990	1,070	1,150
State highway maintenance	Upper	1,360	1,540	1,700	1,810	1,920	1,960	1,990	2,030	2,060	2,100
	Lower	890	1,020	1,100	1,170	1,250	1,280	1,300	1,330	1,360	1,380
Local road maintenance	Upper	1,080	1,160	1,280	1,360	1,440	1,470	1,490	1,520	1,540	1,570
	Lower	720	790	840	890	960	980	1,000	1,020	1,040	1,060
Investment management	Upper	85	90	90	90	95	95	100	100	105	110
	Lower	65	70	70	70	75	75	80	80	85	90
Rail network	Upper	590	610	620	570	570	570	580	580	580	580
	Lower	490	510	180	120	120	120	120	120	120	120
Improvements											
Public transport Infrastructure	Upper	1,010	1,060	1,110	840	860	880	890	900	910	920
	Lower	520	570	620	460	480	500	500	500	500	500
State highway Improvements	Upper	1,420	1,520	1,720	500	500	500	500	500	500	500
	Lower	1,020	1,120	1,220	200	200	200	200	200	200	200
Local road improvements	Upper	400	400	410	410	420	420	420	430	430	430
	Lower	150	150	160	160	170	170	170	180	180	180
Safety	Upper	600	610	620	630	630	630	640	640	640	650
	Lower	500	510	520	530	530	530	540	540	540	550
Walking and cycling improvements	Upper	330	330	340	310	320	320	330	330	340	340
	Lower	160	170	170	180	180	190	190	200	200	210
Coastal shipping	Upper	20	20	20	20	20	20	20	20	20	20
	Lower	15	15	15	15	15	15	15	15	15	15
Inter-regional public transport	Upper	50	50	50	-	-	-	-	-	-	-
	Lower	20	20	20	-	-	-	-	-	-	-

Crown funding for land transport

Direct Crown funding supplements the NLTF, increasing the amount of funding available to achieve the strategic objectives.

A full view of Government transport funding needs to incorporate the NLTF and these other funding pools. Crown funding is appropriated by Parliament for a particular purpose and is (usually) spent by Waka Kotahi or KiwiRail acting as the Crown's delivery agent.

Table 7: Total land transport investment⁶

Activity Class	2024/25-2026/27						2027/28-2023/34					
	NLTF \$m		Crown \$m	Total \$m		NLTF \$m		Crown \$m	Total \$m			
	Lower	Upper				Lower	Upper					
Public transport services	1,920	2,800	773	2,693	3,573	6,540	9,530	1,084	7,624	10,614		
State highway maintenance	3,010	4,600	-	3,010	4,600	9,070	13,870	-	9,070	13,870		
Local road maintenance	2,350	3,520	-	2,350	3,520	6,950	10,390	-	6,950	10,390		
Investment management	205	265	-	205	265	555	695	-	555	695		
Rail network	503	1,508	3,355	3,858	4,863	840	4,030	138	978	4,168		
Public transport infrastructure	1,710	3,180	1,326	3,036	4,506	3,440	6,200	76	3,516	6,276		
State highway improvements	3,360	4,660	1,793	5,153	6,453	1,400	3,500	326	1,726	3,826		
Local road improvements	460	1,210	203	663	1,413	1,210	2,960	68	1,278	3,028		
Safety	1,530	1,830		1,530	1,830	3,760	4,460		3,760	4,460		
Walking and cycling improvements	500	1,000	-	500	1,000	1,350	2,290	-	1,350	2,290		
Coastal shipping	45	60		45	60	105	140		105	140		
Inter-regional public transport	60	150		60	150	-	-		-	-		
Other												
Debt and PPP repayments	2,748	2,748		2,748	2,748	6,864	6,864		6,864	6,864		
Unallocated revenue*	2,376	n/a		2,376	n/a							
Crown expenditure that doesn't map to an Activity Class e.g., regulatory, clean car discounts, etc			147	147	147			83		83		
Totals	20,777	27,531	7,597	28,374	35,128	42,084	64,929	1,774	43,775	66,703		

*Based on BEFU 2023 NLTF revenue forecasts.

6. Note that NLTF Rail Network investment in Table 6 doesn't reconcile with Table 5 because of direct Crown funding into this Activity Class. Direct Crown funding has been removed from the Rail NLTF Activity Class in Table 6 to avoid double counting.

INVESTMENT IN LAND TRANSPORT

Direct Crown funding for the 2024/25-2026/27 period currently stands at \$7.6 billion (see Table 7: Total land transport investment and Appendix 4). The largest components of this are NZUP funding and support for RNIP.

As many of the NZUP projects are underway (if not completed) the 2024/25-2026/27 NZUP expenditure shown in Table 7 is an estimate of the residual funding from the original allocation that remains to be spent in this period.

The Government has also announced funding of \$6 billion for a National Resilience Plan and that it expects to announce further funding to support the regions affected by the recent extreme weather events. Transport investments have received an initial share of this funding, with further decisions likely.

Major Government commitments to direct funding for transport investment programmes and projects currently include:

- **Cyclone Gabrielle interim emergency relief package**
- **New Zealand Upgrade Programme**
- **Climate Emergency Response Fund**
- **Rail Network Investment Programme**

Details of all direct Crown commitments are listed in Appendix 4.

Cyclone Gabrielle emergency relief

The Government initially committed \$525 million to Waka Kotahi for Cyclone Gabrielle emergency relief, and \$200 million to support the reinstatement of operating sections of the rail network. In July, it confirmed a further \$567 million to Waka Kotahi for immediate works on state highways in Tairāwhiti, Wairoa, Hawke's Bay, Coromandel and Northland from the \$6 billion National Resilience Plan. The Government has also indicated that more support will be provided once there is a clearer picture of the costs to each region.

The New Zealand Upgrade Programme

In January 2020, the Government committed \$12 billion to the NZUP. The transport component of this funding (\$8.9 billion) is supporting specific projects that further the Government's ambition for the transport system. NZUP reflects the Government's balanced transport policy with investments across road, rail, public transport and walking and cycling infrastructure. It is a significant investment programme that builds on investment made through the NLTF and is delivering important projects that will speed up travel times, ease congestion and make our roading and rail networks safer and more resilient.

Major NZUP projects include:

- **Penlink** – providing a two-lane road and a shared walking and cycling path bridge which will provide improved travel times between Whangaparāoa and wider Auckland
- **Melling Transport Improvements** – providing a safer, more resilient and accessible transport system in Lower Hutt, as well as supporting flood protection and revitalisation of the Hutt Valley

- The Queenstown Package – providing locals and visitors with better access to public transport and improved, safer connections for those who walk or ride bikes
- A third main rail line between Westfield and Wiri in Auckland – enabling more frequent and reliable passenger and freight rail services
- Extending Auckland’s electrified rail network from Papakura to Pukekohe.

Many NZUP projects have already been completed. Details of progress with the programme can be found at www.nzta.govt.nz/nzupgrade.

Climate Emergency Response Fund (CERF)

The CERF provides a dedicated funding source for public investment on climate-related initiatives, using proceeds from the Emissions Trading Scheme. CERF funding can support other funding sources, such as the NLTF and local government revenue, to accelerate improvements to transport infrastructure and services that support emissions reduction and/or reduce vulnerability or exposure to the impacts of climate change.

Through Budget 2022 and Budget 2023, \$1.259 billion of CERF funding (not including \$585 million for the, now discontinued, clean car upgrade (scrappage) and social leasing car schemes), was allocated to transport investments.

Announcement of any additional CERF transport initiatives is likely to be linked to the annual government budget process.

Rail

Every three years KiwiRail is required to prepare the RNIP for the Minister of Transport to approve. The RNIP outlines the set of rail network activities KiwiRail proposes to deliver over the next three years and a 10-year investment forecast for the national rail network. KiwiRail must take into account the purpose of the LTMA, and the current GPS on land transport, when developing the RNIP.

The first RNIP was approved by the Minister in June 2021. Additional funding was also provided through the annual Crown Budget process to the NLTF to support investment in the RNIP. This Crown support is included as NLTF revenue and in the relevant Activity Class in Table 6.

Other

In addition to the major investments described above, the Government has provided direct Crown funding to other transport initiatives such as the Super Gold card fare subsidies, PT bus decarbonisation, City Rail Link and planning for Auckland Light Rail.

\$1.259 billion
of CERF funding was allocated to transport investments through Budget 2022 and Budget 2023

INVESTMENT IN LAND TRANSPORT

Changes to transport funding and prioritisation processes in NLTP 2024-27

Process for collating and assessing 'bids' for different funding channels

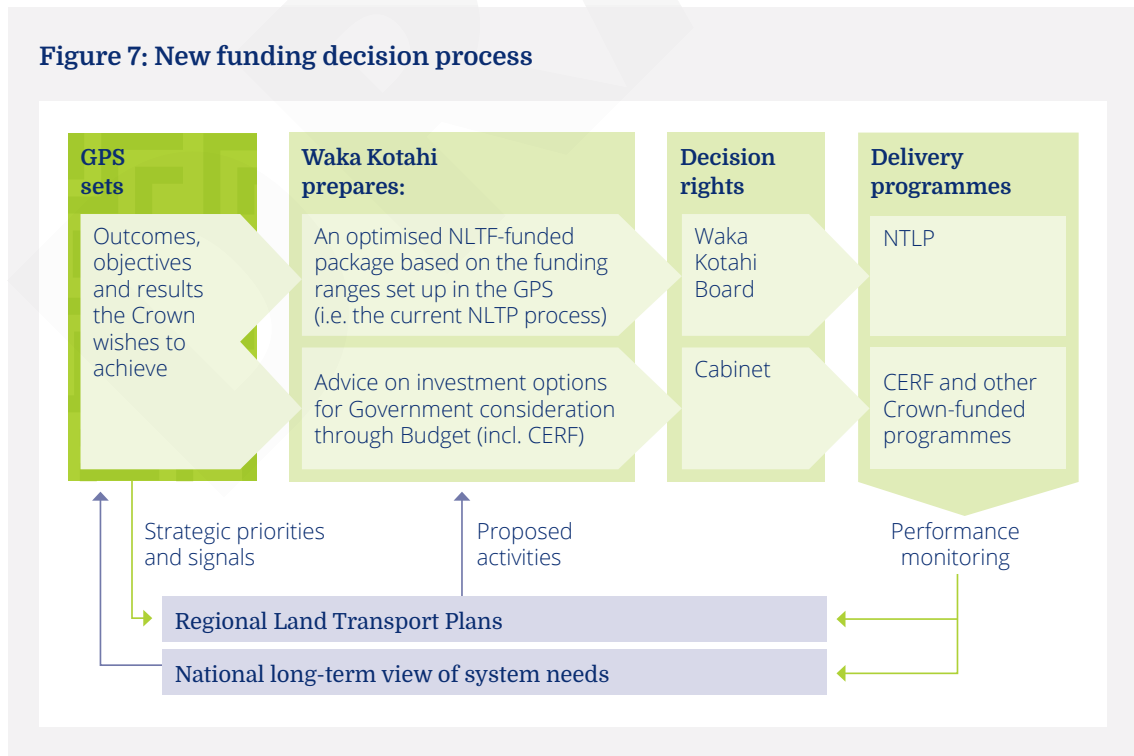
Transport investment funding and decision-making is becoming increasingly complex. Over the period of this GPS, the Government may wish to consider making additional investments to support progress towards the strategic priorities, especially where there is not sufficient revenue available within the NLTF. The high-level process is outlined in Figure 7 below.

The Government already uses Waka Kotahi expertise to advise on and/or implement directly funded transport investment decisions. This sits within the statutory functions of Waka Kotahi but

outside of the autonomous role it plays with respect to the NLTF. This aspect of the Waka Kotahi's role is facilitated through direction under the Crown Entities Act 2004, or by letters of agreement between the Minister and the Waka Kotahi Board.

Working with the Ministry, Waka Kotahi is expected to identify and advise on time critical investment programmes for Crown funding consideration, where supplementing the NLTF and local share funding could better deliver GPS 2024 priorities (or wider priorities specified by the Government). This expectation is included in Section 5.

Figure 7: New funding decision process



Mass Rapid Transit Projects

Mass Rapid Transit (MRT) projects are likely to require additional Crown funding due to their scale and their broader and more complex range of benefits and outcomes, particularly as these projects become city-shaping in that they significantly impact economic decisions, such as where people choose to live and work. Work is planned to develop a comprehensive framework for funding, financing and integrating decision-making processes for MRT projects, with new policy expected after GPS 2024 is adopted. This work is expected to outline how the NLTF is used to support the operation and maintenance of new and supporting infrastructure and how different government policy levers work together to deliver the best outcomes.

Current MRT projects are at various stages in the investment pipeline, and include:

Northern Busway enhancements

A Detailed Business Case has identified a number of enhancements to improve the reach and attractiveness of the Northern Busway, which is experiencing passenger growth exceeding that of both the rail network and the rest of the bus network in Tāmaki Makaurau Auckland. The project includes station and platform upgrades as well as improved bus priority on State Highway 1 and local roads in the city centre. These projects will be rolled out as funding is made available and as growth requires.

City Rail Link

This is the only MRT project in the construction phase. To realise the full benefits of CRL, several improvements are required to other parts of the metro rail network, notably the removal of level crossings, to increase the throughput of people across the whole system. These projects are funded separately and prioritised in the ATAP programme.



INVESTMENT IN LAND TRANSPORT

Auckland Light Rail

This proposed light rail corridor serves to connect the Auckland Airport and Māngere with the city centre. The Indicative Business Case estimated a cost of \$14.6 billion to deliver the entire route. The project is now in the Detailed Business Case phase. Updated cost estimates, a phasing plan, and route and station locations are expected to be announced after GPS 2024 is adopted.

Waitematā Harbour Connections

Nationally significant resilience, network capacity and travel choice deficiencies across the Waitematā Harbour need to be addressed over the coming decades through a significant improvement that includes rapid transit, road, and active mode improvements. An Indicative Business Case to direct future investment is scheduled for completion in 2024. It is expected to include provision for a rapid transit connection to the City Centre.

Northwest Rapid Transit Corridor

Urban development to the northwest of Auckland will be supported by a new rapid transit corridor connecting Westgate with the city centre. This will take the pressure off the overburdened State Highway 16 and provide a lower-carbon transport alternative to serve the expected population growth in this area. Interim improvements, including longer bus priority lanes and the Te Atatū and Lincoln Road interchanges, are currently being delivered.

Any new investment or improvements in this corridor should allow for an eventual grade separated public transport service to be operated, and ensure provision is made for connection

points with other services (e.g., rail stations and bus interchanges). New investments may include strategic land acquisition to secure those connection points. Any grade separation should also ensure that at future stages the type of service could be upgraded (i.e., bus rapid transit being upgraded to a light rail or metro type operation). Any future investment should also ensure interlinkages with other services (e.g. rail stations and bus interchanges) to produce a step-change improvement in travel choice and network capacity to the wider northwest part of Auckland.

Let's Get Wellington Moving

This programme seeks to provide more attractive travel choices and reshape how people get around Wellington. The MRT elements of LGWM are now entering the Detailed Business Case phase, investigating light rail or bus rapid transit options to the south from the Wellington Railway Station.

New metropolitan rapid transit programmes

Through the Urban Growth Partnerships the Crown, iwi and local government have developed joint spatial plans to ensure all our Tier 1 cities grow successfully over time. Underpinning all the spatial plans are shifts towards greater use of public transport and active modes. The key implementation action to achieve this is establishing a core network of rapid and frequent public transport corridors as future 'spines' for these urban areas. New networks that will become key enablers of future urban development and transport planning include the Hamilton-Waikato Metro Rapid Transit network, the Greater Christchurch Mass Rapid Transit corridor, and the Tauranga-Western Bay of Plenty Frequent Public Transport network.

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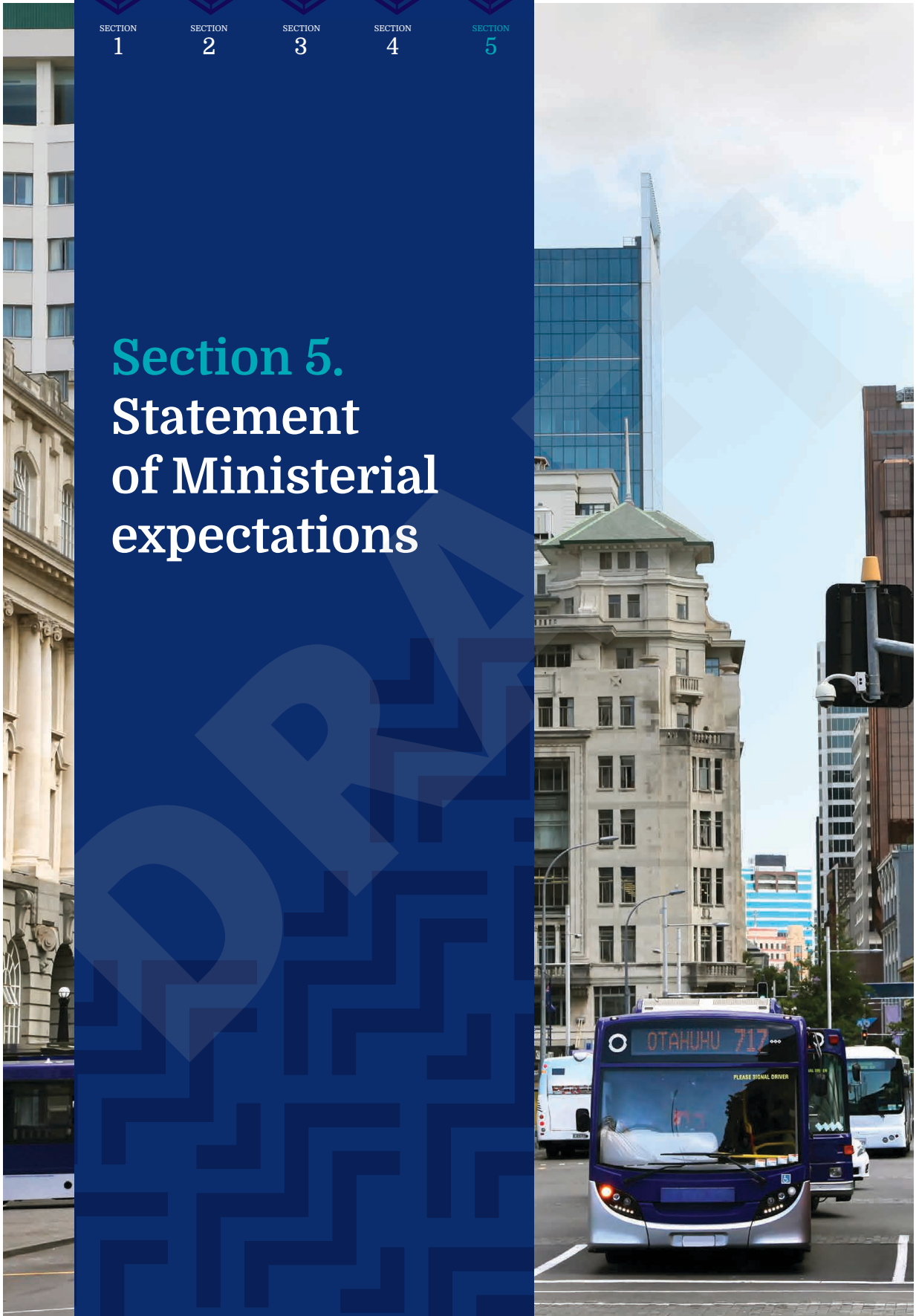
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Section 5. Statement of Ministerial expectations



STATEMENT OF MINISTERIAL EXPECTATIONS

The Act provides for the Minister, as part of the GPS, to make a statement of their expectations of how Waka Kotahi gives effect to the GPS on land transport.

The purpose of the statement is to provide greater clarity about government policies and objectives relevant to Waka Kotahi's implementation of the GPS. The statement is specific to the GPS and is in addition to the statutory objectives and functions in Part 4 of the LTMA, the Crown Entities Act 2004, and general public sector advice and guidance such as the Codes of Conduct and Model Standards promulgated by the Public Service Commission.

These expectations on Waka Kotahi are supplemented by the annual letter of expectations provided by the Minister of Transport, relating to the wider role of Waka Kotahi.

Waka Kotahi is expected to demonstrate how it is giving effect to these expectations, working with the Ministry to agree an appropriate reporting and publication format, to be agreed with the Minister prior to GPS 2024 coming into effect. Existing Waka Kotahi reporting mechanisms are likely to be appropriate, including its:

- Statement of Intent and Statement of Performance Expectations
- Assessment of how the NLTP gives effect to GPS 2024
- Annual Report on the NLTF and Annual Report on Waka Kotahi
- Annual reporting on matters relating to the RNIP.

Deliver GPS outcomes in a way that provides value for money

The Minister expects Waka Kotahi to use the NLTF to contribute to the results sought in Section 3 in a manner that provides value for money throughout the investment lifecycle by efficiently and effectively allocating the NLTF to activities.

When developing the NLTP, the Minister expects Waka Kotahi will:

- **Incorporate GPS 2024 priorities into its investment prioritisation framework:** prior to publishing the NLTP, establish, implement, and publish its investment decision-making approach (including rules, criteria and procedures) to prioritising and managing investments in the NLTP that contribute to the GPS outcomes in a way that demonstrates value for money. This includes giving consideration to how the Ministry's Value for Money Assessment Model may be incorporated and applied to the activity classes.
- **Consider the full range of options and alternatives:** to contribute to the outcomes in Section 3, require consideration of options that prioritise integrated planning, demand management and making the best use of the existing system ahead of new infrastructure investment, consistent with the Intervention Hierarchy.
- **Ensure a robust programme and portfolio approach:** ensure investments are not undertaken in a "siloed" manner, but rather delivery is integrated in a way that maximises available funding, the delivery of benefits and value for money.
- **Set performance expectations:** report on the expected costs and benefits from its investment decisions and describe the monitoring and risk management approaches that will be in place to drive value for money and to manage risk.
- **Evaluate its performance:** determine whether the expected benefits of its investments are being realised, and the progress it is making towards the outcomes and results sought in its NLTP.



STATEMENT OF MINISTERIAL EXPECTATIONS

Investments must be efficient and effective

The Minister expects Waka Kotahi to demonstrate that its decisions to approve funding for activities have been reasonably informed by evidence of:

- expected benefits and costs (both monetised and non-monetised) and the level of uncertainty associated with benefit and cost estimation.
- potential for funding contributions from the beneficiaries and users of the investments, including local government revenue sources, pricing (e.g., parking demand management) and forms of user charges.

Below are specific areas that the Minister expects Waka Kotahi to focus on when investing towards the results and outcomes sought in Sections 3 and 4 in a manner that provides value for money.

➤ **“Build back better” has several dimensions but generally means upgrading rather than just replacing**

Building back better and achieving value for money from maintenance and renewals spend

Waka Kotahi will need to carefully consider the most effective ways to “build back better” so the transport system is optimised to support future expectations, be fit for purpose, and be resilient to future system shocks. “Build back better” has several dimensions but generally means upgrading rather than just replacing. This may, for example, occur as part of routine maintenance activities, when replacing flood-damaged structures, or when proactively constructing an alternative to a route that has been identified as fragile. While additional funding is being provided to rebuild or replace damaged infrastructure, Waka Kotahi also needs to find ways to leverage its considerable maintenance and renewals work programmes to contribute to the wider set of outcomes within GPS 2024, rather than just replace the current asset, during routine maintenance activities.

The Minister expects that Waka Kotahi will:

- adopt an asset management approach, consistent with the One Network Framework and, where appropriate, adaptive decision-making, that achieves the best value for money for maintenance and operations for the funding allocated and takes a whole of life approach to decision-making
- prior to renewing long-term contracts, review how to contract for maintenance and renewals activities in a way that:
 - ensures an effective, competitive and sustainable workforce and supply chain to deliver both response and maintenance services;
 - demonstrates value for money in the delivery of response and maintenance services;
 - encourages innovation and best practice to drive both efficient and effective maintenance and response outcomes;
 - prioritises the effective integration of improvement activities into routine maintenance schedules, where feasible; and
 - gives the Government confidence that programme management and governance is in place to effectively share risk and support innovation with the private sector.
- when considering any changes to the State Highway network, assess and where appropriate incorporate into all improvement options (including renewals and maintenance) the provision of public transport to meet current and future demand. Any changes should take into account local and regional plans, and population growth projections. Additionally, the Minister expects Waka Kotahi to work with and support regional and local authorities to include the same considerations when developing investment proposals relating to local transport networks.

Growth in the capacity, frequency and quality of public transport services is critical to our future. High quality public transport supports economic productivity through the efficient movement of growing populations, provides safe and affordable travel options for New Zealanders, and supports the achievement of our emissions reduction objectives. While we cannot change decisions of the past, it is essential we ensure that infrastructure planning and investment decisions take account of both immediate and anticipated public transport requirements of each corridor, looking out 30–50 years.

The impact of substantively repurposing and/or expanding transport corridors to respond to changing demands is extremely high. This can include the direct financial costs of improvements, as well as the time and disruption costs for road users and for those who live and work alongside the corridor. This is especially the case in geographically constrained areas – predominantly in our major urban centres – where we are, and will continue to face, increasingly difficult decisions about how to integrate additional public transport capacity into heavily space-constrained transport corridors.

➤ **The Minister expects Waka Kotahi will demonstrate how it is investing and collaborating with the sector to build capability in innovative and efficient transport infrastructure and service delivery**

STATEMENT OF MINISTERIAL EXPECTATIONS

Building sector capability

The Minister expects that Waka Kotahi will:

- Demonstrate how it is investing and collaborating with the sector to build capability in innovative and efficient transport infrastructure and service delivery, including accelerating existing, or developing new programmes to build planning and delivery excellence for:
 - asset management and network planning processes that use the One Network Framework;
 - integrated investment planning, monitoring and evaluation that stops poorly aligned investment earlier in, and before the investment pipeline, improving system delivery and efficiency;
 - programme management and governance, including effective community engagement and risk sharing; and
 - wider government commitments, including the ERP, the Carbon Neutral Government Programme and the NAP.

Waka Kotahi to set targets for, and report on, its operating costs

The Minister expects Waka Kotahi will:

- prior to July 2024, set annual targets for its own NLTF-related costs as a proportion of the NLTF, broken down by activity class (net of debt repayments) and publish these targets in its Statement of Performance Expectations.
- report on its performance against its annual targets for its own NLTF related costs in its Annual Report, including explaining reasons for any variances against those targets.

Climate change and the NLTP

The Minister expects that Waka Kotahi will, when adopting the NLTF-funded programme:

- be satisfied that the overall NLTP makes an appropriate contribution to the transport emissions reduction targets of the ERP in accordance with the direction in the reducing emissions strategic priority above (Page 20).
- be satisfied that the NLTP makes an appropriate contribution to delivery of the NAP.
- within each region, be satisfied that the NLTP makes an appropriate contribution to any relevant urban light VKT reduction programme.

Waka Kotahi is expected to report on how its new NLTF investment decisions are contributing to the Government's emissions reduction objectives, working with the Ministry to agree an appropriate publication format.

Maximising revenue

The Minister expects Waka Kotahi will:

- develop a strategic approach to the acquisition and disposal of land and other property interests (land and/or property rights).
- review existing land holdings and route protection or land acquisition strategies to determine alignment with the strategic approach described above.
- ensure that net revenue available to the NLTF is maximised. This includes pursuing all available sources and ensuring there is full transparency and accountability on the collection of revenue, particularly in relation to RUC investigations and enforcement.

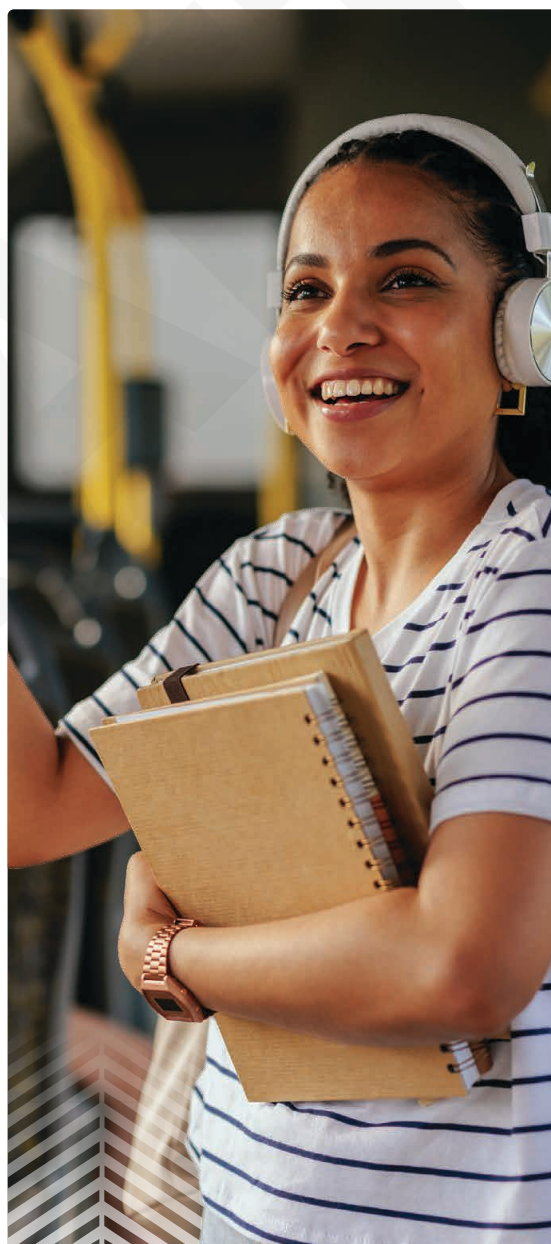
Waka Kotahi to advise the Government on priority activities for Crown funding

Additional Crown funding will likely be required to make significant progress on GPS 2024 priorities, such as addressing climate change.

As part of the annual Crown Budget process, the Minister expects Waka Kotahi will:

- determine investment programmes that progress GPS 2024 priorities for Crown funding consideration, informed by available evidence included in relevant national and regional strategies and plans, including RLTPs and spatial plans.
- work with the Ministry of Transport to advise the Government on investment programmes that support GPS 2024 priorities (or wider priorities specified by the Government).

The Crown Budget process occurs annually and does not always align with RLTP and NLTP development. It is acknowledged that full information on activities that Waka Kotahi considers a high priority against GPS 2024 priorities, but that do not qualify for NLTF funding, will not necessarily be available when Crown Budget decisions are made each year.



APPENDIX 1

Appendix 1. Activity class definitions

Each activity class directs NLTF funding towards different types of activities. Each activity class can invest in every step of the intervention hierarchy including:

- Integrated planning
- Demand management
- Making the best use of the existing system
- New infrastructure.

The below definitions outline which activities can be funded from each activity class.

Public Transport Services

- Investment in the operation and maintenance of existing public transport networks, to improve utilisation and/or maintain the level of service.
- Investment in new public transport services to improve the level of service and support an increase in uptake of public transport.

Public Transport Infrastructure

- Investment in the maintenance, renewal of, or improvements to existing public transport infrastructure to improve utilisation.
- Investment in new public transport infrastructure to improve the level of service and support an increase in the uptake of public transport.

Walking and Cycling Improvements

- Investment to improve the level of service and increase uptake of walking and cycling (including micro mobility).

Safety

- Investment in road policing and associated equipment
- Investment in automated enforcement
- Investment in road safety promotion and system management
- Investment to support behavioural changes to improve road safety outcomes.

Local Road Improvements

- Investment to optimise the utilisation and/or improve levels of service across all modes on the local road network.

State Highway Improvements

- Investment to optimise the utilisation and/or improve levels of service across all modes on the state highway network.

State Highway Maintenance

- Investment in the ongoing maintenance, operations, and renewal of the state highway network to deliver an appropriate level of service across all modes.
- Urgent response to transport network disruptions to restore an appropriate level of service.

Local Road Maintenance

- Investment in the ongoing maintenance, operations, and renewal of the local road network to deliver an appropriate level of service across all modes.
- Urgent response to transport network disruptions to restore an appropriate level of service.

Investment Management

- Investment in the management and delivery of transport planning. This includes the development of Regional Land Transport Plans (RLTPs), the development of Activity Management Plans (AMPs), the development of speed management plans, parking management plan, development of Programme Business Cases (PBCs) and the delivery of post implementation reviews.
- Investment in integrated land use and transport planning, including long term system planning, urban growth plans, transport emissions reduction plans, climate adaptation plans, VKT reduction plans, and Regional Spatial Strategies.
- Investment in the management and delivery of research into land transport issues to support sound system planning and investment.
- Investment into funding allocation management. This includes the development of and administration of the National Land Transport Programme (NLTP), associated funding and procurement procedures, policies and guidelines, funding agreements with approved organisations, assistance and advice to approved organisations and regional land transport committees.

Coastal Shipping

- Investment in coastal shipping to support the efficiency and sustainability of the coastal shipping sector and achieve decarbonisation and safety outcomes.

Rail Network

- Investment in a reliable and resilient national rail network, including enabling KiwiRail to deliver ongoing maintenance, renewals and improvements to the rail network.

Inter-Regional Public Transport

- Investment to partner with other players to develop and deliver new, extended and improved services.
- Investment to support planning for new inter-regional public transport services, with a focus on rail but can also be applied to inter-regional bus and ferry services.

APPENDIX 2

Appendix 2. Changes from GPS 2018 through to GPS 2024

GPS 2024 builds on the strategic direction of GPS 2018 and GPS 2021, and also reflects changes in the funding environment.

The table below shows how the strategic priorities have evolved through GPS 2018 and GPS 2021 to GPS 2024.

The other major change is the funding environment. GPS 2024 describes the Crown's land transport investment strategy and seeks to achieve more than what can be achieved through NLTF funding alone. It outlines a process whereby advice on investments will be provided to the appropriate decision-maker(s) for funding through the NLTF, and other Crown funding sources.

GPS 2018	GPS 2021	GPS 2024
n/a	n/a	Maintaining and operating the system The condition of the existing transport system is efficiently maintained at a level that meets the current and future needs of users.
n/a	n/a	Increasing resilience The transport system is better able to cope with natural and anthropogenic hazards.
Environment Reduced greenhouse gas emissions, as well as adverse effects on the local environment and public health.	Climate change Transform to a low carbon transport system that supports emissions reductions, aligned with national commitments, while improving safety and inclusive access.	Reducing emissions Transitioning to a lower carbon transport system.
Safety A safe transport system, free of death and serious injury.	Safety Develop a transport system where no-one is killed or seriously injured.	Safety Transport is made substantially safer for all.

GPS 2018	GPS 2021	GPS 2024
<p>Access</p> <p>Providing increased access to economic and social opportunities.</p>	<p>Better travel options</p> <p>Provide people with better travel options to access places for earning, learning, and participating in society.</p>	<p>Sustainable urban and regional development</p> <p>People can readily and reliably access social, cultural, and economic opportunities through a variety of transport options. Sustainable urban and regional development is focused on developing resilient and productive towns and cities that have a range of low-emission transport options and low congestion.</p>
<p>Enabling transport choice and access.</p>	<p>Improving freight connections</p> <p>Improve freight connections to support economic development.</p>	<p>Integrated freight system</p> <p>Well-designed and operated transport corridors and hubs that provide efficient, reliable, resilient, multi-modal and low-carbon connections to support productive economic activity.</p>
<p>Value for money</p> <p>Delivers the right infrastructure and services to the right level at the best cost.</p>	<p>GPS 2021 embedded the value for money throughout the GPS as a principle that should always be expected from investments. GPS 2021 encourages co-benefits to be considered when developing business cases (e.g., for health, resilience, or environmental sustainability).</p>	<p>GPS 2024 retains the principle that value for money should always be expected from investments.</p> <p>GPS 2024 encourages co-benefits to be considered for both maintenance and new investment activities.</p> <p>GPS 2024 has a greater focus on long-term value and recognises that different indicators will be required, depending on the decisions being made.</p>

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APPENDIX 3

Appendix 3. Expected debt repayments

	2024/25 \$m	2025/26 \$m	2026/27 \$m	2027/28 \$m	2028/29 \$m	2029/30 \$m
Expected debt repayment	650	800	1,300	1,150	950	950

Appendix 4. Crown direct funding commitments to land transport

	2024/25 \$000s	2025/26 \$000s	2026/27 \$000s	2027/28 \$000s	2028/29 \$000s	2029/30 \$000s	2030/31 \$000s	2031/32 \$000s	2032/33 \$000s	2033/34 \$000s
KiwiRail Maintenance & renewal of rail network	339,200	338,300								
KiwiRail Investment – Crown Contribution	723,637	353,291	79,538							
Rail – grants	38,263	349,852	12,909	3,770	3,770	3,770	3,770	3,770	3,770	3,770
PGF Rail projects	9,900									
SuperGold card – admin	95	95	95	95	95	95	95	95	95	95
SuperGold Card – Public Transport Concessions	36,777	36,777	36,777	36,777	36,777	36,777	36,777	36,777	36,777	36,777
Public Transport Community connect concessions	183,874	184,659	187,818	106,182	106,182	106,182	106,182	106,182	106,182	106,182
Clean car standard – operation	11,842	11,842	11,842	11,842	11,842	11,842	11,842	11,842	11,842	11,842
Clean vehicle discount scheme – admin	8,000	8,000	8,000							
NZ Upgrade Program Funding	1,153,990	766,497	821,370	217,340	116,330	111,860				
PT Bus decarbonisation	13,695	13,695	13,695	13,695	13,695	13,695	13,695	13,695	9,405	4,730
Public Transport Workforce Sustainability	31,900	33,300								
ALR detailed planning	720									
Auckland City Rail Link Targeted Hardship Fund	587									
Auckland City Rail Link – Operating	1,900									
Enabling the Timely Delivery of City Rail Link	618,634									
Auckland City Rail Link – MYA	178,081	59,500								
Lower North Island Rail Integrated Mobility	424,800									
Regional resilience	72,000	78,000	79,000	50,000	45,000	40,000				
Electric Vehicle Charging Infrastructure	36,678	50,678								
NIWE response and recovery funding	177,000									
Total	4,061,573	2,284,486	1,251,044	439,701	333,691	324,221	172,361	172,361	168,071	163,396

APPENDIX 5

Appendix 5. Glossary

Activity

Defined in the LTMA as a land transport output or capital project, or both.

Activity class

Refers to a grouping of similar activities.

Active modes

Transport by walking, cycling or other methods, which involve the direct application of kinetic energy by the person travelling.

Approved organisations

Organisations eligible to receive funding from Waka Kotahi for land transport activities. Approved organisations are defined in the LTMA 2003.

Benefits

Measurable improvements from investment in programmes and projects.

Benefits realisation

A process that demonstrates whether or not (and how well) the anticipated results have been achieved.

Capacity of network

The amount of movement of people and/or goods that the network can support at a given time.

Co-benefits

Additional outcomes associated with a strategic priority.

Demand management

Demand management refers to interventions which change the demand for transport. These interventions may seek to influence how, when and where people travel and freight is transported. The purpose of demand management is to ensure the transport system is utilised efficiently and

effectively, and to reduce the negative impacts of travel and freight movement. Mode shift is one way of managing demand.

Emissions Trading Scheme (ETS)

The New Zealand Emissions Trading Scheme. The ETS requires businesses to surrender one 'emissions unit' (known as an NZU) to the Government for each tonne of emissions they emit. NZUs are tradeable. The ETS limits emissions by limiting the number of NZUs available to emitters (i.e., that are supplied into the scheme).

Fuel Excise Duty (FED)

Fuel Excise Duty is a tax imposed by the government to fund land transport activities. FED includes excise duty paid on liquid petroleum gas and compressed natural gas (in addition to petrol excise duty), but these account for a very small proportion of overall fuel excise.

Hypothecation

The direct allocation of all income from a tax or charge (e.g., Fuel/Petrol Excise Duty or Road User Charges) to a particular type of activity (e.g., the National Land Transport Fund).

Lead investment

Investment which acts as a catalyst for future development.

Land Transport Management Act 2003 (LTMA 2003)

The main Act governing the land transport planning and funding system.

Land transport revenue

Revenue paid into the Fund under the LTMA 2003.

Local road

Defined in the LTMA 2003 as a road (other than a state highway) in a district that is under the control of a territorial authority.

Local share

The contribution that communities make (through local government) towards transport projects that have shared national and local benefits.

Maintenance

Care and upkeep of infrastructure so that it can deliver a defined level of service, while leaving the fundamental structure of the existing infrastructure intact.

Micro-mobility

Light, short haul modes of transport such as electric scooters, skateboards, share-bicycles.

Ministry of Transport (the Ministry, MoT)

The Government's principal transport policy adviser that leads and generates policy, and helps to set the vision and strategic direction for the future of transport in New Zealand.

Mode neutral

Mode neutrality means considering all transport options for moving people and freight, including multi-modal options, when identifying the best, value-for-money transport solutions to deliver transport outcomes.

Mode shift

Replacement of one travel mode with another. For example, a reduction in short car journeys due to replacement by public transport, walking or cycling.

Motor vehicle registration and licensing fees

Motor vehicles pay a registration fee when first registered to enter the fleet, and an annual licence fee to legally operate on the road network. Motor vehicle registration and licensing fees are defined as land transport revenue. The fees are intended to contribute to the maintenance of the Motor Vehicle Register where the details of motor vehicles are recorded.

National Land Transport Fund (NLTF, the Fund)

The set of resources, including land transport revenue, that are available for land transport activities under the National Land Transport Programme.

National Land Transport Programme (NLTP)

A programme, prepared by Waka Kotahi, that sets out the land transport activities which are likely to receive funding from the National Land Transport Fund. The NLTP is a three-yearly programme of investment in land transport infrastructure and services from the Fund.

New Zealand Rail Plan

The Government's plan that will guide investment to be made through the rail investment programme to achieve a reliable, resilient and safe rail network.

One Network Framework

A tool, prepared by Waka Kotahi, to help establish transport network function, performance measures, operating gaps and potential interventions for each road and street type.

Petrol Excise Duty (PED)

Petrol Excise Duty is a tax imposed by the Government on petrol and is used to fund land transport activities.

Primary outcome

The most important and relevant outcome of a strategic priority.

Public transport

Passenger transport infrastructure and services contracted by local and central government which may include shared on-demand services identified in Regional Public Transport Plans as integral to the public transport network. Interregional passenger transport by means of a rail vehicle.

APPENDIX 5

Rail Network Investment Programme (RNIP)

A ten-year plan of projects, guided by the New Zealand Rail Plan, to achieve a reliable, resilient and safe rail network. The programme is written by KiwiRail and approved by the Minister of Transport with guidance from Waka Kotahi.

Mass Rapid Transit (MRT)

A quick, frequent, reliable and high-capacity public transport service that operates on a permanent route (road or rail) that is largely separated from other traffic.

Regional Land Transport Plans (RLTPs)

Plans prepared by Regional Transport Committees, that set out each region's transport objectives and policies for a period of at least 10 years. This includes bids for funding from the NLTP.

Regional Transport Committees (RTCs)

A transport committee, which must be established by every regional council or unitary authority for its region. The main function of a regional transport committee is to prepare an RLTP.

Results

The outcomes that the Crown wishes to achieve from the allocation of funding from the National Land Transport Fund. They are expressed by a measure change, and are impacted by the level of investments, activities and deliverables required to realise the change.

Road controlling authorities (RCAs)

Authorities and agencies that have control of the roads, including Waka Kotahi, territorial authorities, Auckland Transport, the Waitangi Trust and the Department of Conservation.

Road User Charges (RUC)

Charges on diesel and heavy vehicles paid to The Government and used to fund land transport activity.

State highways

A road designated as such by Waka Kotahi, as defined by the LTMA 2003.

Track user charges (TUC)

Charges paid for access to/use of the rail tracks.

Total Mobility Scheme

The Total Mobility Scheme provides subsidised licensed taxi services to people who have an impairment that prevents them from making a journey unaccompanied, on a bus, train or ferry in a safe and dignified manner.

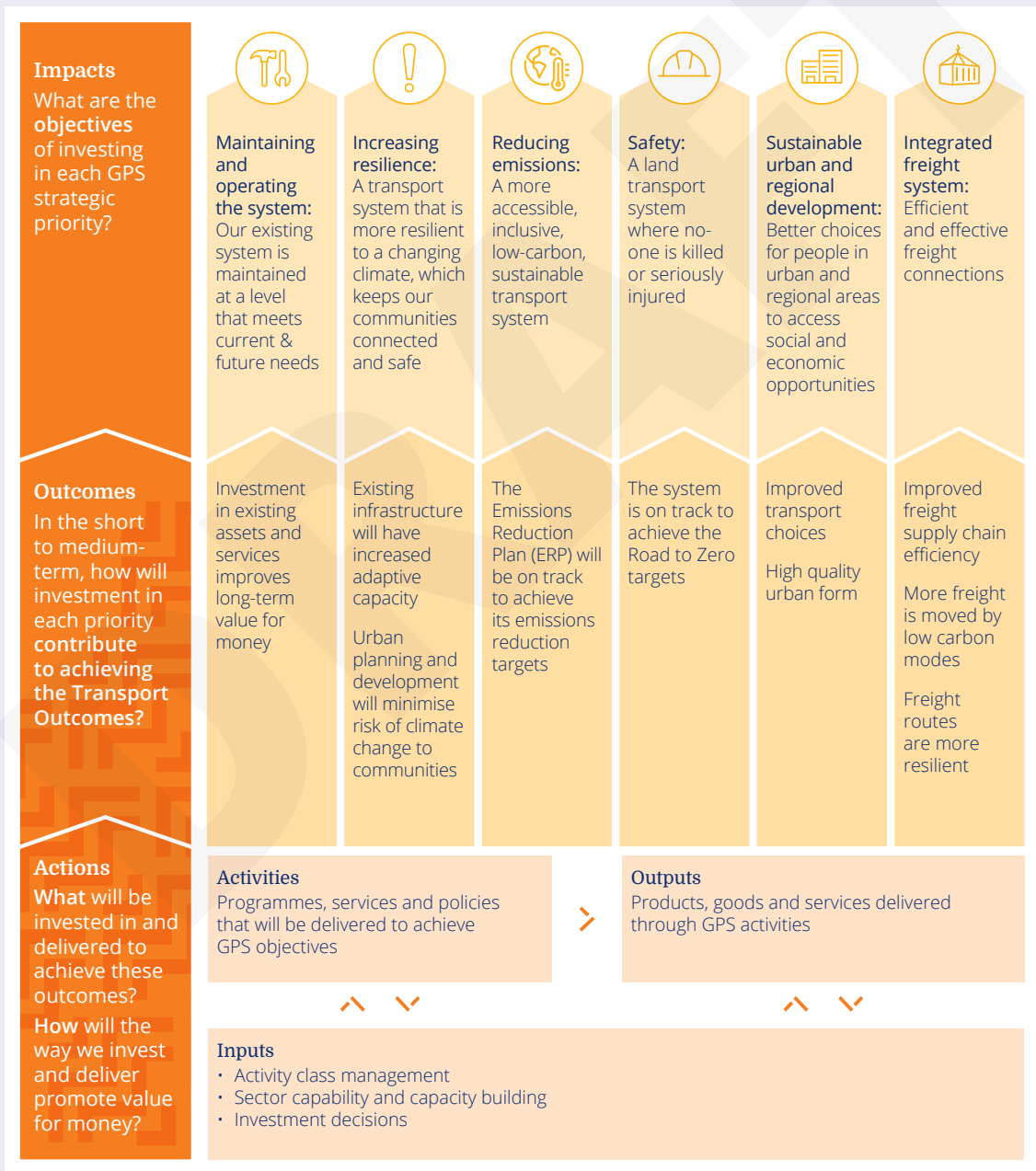
Urban Environment

Any area of land (regardless of size, and irrespective of local authority or statistical boundaries) that is, or is intended to be, predominantly urban in character; and is, or is intended to be, part of a housing and labour market of at least 10,000 people.

Waka Kotahi, the NZ Transport Agency (Waka Kotahi)

The government agency with statutory functions to manage the funding of the land transport system and manage the state highway system.

Appendix 6. GPS Monitoring framework



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APPENDIX 7

Appendix 7. Change compared to GPS 2021

Activity Class		2024/25 \$m	2025/26 \$m	2026/27 \$m	2027/28 \$m	2028/29 \$m	2029/30 \$m	2030/31 \$m
Continuing programmes								
Public transport services	Upper	↗ 30	↗ 30	↗ 100	↗ 140	↗ 200	↗ 270	↗ 310
	Lower	↗ 150	↗ 200	↗ 250	↗ 270	↗ 320	↗ 380	↗ 410
State highway maintenance	Upper	↗ 340	↗ 500	↗ 640	↗ 730	↗ 810	↗ 810	↗ 800
	Lower	↗ 90	↗ 190	↗ 230	↗ 260	↗ 300	↗ 300	↗ 280
Local road maintenance	Upper	↗ 260	↗ 320	↗ 420	↗ 480	↗ 540	↗ 540	↗ 540
	Lower	↗ 20	↗ 70	↗ 110	↗ 140	↗ 190	↗ 190	↗ 190
Investment management	Upper	↘ -10	↘ -5	↘ -5	↘ -5	●	↘ -5	●
	Lower	↘ -10	↘ -10	↘ -10	↘ -10	↘ -10	↘ -10	↘ -5
Rail network	Upper	↗ 420	↗ 440	↗ 450	↗ 400	↗ 400	↗ 400	↗ 410
	Lower	↗ 370	↗ 390	↗ 60	●	●	●	●
Improvements								
Public transport Infrastructure	Upper	↗ 230	↗ 230	↗ 260	↗ 30	↗ 50	↗ 30	↗ 20
	Lower	↗ 180	↗ 230	↗ 270	↗ 110	↗ 130	↗ 130	↗ 120
State highway Improvements	Upper	↗ 470	↗ 620	↗ 920	↘ -150	↘ -50	↗ 50	↗ 50
	Lower	↗ 270	↗ 420	↗ 620	↘ -250	↘ -150	↘ -150	↘ -100
Local road Improvements	Upper	↗ 140	↗ 270	↗ 280	↗ 270	↗ 280	↗ 280	↗ 270
	Lower	↗ 40	↗ 100	↗ 110	↗ 110	↗ 110	↗ 110	↗ 110
Safety	Upper	↘ -400	↘ -430	↘ -450	↘ -450	↘ -480	↘ -510	↘ -530
	Lower	↘ -400	↘ -420	↘ -440	↘ -440	↘ -470	↘ -490	↘ -510
Walking and cycling improvements	Upper	↗ 215	↗ 215	↗ 225	↗ 190	↗ 200	↗ 200	↗ 210
	Lower	↗ 85	↗ 95	↗ 95	↗ 100	↗ 100	↗ 110	↗ 110
Coastal Shipping	Upper	↗ 20	↗ 20	↗ 20	↗ 20	↗ 20	↗ 20	↗ 20
	Lower	↗ 15	↗ 15	↗ 15	↗ 15	↗ 15	↗ 15	↗ 15
Inter-regional Public Transport	Upper	↗ 50	↗ 50	↗ 50	●	●	●	●
	Lower	↗ 20	↗ 20	↗ 20	●	●	●	●

Notes:

1. The Safety Activity Class was previously called Road to Zero. The main change between these is that the Safety Activity Class does not include any funding for safety infrastructure. The funding for safety improvements has been reallocated to State Highway and Local Road Improvements, to enable safety improvements to be delivered as part of the wider improvements programme. It is expected that the overall level of funding going towards safety projects will remain constant.

Ngā Uara Te Manatū Waka
Te Manatū Waka Values



WHAKAPAKARI
IMPROVING OUTCOMES



AKO
CAPABILITY DEVELOPMENT



MAHI TAHI
WORKING TOGETHER



RANGATIRANGA
EMPOWERING
AND LEADING



KAITIAKITANGA
GUARDIANSHIP AND
PROTECTION



WHANAUNGATANGA
COLLABORATION
AND UNITY



MANAAKITANGA
CARING FOR AND
VALUING OTHERS

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Strategic Investment Programme – Project Descriptions

The draft GPS 2024 sets out a series of projects that are strategically important for the development of New Zealand’s transport system in the coming decades.

The Strategic Investment Programme includes:

- Warkworth to Whangārei – State Highway 1, including:
 - Te Hana to Brynderwyns
 - Warkworth to Wellsford
 - Whangārei to Brynderwyns
- Auckland Northwest Rapid Transit
- Auckland rail third and fourth Mains Expansion
- Avondale to Onehunga rail link
- Auckland and Wellington Metropolitan Level Crossing Upgrade and Removal Programme
- Cambridge to Piarere – State Highway 1
- Tauranga to Tauriko – State Highway 29
- Wellington CBD to Airport – State Highway 1 – Second Mount Victoria Tunnel and Upgrades to Basin Reserve/Arras Tunnel
- Wellington CBD to Island Bay – Mass Rapid Transit
- Napier to Hastings – State Highway 2
- Christchurch Northern Link – State Highway 1
- Nelson – Hope Bypass – State Highway 6
- Nelson (Rocks Road) shared path – State Highway 6
- Ashburton Bridge – State Highway 1

The Waka Kotahi Board ultimately have the power to approve projects funded from the National Land Transport Fund. By highlighting these projects, the Government expects that their strategic importance will be given particular consideration during the development of the National Land Transport Plan.

The projects are described in more detail in this document.

Draft GPS 2024 – Strategic Investment Programme

Warkworth to Whangārei – State Highway 1

This project relates to upgrades on State Highway 1 between Auckland and Whangārei, including:

- **Te Hana (north of Wellsford) to Brynderwyns** – safety and resilience improvements to the existing route south of the Brynderwyns and a western bypass around the hills.
- **Warkworth to Wellsford (Dome Valley)** – New 26km motorway
- **Whangārei to Brynderwyns** – Upgraded 22km four-lane motorway and shared path between Whangārei and SH15

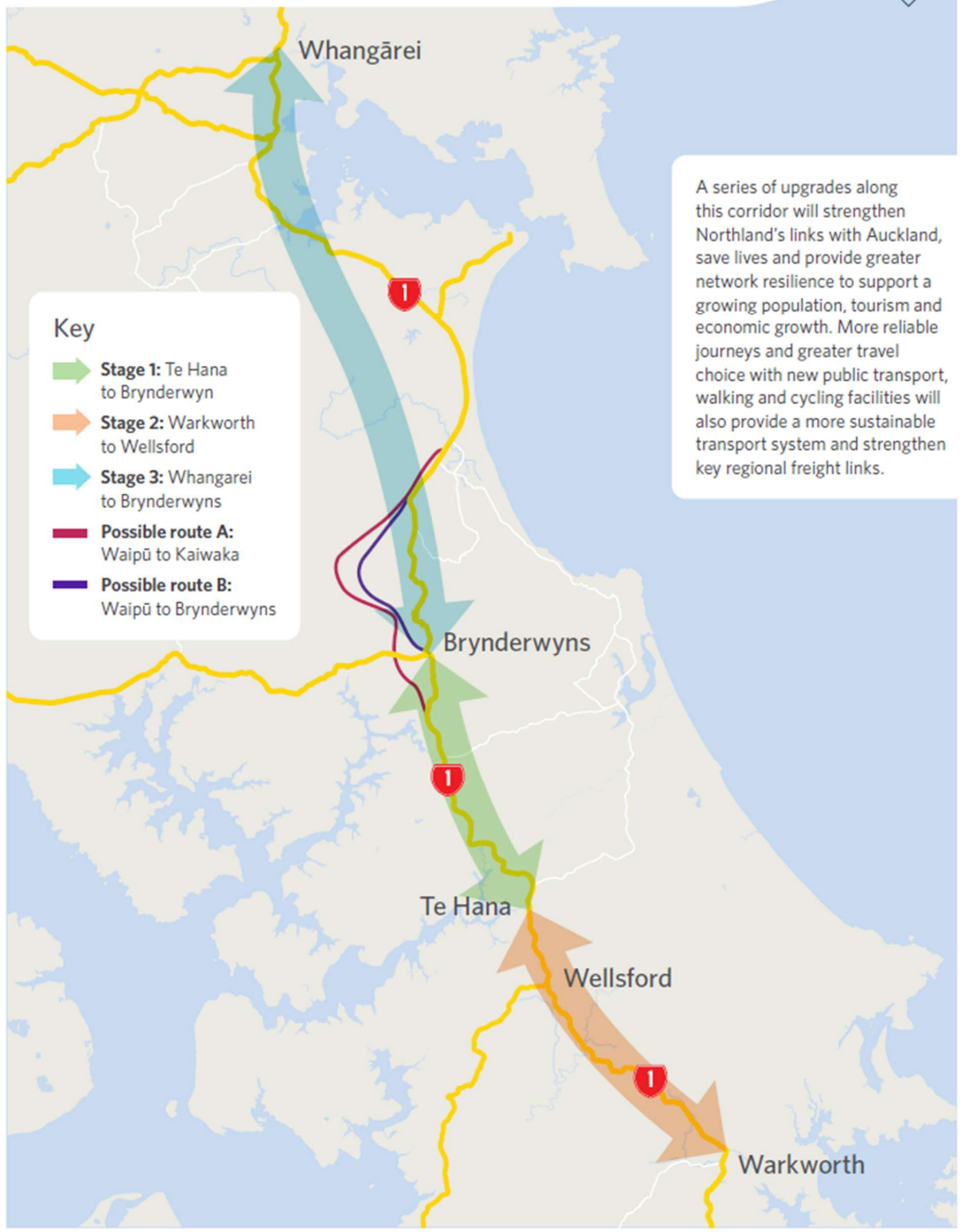
A series of upgrades along this corridor could strengthen Northland's links with Auckland, save lives and provide greater network resilience to support a growing population, tourism and economic growth. This will help to prevent costly closures arising from bad weather and crashes. More reliable journeys and greater travel choice with new public transport, walking and cycling facilities will also provide a more sustainable transport system and strengthen key regional freight links.

Note that short-term resilience improvements will be considered through the Cyclone recovery work for SH1 Brynderwyns including local road detours:

- **SH12 and 14** - The state highway alternate route is via SH12/14 Mangatāpere, Dargaville, Maungarutoro (additional 1 hour) and numerous townships.
- **Oakleigh/Mangapai to Paparoa (local road)** - To the west this route runs between Mangapai and Paparoa where it exits on SH12. It adds an additional 30 minutes to the journey, has six one lane bridges and travels through rural and small communities.
- **Waipu to Kaiwaka (local road)** - To the east, Cove Road provides access via Langs Beach, Mangawhai, Kaiwaka where it exits onto SH1. It adds an additional 35 minutes to the journey and has a high density of populations, townships, and tourist destinations. This route has two one lane bridges and is not suitable for long vehicles due to a hairpin.

1 SH1 Auckland to Whangārei

Section 2 - SH1 Warkworth to Wellsford



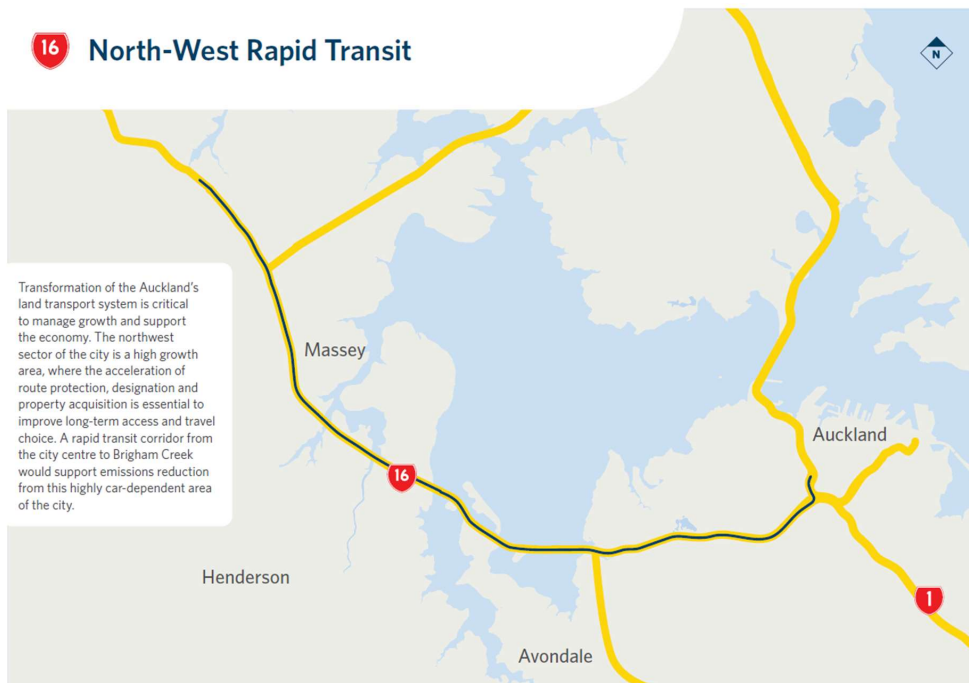
Draft GPS 2024 – Strategic Investment Programme

Auckland Northwest Rapid Transit

Transformation of the Auckland’s land transport system is critical to manage growth and support the economy. The Northwest of the city is a high growth area, where the acceleration of route protection, designation and property acquisition is essential to improving long-term access and travel choice. A rapid public transport corridor from the city centre to Brigham Creek would support emissions reduction from this highly car-dependent area of the city.

A detailed business case is underway to plan what is needed to accelerate work on this corridor, which could include staging early delivery of rapid transit stations during the next three years (2024-27). The funding provided through the draft GPS 2024 could enable Waka Kotahi to accelerate work to finalise the preferred solution, progress consenting and designation, and start early works.

Construction of a full rapid transit connection from Brigham Creek to the central city along the corridor would take at least 10 years to complete, depending on mode, but the intention from Waka Kotahi is to deliver it in stages starting with a focus on the City Centre to Westgate.



Auckland 3rd and 4th Main Rail Lines

The New Zealand Upgrade Programme is currently funding the build of about 8km of 3rd Main Line in South Auckland between Westfield and Wiri Junctions (north of Puhinui to south of Middlemore). This will alleviate existing congestion in the busiest part of the Auckland Metro Network and help separate commuter from freight services.

The funding made available via the GPS could allow KiwiRail to undertake detailed engineering design, construction methodology as the start of a project to build a 4th Main between Westfield and Wiri and both 3rd and 4th Mains about 30km to Pukekohe. This is about future proofing rail in Auckland to cater for the commuter and freight growth to come.

The southern part of Auckland is an important part of the largest freight movement area in New Zealand (Golden Triangle: Auckland – Hamilton – Tauranga). The 3rd Main extension and 4th Main are expected to be needed in the 2030s to ensure the reliability of increasing passenger (metro and inter-regional) and freight rail services in the Auckland metro area. They will also help enable more trains to run between Port of Tauranga and Auckland, supporting mode shift from our highways to rail and reducing transport emissions.

The 3rd Main extension and 4th Main allows the maximum commuter service frequency enabled by the City Rail Link, over time. They would also allow more inter-regional services (such as Te Huia) to operate. It is a first step in a much larger project to shift more people/freight onto rail and reduce our transport emissions over the next decade. An estimated 6 million tonnes of freight moves in and out of the Auckland network each year and that avoids more than 400,000 long distance heavy truck trips.

Improvements and upgrades to Auckland's rail network are important to improve passenger and inter-regional freight services. With additional lines, rail will play a greater role in supporting urban and economic growth, improving access and helping reduce emissions. Design work will start as soon as funding is approved and may take three years to complete.

Avondale to Onehunga Rail Link

KiwiRail has owned a corridor of land between Avondale, through Onehunga to its major freight container terminal in Southdown since the 1940s. The corridor is already designated for rail use. The funding signaled in the GPS could allow detailed engineering design to be undertaken as a first step in eventually building a rail line between Avondale-Southdown for both passenger and freight trains.

The Avondale - Onehunga Link would provide significant metro commuter service and connectivity improvements for Aucklanders. The potential to run East-West commuter services on the Avondale - Onehunga Link, would establish a true metropolitan passenger network for Auckland with an inner loop (CRL) and an outer loop (centre to west, west to south, south to east, east to centre).

Another key benefit of the line is that it would help remove rail freight from the centre of the Auckland metro network, creating more space for commuter services, while also significantly improving efficiency for freight and logistics, and resilience right across the network. For example, freight services from the north currently have to travel through Newmarket, the busiest commuter junction in Auckland where Southern and Western Line services meet.

Draft GPS 2024 – Strategic Investment Programme

It is expected, given increasing passenger and freight volumes that the Avondale - Onehunga Link will be needed by the 2040s. If Ports of Auckland were to be closed or curtailed it could be needed earlier.

Increased capacity on Auckland's rail network has the potential to carry greater volumes of freight and support additional passenger services, reducing congestion on the roading network, improving safety, and helping to reduce emissions. Work on the engineering design for the Avondale – Onehunga will start as soon as funding is approved and may take three years to complete.

Rail Level Crossing Removal Programme

To enable long-term commuter service growth in both Auckland and Wellington level crossings need to be removed. In the Auckland metro area, over time all level crossings need to be removed to enable the maximum capacity from the City Rail Link. To grow Wellington metro commuter service frequency, some level crossings will likely need to be removed over time.

The funding made available in the GPS could allow KiwiRail to identify the relevant level crossings, undertake engineering design for road/rail changes and traffic modelling as the start of a project to remove level crossings. Options could include some grade separation through over and under-passes, or outright closure. KiwiRail expect a 30-year timeframe for removing level crossings.

Removing level crossings improves the safety of both the road and rail networks, allows more frequent trains and, particularly with grade separation, improves the efficiency of the road network with vehicles not having to stop at barrier arms when trains pass. It benefits both commuters and drivers.

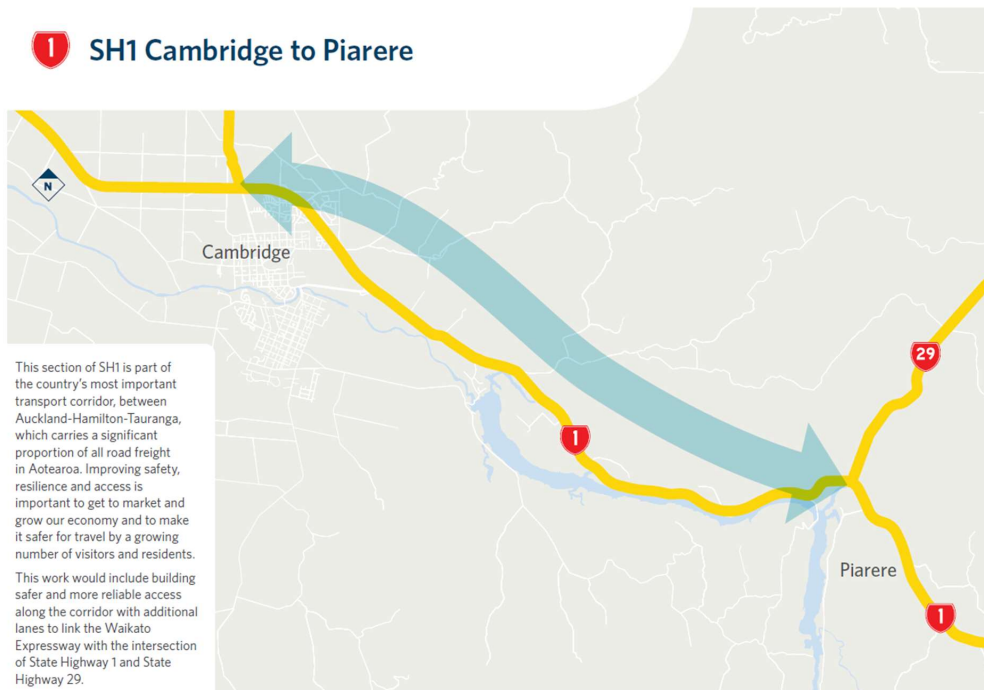


Draft GPS 2024 – Strategic Investment Programme

Cambridge to Piarere – State Highway 1

This section of SH1 is part of the country's most important transport corridor, between Auckland-Hamilton-Tauranga, which carries a significant proportion of all road freight in Aotearoa. Improving safety, resilience and access is important to get to market and grow our economy and to make it safer for travel by a growing number of visitors and residents.

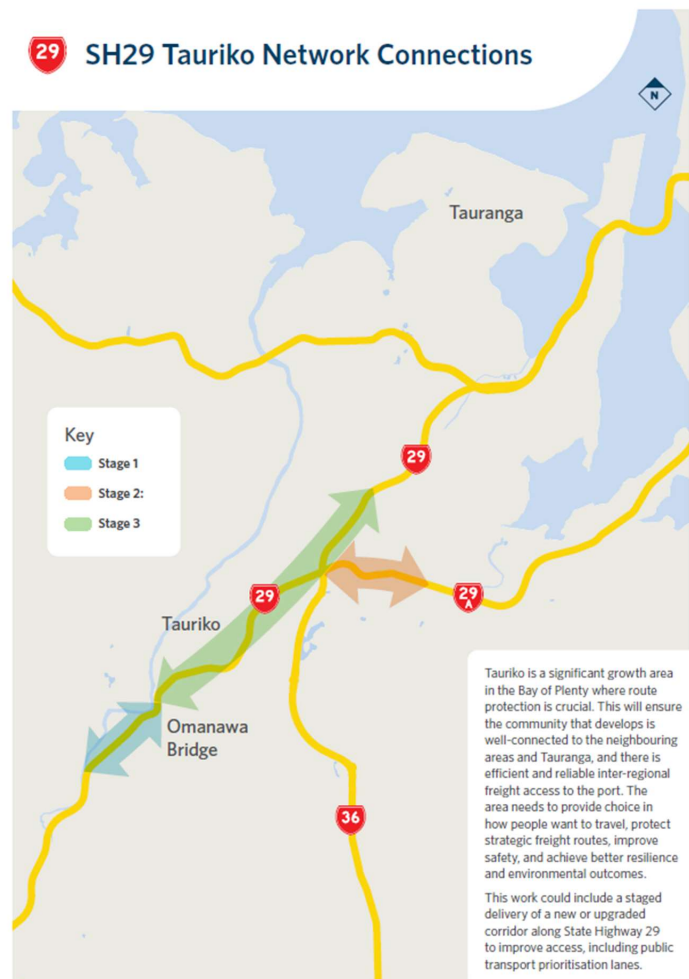
This work would include building safer and more reliable access along the corridor with additional lanes to link the Waikato Expressway with the intersection of State Highway 1 and State Highway 29. Work on this corridor could start as early as 2024, construction could get underway in 2026 and would take at least five years to complete.



Tauranga to Tauriko – State Highway 29

Tauriko is a significant growth area in the Bay of Plenty where route protection is crucial. This will ensure the community that develops is well-connected to the neighbouring areas and Tauranga, and there is efficient and reliable inter-regional freight access to the port. The area needs to provide choice in how people want to travel, protect strategic freight routes, improve safety, and achieve better resilience and environmental outcomes.

This work could include a staged delivery of a new or upgraded corridor along State Highway 29 to improve access, including public transport prioritisation lanes. As per the recently completed detailed business case, the works are proposed to be completed in multiple stages: replacement of the Omanawa Bridge, the upgrading of parts of SH29A to improve public transport prioritization, and a new highway along SH29. The funding provided through the draft GPS 2024 could enable consenting for the larger parts of the project/enabling works for better public transport, as well as the work to start on the replacement of the Omanawa Bridge to take place over the next 3 years (2024-27).



Draft GPS 2024 – Strategic Investment Programme

Second Mt. Victoria Tunnel and Upgrades to Basin Reserve and Arras Tunnel – State Highway 1

The Government is committed to kick-starting work on long-delayed transport solutions for the city. Local authorities agree that the Government should take the lead on projects on the state highway network.

Reshaping how we travel in our capital city is vital to enable growth, get more people using a variety of travel choices and to help reduce emissions. With the potential for significant residential growth to the east and south of Wellington, a range of improvements to build network capacity and travel choice, making getting about the city easier, more accessible and reliable.

This work would include improvements to the state highway and local road network, along with a second Mt Victoria Tunnel. A detailed business case is currently being progressed for this work. The funding made available in the GPS could enable early works to begin in 2026/27, with main construction works getting underway in 2027/28.

Mass Rapid Transit (Wellington CBD to Island Bay)

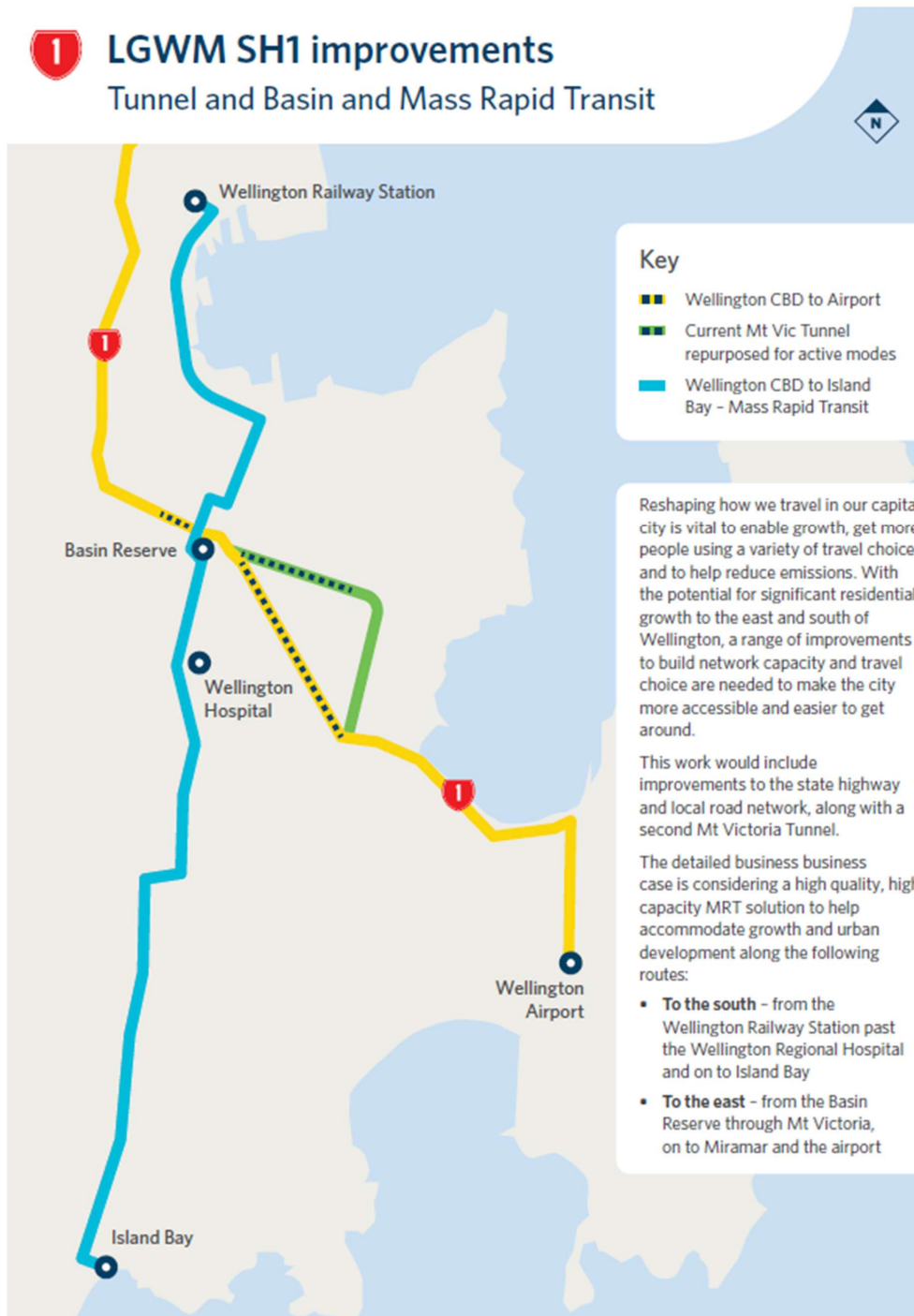
Growth in Wellington needs to be supported through the delivery of new and state-of-the-art public transport options that are safe, efficient and reliable, powered by renewable energy sources. This supports the city to reduce emissions, provide sustainable travel choices and ensure better connections to essential services.

The detailed business case is considering two routes to help manage growth and urban development: to the south – from the Wellington Railway Station past the Wellington Regional Hospital and on to Island Bay, and to the east – from the Basin Reserve through Mt Victoria, on to Miramar and the airport.

The funding made available in the draft GPS 2024 could enable consenting, property purchase, and final design work to be completed before works commence during the next GPS period (2027-30).

1 LGWM SH1 improvements

Tunnel and Basin and Mass Rapid Transit

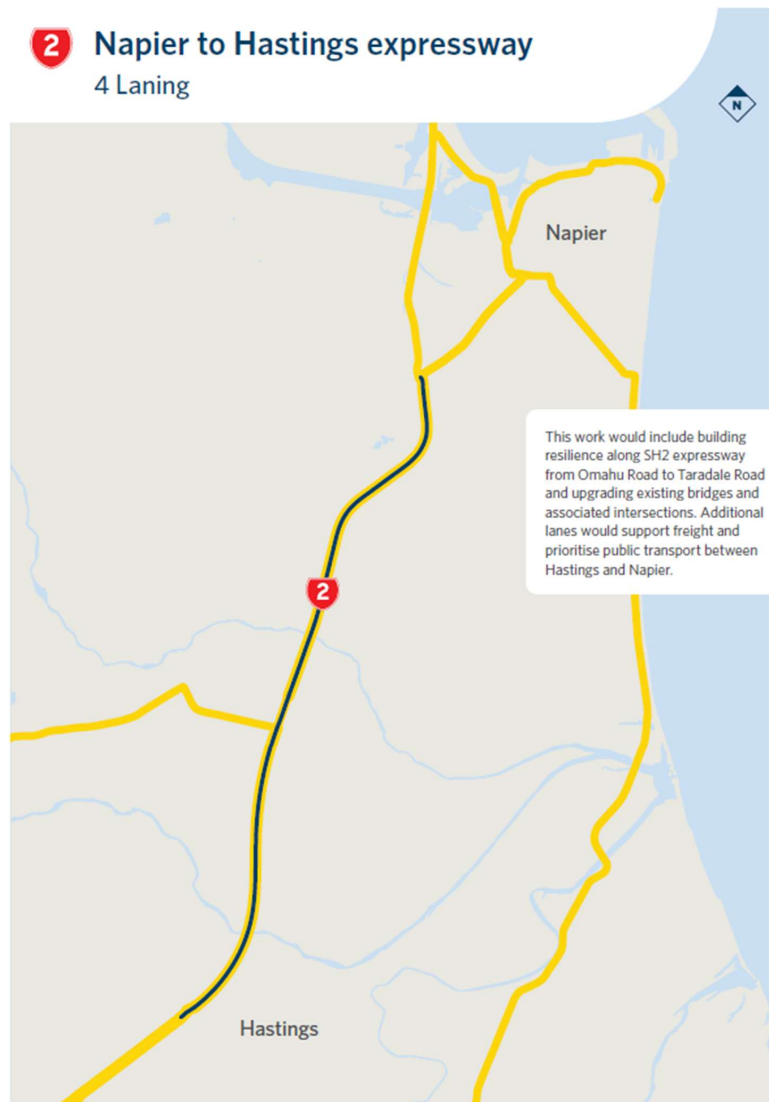


Draft GPS 2024 – Strategic Investment Programme

Napier to Hastings – State Highway 2

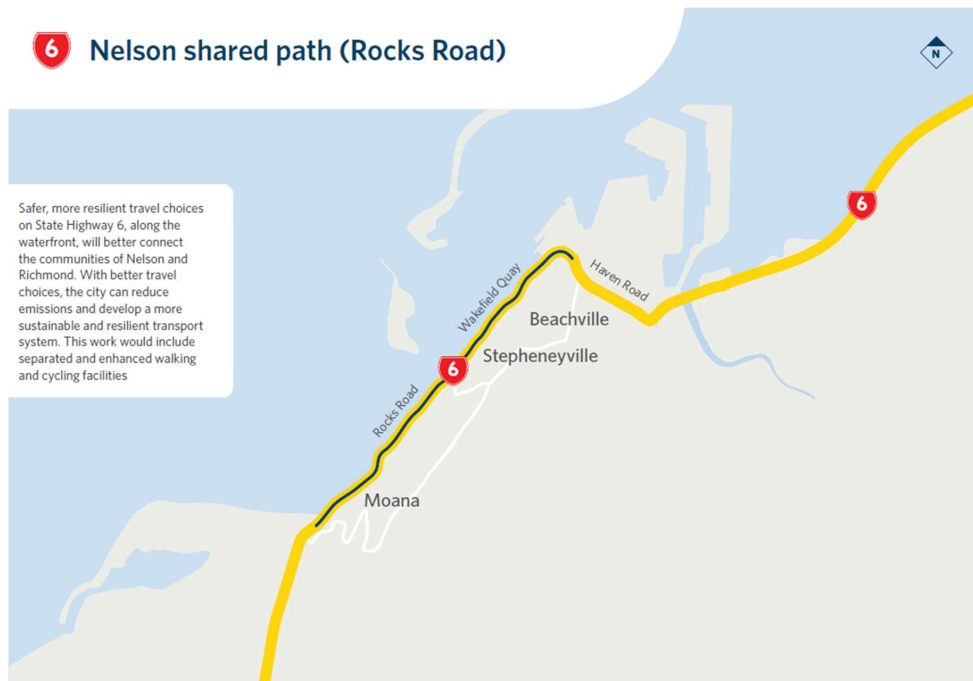
The Hawke's Bay relies on the roading network between Napier to Hastings to support the region's economic growth. Capacity improvements along the corridor will boost resilience, productivity and efficiency of the network, as well as connections between the two cities. This work would include building resilience along SH2 expressway from Omaha Road to Taradale Road and upgrading existing bridges and associated intersections.

Additional capacity would support freight and prioritise public transport between Hastings and Napier. Main construction works could start in the next GPS period (around 2027) and would take five years to complete.



Nelson (Rocks Road) shared path – State Highway 6

Safer, more resilient travel choices on State Highway 6 along the waterfront with a new shared walking and cycling path would better connect the communities of Nelson and Richmond. With better travel choices, the city can reduce emissions and develop a more sustainable and resilient transport system. This work would include separated and enhanced walking and cycling facilities. Construction work could start as early as 2028 and would take around five years to complete.



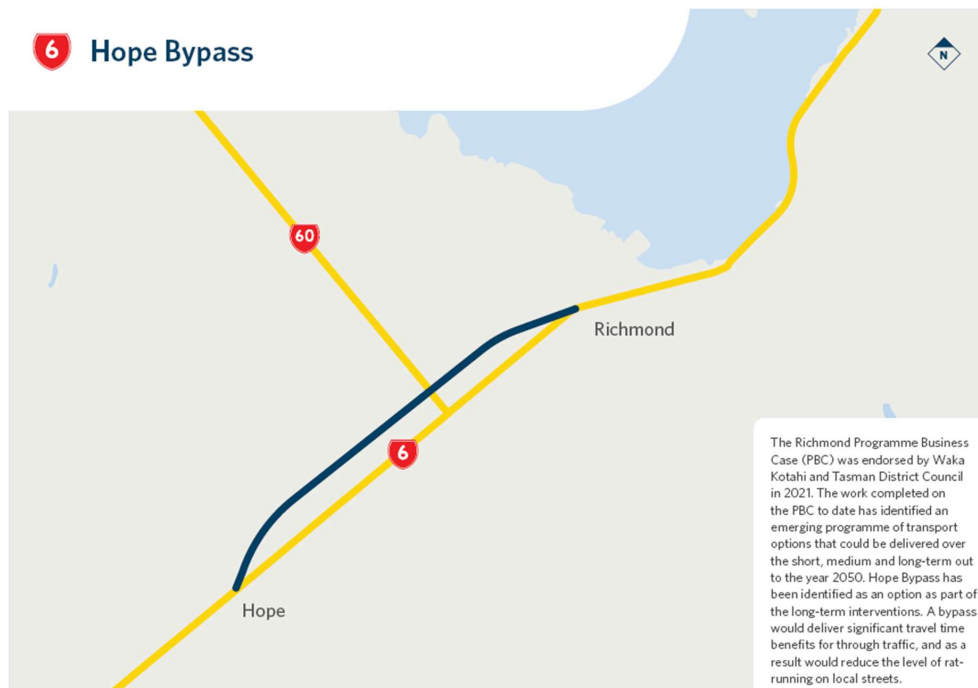
Draft GPS 2024 – Strategic Investment Programme

Richmond – Hope Bypass – State Highway 6

The Richmond Programme Business Case (PBC) was endorsed by Waka Kotahi and Tasman District Council in 2021. This work identified an emerging programme of transport options that could be delivered over the short, medium and long-term out to the year 2050. Waka Kotahi and Tasman District Council are currently undertaking short-term improvements to the road network, including: Cycle lanes along key routes, Priority lanes for freight and public transport, targeted safety upgrades for pedestrians and cyclists.

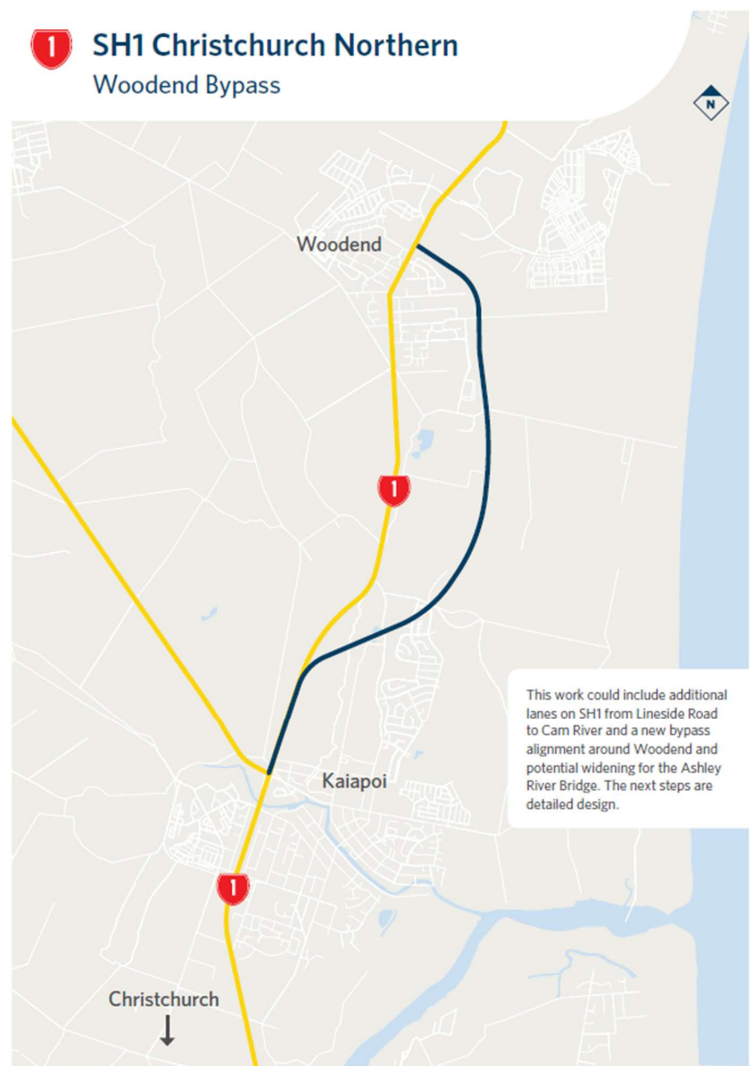
A bypass would deliver significant travel time benefits for through traffic, and as a result would reduce the level of rat-running on local streets. The bypass would strongly support the desired safety and liveability objectives for the project, and these outcomes potentially may not be delivered unless the Hope Bypass is introduced.

Significant housing growth will also generate significantly more vehicle trips, and regardless of how much active mode infrastructure is provided, the majority of new trips would still be car-based. The funding provided in the draft GPS could enable further design work and consenting to progress over the next 3 years (2024-27).



Christchurch Northern Link – State Highway 1 (Woodend Bypass)

Upgrading State Highway 1 from the Waimakariri River to Ashley River, including a new alignment around Woodend, will improve safety, provide for more reliable journeys, support regional growth and greater accessibility for Woodend and Pegasus. This work could include additional lanes on SH1 from Lineside Road to Cam River and a new bypass alignment around Woodend and potential widening for the Ashley River Bridge. The funding made available in the GPS could enable further detailed design and work could start as early as 2026/27. Construction is expected to take three years to complete.

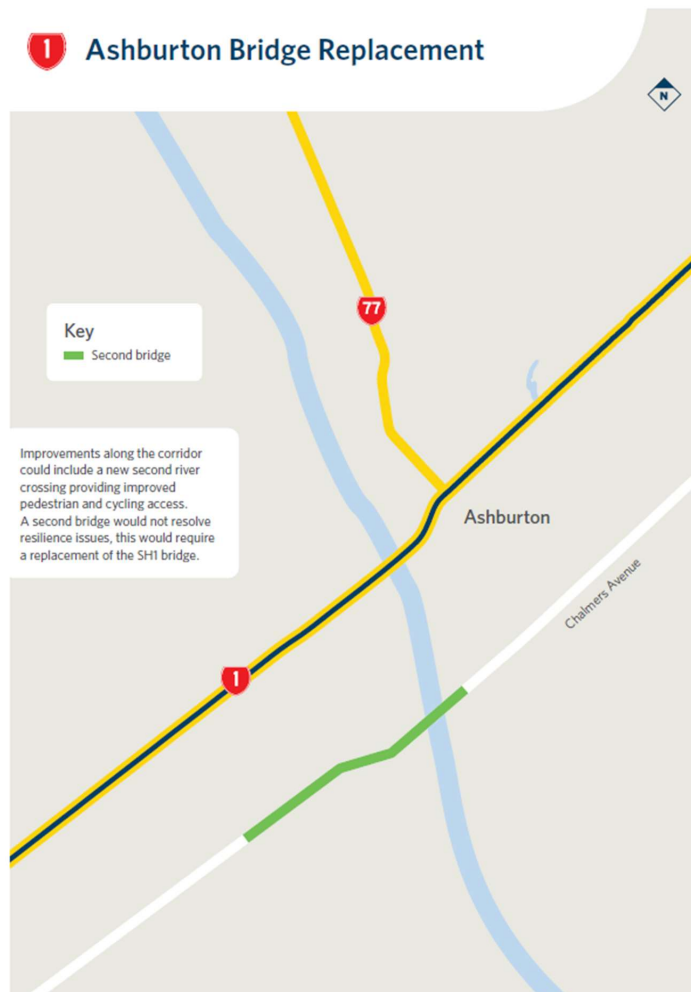


Draft GPS 2024 – Strategic Investment Programme

Ashburton Bridge – State Highway 1

Greater resilience for the South Island’s main freight route along State Highway 1 would be boosted and connectivity strengthened with improvements to links across the Hakatere/Ashburton River. Additional benefits would be improved travel choice options.

Improvements along the corridor could include a new second river crossing providing improved pedestrian and cycling access. A second bridge alone would not resolve resilience issues, this would require a replacement of the SH1 bridge. Work could start in 2024/25 for pre-implementation and property purchase for a second bridge, with construction starting in 2026/27 and taking two years to complete.



Corridor Studies (\$25m)

In addition to the projects above the GPS also makes \$25m available for Waka Kotahi to look at upgrades to other key corridors for future investments, including:

SH2 Melling to Upper Hutt

The transport link between Te Marua and Ngauranga is congested, unsafe and lacks resilience. A 2017 corridor business study focusing on the wider corridor between Te Marua and Ngauranga identified a potential four-lane from Silverstream to Upper Hutt and/or grade separated intersections for safety, resilience and economic outcomes. This study identified the work needed on Melling which is being progressed through NZUP, and the refresh will look at any remaining parts.



Draft GPS 2024 – Strategic Investment Programme

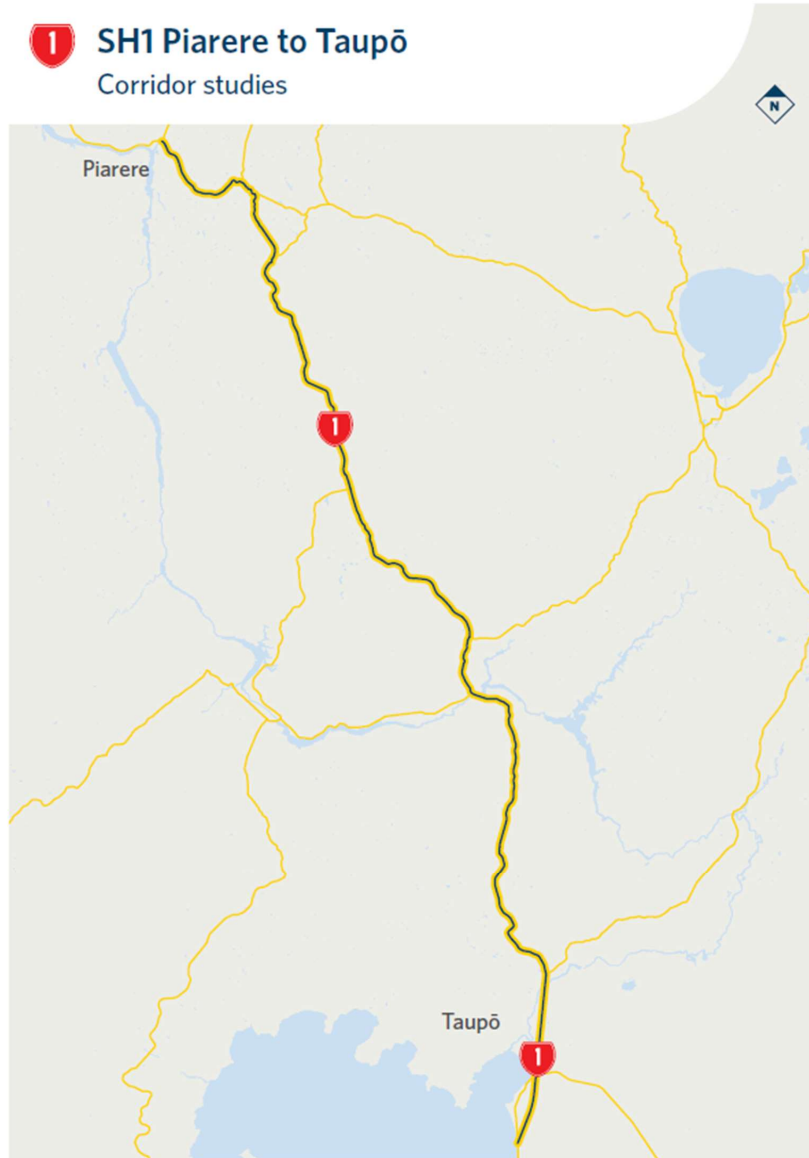
SH29 Piarere to Tauranga

SH29 is the preferred route for road-based freight between Tauranga and Auckland. SH29 has a low safety record, poor resilience and a higher cost of travel due to the gradients over the Kaimai Range. The 2017 corridor business case included operational and capital improvements which were safety focused to improve DSIs and improve freight reliability on that route.



SH1 Piarere to Taupō

The level of service along SH1 between Piarere and Taupō varies significantly and is out of keeping with its classification as a national (high volume) highway. The 2017 corridor business case included a strategy of operational and capital improvements, including improved emergency management, maintenance regimes, traveller information and township amenities.



Draft GPS 2024 – Strategic Investment Programme

SH1 Taupō to Desert Road

The journey between Taupō and Waiouru is one of the most variable and least approachable sections of SH1 and provides an inconsistent level of service. The 2017 recommended programme aimed to address road user safety and provide a reliable and efficient corridor commensurate with the route classification and wide range of users.



SH1 Christchurch to Ashburton

Travel movements between Christchurch and Ashburton have risen significantly, and the Christchurch to Dunedin Corridor Management Plan considered corridor pressures, intervention triggers and appropriate levels of investment related to safety. Further work is needed to review the corridor to determine what is needed to support safety, resilience and growth.



Draft Government Policy Statement on land transport (GPS) 2024 **Release of draft for consultation – August 2023**

Frequently Asked Questions

About the GPS

What is the GPS?

The GPS is the Government Policy Statement on land transport. It outlines what the Government wants to achieve in land transport, and how it expects to see funding allocated between types of activities (for example, roading, public transport and road safety) across the land transport system.

Each GPS sets out the priorities for a 10-year period and is updated every three years.

What is in the GPS?

The GPS guides Waka Kotahi and local authorities on land transport investment.

The GPS describes:

- the results the Government wishes to achieve from its investment in land transport through the National Land Transport Fund (NLTF) over the next ten years
- how much funding will be provided to the NLTF for Waka Kotahi to allocate to transport investments
- how the NLTF funding will be raised
how the government wants NLTF funding to be allocated across areas of investment known as activity classes (for example, safety, state highway improvements, walking and cycling improvements).

Where does the money outlined in the GPS come from?

The GPS provides guidance to Waka Kotahi on how the NLTF should be spent. The NLTF is largely made up of revenue from fuel excise duty and road user charges.

Smaller amounts of NLTF revenue come from motor vehicle registration and licensing fees, the sale of surplus land and property, road tolls and freight rail track user charges.

The draft GPS 2024 is proposing that additional Crown funding and financing will be injected into the NLTF over 2024/25 – 2026/27.

The NLTF funds transport projects, often with the support of co-investment from local government for projects that benefit their communities.

How does the GPS inform which projects get funding?

The GPS sets the strategic direction and the funding envelope and provides guidance on how to invest the NLTF. Waka Kotahi has responsibility for which projects or investments can get funded through the development of the National Land Transport Programme (NLTP), which gives effect to the GPS.

To be considered for funding from the NLTF, an activity or transport project needs to be referenced in a Regional Land Transport Plan (RLTP). RLTPs are developed by local authorities and identify investment priorities at a regional level and must be consistent with the GPS.

Why do we need the GPS?

Transport investments have long lead times, high costs and leave long legacies. Transport planning and investment need to be guided by a long-term strategic approach, with a clear understanding of what outcomes the Government is seeking to achieve. The GPS influences decisions on how money will be invested and guides local government and Waka Kotahi on the type of activities that should be considered for inclusion in RLTPs and the NLTP.

GPS 2024

When will GPS 2024 take effect?

GPS 2024 will take effect from 1 July 2024, and replaces GPS 2021.

What are the strategic priorities in the draft GPS 2024?

The results the Government wishes to achieve from NLTF investment are expressed via a set of strategic priorities and a strategic investment programme. The strategic priorities for the draft GPS 2024 are:

- maintaining and operating the system
- increasing resilience
- reducing emissions
- safety
- sustainable urban and regional development.
- an integrated freight system.

What is the strategic Investment Programme and what projects are included in it?

The draft GPS 2024 signals a Strategic Investment Programme containing several projects that the Government considers will help advance the strategic priorities in the draft GPS 2024. These are:

- Warkworth to Whangārei – State Highway 1, including:
 - Te Hana to Brynderwyns
 - Warkworth to Wellsford
 - Whangarei to Brynderwyns
- Auckland Northwest Rapid Transit
- Auckland rail third and fourth rail mains
- Avondale to Onehunga rail link
- Level crossing removal programme
- Golden triangle electrification
- Cambridge to Piarere – State Highway 1
- Tauranga to Tauriko – State Highway 29
- Wellington CBD to Airport – State Highway 1 – Second Mt. Victoria Tunnel and Upgrades to Basin Reserve/Arras Tunnel
- Wellington CBD to Island Bay – Mass Rapid Transit
- Napier to Hastings – State Highway 2
- Nelson (Rocks Road) shared path – State Highway 6
- Nelson – Hope Bypass – State Highway 6
- Christchurch Northern Link – State Highway 1

- Ashburton Bridge – State Highway 1

For non-rail projects, decision rights for funding from the NLTF rest solely with Waka Kotahi. The authority to approve a Rail Network Investment Programme (RNIP) and NLTF funding for an RNIP sits with the Minister of Transport.

By highlighting these projects, the Government expects that their strategic importance will be given particular consideration during NLTP development, given their alignment and potential impact on the wider government priorities outlined in the GPS.

What has changed since GPS 2021?

The draft GPS 2024 builds on the strategic priorities of GPS 2021, including supporting improved transport choice, improving safety, improving freight connections and reducing the impact of travel on our environment. It proposes a strengthened focus on resilience, recognising recent flood and weather-related recovery efforts.

The draft GPS 2024 includes a new strategic priority for maintaining and operating the system. This reflects the need to manage our current roading network and operate existing public transport services. There is also a new sustainable urban and regional development priority, which emphasises the need for our cities and towns, large and small, to have transport networks that are fit for the future, and that promote integrated land-use and transport planning.

Will local government and Waka Kotahi have time to incorporate the GPS into their plans?

The Government is releasing the draft GPS 2024 now to provide Waka Kotahi, local government and the sector with an indication on what activities to include in their transport planning and funding strategies.

The final GPS is required to be released by July 2024, and the current consultation process will allow us to meet that timeframe.

Funding

How much funding is forecast under the draft GPS 2024?

The draft GPS 2024 signals the Government's transport priorities and guides investment in land transport of \$60 billion over a 10-year period. This is made up of \$6 billion from the NLTF per annum, and is supported by \$1.5 billion from local government, each year. In addition to this the Government has committed a further \$10 billion Crown funding over the next decade.

What changes to NLTF revenue are being proposed through the draft GPS 2024?

The Government recognises the significant cost pressures that the NLTF is facing and proposes to increase revenue by \$5.3 billion from \$15.5 billion in 2021/22-2023/24 to \$20.8 billion in 2024/25-2026/27, an increase of 34 percent.

To increase revenue in by \$5.3 billion, we require a funding package of \$7.7 billion. This is because revenue over 2021/22-2023/24 was propped up by a \$2 billion Crown loan.

The proposed \$7.7 billion funding package is made up of:

- Semi-regular increases in fuel taxes for three years (\$1.4 billion), consistent with historic

- norms prior to 2020
- Crown funding and financing (\$6.3 billion) to limit cost pressures on household and business budgets

The \$6.3 billion of Crown funding and financing includes a contribution of \$500 million of the Climate Emergency Recovery Fund, transferring the traffic infringement fee revenue to the NLTF, \$2.4 billion of direct Crown funding and a \$3.1 billion Crown loan.

Why are you proposing to raise fuel taxes?

Given the real cost pressures facing households and businesses, the Government is proposing a 2 cent increase in petrol taxes and equivalent increase in road user charges on July 2024 and again in January 2025. This will be followed by 4 cent increases on July 2025 and again in July 2026. To keep the increases as small and gradual as possible, we are also proposing to top up the NLTF with other Crown funding over the next three years.

Contributions to the NLTF through Fuel Excise Duty and Road User Charges do not automatically increase to keep up with cost pressures. This means as costs increase or emergency events occur, we have to either find ways to do more with less or increase Fuel Excise Duty and Road User Charges.

A 2 cent increase would add 44 cents a week to the average motorist's spend, increasing to \$2.64 per week at 12 cents by July 2026. These increases would generate around \$1.4 billion in revenue over three years, dedicated to improving our transport network.

How will the draft GPS 2024 ensure value for money?

The draft GPS 2024 outlines how value for money should be considered, looking beyond the traditional economic value to the standards, practices, capabilities and strategic alignment of investment. A performance framework will be established to support monitoring of value for money.

What are you doing to ensure there is enough revenue in the land transport system?

The land transport funding system is facing significant pressure due to rising demands and costs. This includes historic deferral of maintenance, increasing severity and frequency of extreme weather events, workforce pressures, and a period of heightened inflation.

The Government has provided additional funding to meet these pressures in the short term. Longer term, a project is already underway to look at the future of revenue in the transport system, and it is considering how to make the system more sustainable in the context of climate change and increasing cost pressures.

Draft GPS 2024 – Details

Are there any new activity classes in the draft GPS 2024?

The draft GPS 2024 proposes a new activity class for inter-regional public transport, which will play a crucial role in achieving the government's emissions reduction targets. This activity class provides for investment in existing and new inter-regional services, encouraging regional councils and unitary authorities to work together to expand and improve the inter-regional public transport service offerings.

The Safety Activity Class proposed in the draft GPS 2024 represents an update to the Road to Zero Activity Class introduced through GPS 2021. Investment through the Safety Activity Class will be targeted towards interventions that support reductions in deaths and serious injuries, including in

Road Policing, Automated Enforcement, and Road Safety Promotion.

Safety infrastructure and speed management will now be funded from the State Highway Improvements and Local Roads Improvements Activity Classes. This will better integrate the wider network and deliver a wider range of outcomes. In addition, many safety investments occur as part of investments in other activity classes. For example, intersection improvements, wider road shoulders, rumble strips, and improved skid resistance.

How does the Emissions Reduction Plan impact the GPS?

Reducing transport emissions is critical for reaching New Zealand's net zero emissions target by 2050. In 2019, transport was responsible for 39 percent of carbon emissions and 17 percent of New Zealand's total gross emissions, with most of these emissions coming from light vehicles (eg, cars) with internal combustion engines.

Under the Emissions Reduction Plan (ERP), we need to reduce transport emissions by 41 percent (from 2019 levels) by 2035 and reach net zero emissions by 2050.

Reducing emissions is a strategic priority of the draft GPS 2024. The draft GPS 2024 outlines the Minister's expectations for Waka Kotahi to manage the risk that NLTF investment conflicts with emissions reductions objectives.

Why is rail/coastal shipping being funded by road users?

Investment from the NLTF will help make rail and coastal shipping a more competitive way of carrying freight. This should help reduce the number of trucks on the roads. Road users will also benefit from reduced emissions, more resilient freight options, safer roads with fewer trucks and less damage to roads.

Track user charges from rail operators also contribute to the NLTF.

How will the draft GPS 2024 support the efficient movement of freight?

The draft GPS 2024 has been developed alongside the draft Freight and Supply Chain Strategy and the New Zealand Rail Plan. In addition, the ERP has a number of actions relating to decarbonising the freight sector including providing funding to support the freight sector to purchase zero- and low-emissions trucks.

The Low Emissions Transport Fund has already begun co-funding a range of initiatives to accelerate transport decarbonisation. So far, funding has been provided for battery-swap electric truck technology for milk tankers and concrete mixers.

Maritime transport will play an important role for our economy to increase the resilience of our supply chains and to achieve our goal of reducing emissions from freight transport.

Feedback and next steps

What are the next steps and when will the final GPS 2024 be available?

We're releasing the draft GPS 2024 as a signal to the sector and to help with their strategic planning. We expect to release the final following the election.

How do I provide feedback?

Public consultation on the draft GPS 2024 is now open, please visit [The Ministry of Transport website](#) to provide your feedback via our questionnaire.

Feedback on the draft GPS 2024 closes at 5pm on 15 September 2023.

If you have any questions contact us on GPS@transport.govt.nz

ACTIONS TRACKING

Kōrero taunaki | Summary of considerations

Purpose

1. This report to Kōrau Tūāpapa | Environment and Infrastructure Committee (the Committee) provides an update on the past actions agreed by the Committee, or its equivalent, at its previous meetings (hui).

Strategic alignment with community wellbeing outcomes and priority areas

Aligns with the following strategies and priority areas:

- Sustainable, natural eco city
 - People friendly, compact, safe and accessible capital city
 - Innovative, inclusive and creative city
 - Dynamic and sustainable economy
- Strategic alignment with priority objective areas from Long-term Plan 2021–2031**
- Functioning, resilient and reliable three waters infrastructure
 - Affordable, resilient and safe place to live
 - Safe, resilient and reliable core transport infrastructure network
 - Fit-for-purpose community, creative and cultural spaces
 - Accelerating zero-carbon and waste-free transition
 - Strong partnerships with mana whenua

Relevant Previous decisions

Not applicable.

Financial considerations

- Nil Budgetary provision in Annual Plan / Long-term Plan Unbudgeted \$X

Risk

- Low Medium High Extreme

Author	Tian Daniels, Democracy Advisor
Authoriser	Siobhan Procter, Chief Infrastructure Officer

Taunakitanga | Officers' Recommendations

Officers recommend the following motion:

That the Kōrau Tūāpapa | Environment and Infrastructure Committee:

1. Receive the information.

Whakarāpopoto | Executive Summary

2. This report lists the dates of previous hui of the Committee and the items discussed at those hui.
3. Each clause within the resolution has been considered separately and the following statuses have been assigned:
 - In progress: Resolutions with this status are currently being implemented.
 - Complete: Clauses which have been completed, either by officers subsequent to the meeting, or by the hui itself (i.e. by receiving or noting information).
4. All actions will be included in the subsequent monthly updates but completed actions will only appear once.

Takenga mai | Background

5. At the 13 May 2021 Council meeting, the recommendations of the Wellington City Council Governance Review were endorsed and agreed to be implemented.
6. On 25 October 2022 through memorandum, the 2022-2025 committee structure chosen by Mayor Tory Whanau was advised. This included establishment of the Kōrau Tūāpapa | Environment and Infrastructure Committee.
7. The Kōrau Tūāpapa | Environment and Infrastructure Committee for the 2022-2025 triennium fulfills the functions of Pūroro Āmua | Planning and Environment Committee and Pūroro Waihanga | Infrastructure Committee of the 2019-2022 triennium.
8. The last hui of the equivalent committees in the 2019-2022 triennium were held on the following dates:
 - Pūroro Āmua | Planning and Environment Committee – 15 Mahuru September 2022
 - Pūroro Waihanga | Infrastructure Committee – 24 Here-turi-kōkā August 2022
9. The purpose of this report is to ensure that all resolutions are being actioned over time. It does not take the place of performance monitoring or full updates. The Committee could resolve to receive a full update report on an item if it wishes.

Kōrerorero | Discussion

10. Of the 11 resolutions of the Kōrau Tūāpapa | Environment and Infrastructure Committee in Pipiri June 2023:
 - 4 are in progress.
 - 7 are complete.

11. 63 in progress actions have been carried forward from the previous action tracking reports of these:

- 55 are still in progress.
- 8 are complete.

12. Further detail is provided in attachment 1.

Ngā mahinga e whai ake nei | Next actions

13. Actions reported as in progress will continue to be reported at future hui of the Committee until determined complete.

Attachments

Attachment 1. Actions Tracking [↓](#) 

Page 602

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
24/06/2021	114	Environment and Infrastructure Committee	3.2: Approval of 30-year Spatial Plan	6	Agree that officers will report on the implementation of the Spatial Plan and the supporting Action Plan on an annual basis, or more regularly as required.	In progress	Progress on implementing the Spatial Plan's actions will be reported on in September. Proposed District Plan Hearings have begun..
24/06/2021	115	Environment and Infrastructure Committee	3.2: Approval of 30-year Spatial Plan	14	Agree that Council will seek to get the agreement of Kāinga Ora to develop at least one Specified Development Project through under the Urban Development Act 2020 to facilitate more affordable and sustainable housing.	In progress	Officers are in ongoing conversations with Kāinga Ora about the potential to use the tools provided under the Urban Development Act 2020. There may be potential to use a Specified Development Project as part of the implementation of LGWM. LGWM is continuing to work with Kāinga Ora on a potential SDP. Councillors were updated on this in a LGWM workshop session on Urban Development
24/06/2021	119	Environment and Infrastructure Committee	3.2: Approval of 30-year Spatial Plan	29	Request officers report back on the capacity to implement the National Policy Statement on Indigenous Biodiversity once it is released, as well as options for incentivising maintenance of Significant Natural Areas (SNAs), such as a rates rebate on the percentage of private land designated as a Significant Natural Area.	In progress	Consider the implications and options as part of the Backyard Taonga implementation, the District Plan review, SNA incentives development, and the Annual Plan/Long Term Plan funding processes. Awaiting finalisation of the National Policy Statement on Indigenous Biodiversity (NPS-IB) by the Ministry for the Environment.
24/06/2021	120	Environment and Infrastructure Committee	3.2: Approval of 30-year Spatial Plan	31	Support whenua Māori (Māori Land) exemption from national SNA designation under the National Policy Statement on Indigenous Biodiversity.	In progress	Awaiting finalisation of the National Policy Statement on Indigenous Biodiversity (NPS-IB) by the Ministry for the Environment.
24/06/2021	122	Environment and Infrastructure Committee	3.2: Approval of 30-year Spatial Plan	43	Request officers review the provision of open and green space in Johnsonville as part of the District Plan review.	In progress	Analysis of Johnsonville's open space provision has been undertaken as part of the 'Our Capital Spaces' strategy review. A qualitative assessment has been completed and a communications/ stakeholder plan is being developed.
23/09/2021	126	Environment and Infrastructure Committee	2.2 Frank Kitts Car Park and Fale Malae	5	If the recommendation to demolish is agreed to then direct officers to prepare a demolition plan to be reported back to council alongside the development plan by June 2022.	In progress	Draft demolition plan is complete. Demolition plan cost and schedule will not be completed until LTP funding is approved in 2024 and Resource Consent approval is received.
23/09/2021	127	Environment and Infrastructure Committee	2.2 Frank Kitts Car Park and Fale Malae	6	Agree that if the Fale Malae project goes ahead on Frank Kitts Park that compensatory open green space will be created elsewhere in the central city which will be designed in line with Water Sensitive Urban Design principles and that the overall objective of the Council's planning work is to significantly increase the amount of green open space overall. Note that part of the Fale Malae will be open space.	In progress	A landscape design statement will be submitted as part of the Resource Consent Submission which will confirm green space approach.

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
23/09/2021	128	Environment and Infrastructure Committee	2.2 Frank Kitts Car Park and Fale Malae	8	Direct officers to assist the eight businesses connected to the Frank Kitts car park with relocation.	In progress	<p>As discussed at the Environment and Infrastructure Committee (08.06.23), if and when Resource Consent is granted for the car park demolition and the wider park redevelopment works Council will undertake an investigation to assess what relocation options there are available at the time. Please note however that no guarantees can be made that suitable relocation options can be found for the existing tenants.</p> <p>In terms of timing, Council expects to lodge the Resource Consent end of 2023/ early 2024 with a return on a decision expected to take up to 18 months.</p> <p>We will provide updates to the businesses as we progress and will notify them of when we intend to lodge the Resource Consent.</p>
27/10/2021	130	Environment and Infrastructure Committee	2.1 Let's Get Wellington Moving - Golden Mile Single Stage Business Case	5	Require LGWM to engage closely with the local business community on design and delivery implementation to ensure the needs of business are as best as possible met through detailed design of the project.	In progress	Decision on TRs and design approved by Council on 29 June 2023. Engagement with businesses, key stakeholders and mana whenua will continue as we progress design and move into construction.
27/10/2021	131	Environment and Infrastructure Committee	2.1 Let's Get Wellington Moving - Golden Mile Single Stage Business Case	7	Note the funding allocation report will need to explicitly incorporate the loss of parking revenue to Council.	In progress	Noted.
27/10/2021	133	Environment and Infrastructure Committee	2.3 Te Whanganui-a-Tara Whaitua Implementation Programme And Te Mahere Wai O Te Kāhui Taiao	2	Note that officers will continue to work with Greater Wellington Regional Council to understand the impact of the Te Whanganui-ā-Tara Whaitua Implementation Plan and will report back on implementation to the Committee.	In progress	Report back scheduled for the 2022-25 triennium
11/10/2021	140	Environment and Infrastructure Committee	2.2 Fossil Fuel Free Central City	5	Agree that officers investigate opportunities for low traffic streets in areas outside of the scope of LGWM, in line with Council's strategic vision and within current programmes of work and budgets.	In progress	A low traffic street trial is confirmed as part of the Kilbirnie Connections Project.
11/10/2021	141	Environment and Infrastructure Committee	2.2 Fossil Fuel Free Central City	7	Agree to open up Dixon Street (Taranaki Street - Victoria Street) as budgeted in the Pōneke Promise and agree to open up Cuba Street (Ghuznee Street - Vivian Street) to people by limiting private vehicle access, for consideration in the LTP 24-34 process.	In progress	Dixon St project is complete. Cuba St business case development is currently on hold due to resource constraints. LGWM City Streets is developing a pedestrian improvement proposal for Cuba St as part of the targeted improvements programme.

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
24/11/2021	144	Environment and Infrastructure Committee	3.1 Evans Bay Parade Stage 2 - Greta Point to Cobham Drive	5	Note that Council officers intend to bring a paper to the Pūroro Hātepe Regulatory Processes Committee outlining parking restrictions for the marina and public boat ramp areas. This expenditure is not included in the current budget.	In progress	19/07/2023 Completed engagement with Parking Enforcement of proposed restrictions within the marina and public boat ramp areas. Now finalising adjustments to parking layout. Aiming for a Report to Regulation Committee later this year of early next year.
12/05/2022	153	Environment and Infrastructure Committee	2.4 Wellington Central City Green Network Plan Update	5	Note that officers will continue to work with mana whenua as a part of our partnership and engagements around the Open Space and Recreation Strategy and through the LGWM Iwi Partnership Working Group to ensure that their values and aspirations are incorporated into the delivery of the Green Network Plan objectives and targets	In progress	underway
12/05/2022	154	Environment and Infrastructure Committee	2.4 Wellington Central City Green Network Plan Update	6	Note that officers are developing a business case as input into the 2024/25-34 LTP.	In progress	Business case development underway
23/06/2022	164	Environment and Infrastructure Committee	2.1 Approval of Proposed District Plan for Public Notification	8	Agree to remove the assisted (affordable) housing chapter from the notified District Plan and instead investigate the use of a targeted rate on land in identified growth areas of the city where additional height has been enabled by the PDP to fund an assisted (affordable) housing fund as part of the wider review of the Rating Policy.	Completed	There are two parts of this action: Remove assisted housing chapter - complete Investigate targeted rate - complete. This has been reviewed as part of the rating policy review and advice provided to elected members at the 17 August 2023 LTP, Finance and Performance Committee.
23/06/2022	175	Environment and Infrastructure Committee	2.1 Approval of Proposed District Plan for Public Notification	17	Agree that a 'grey water reuse incentives programme' be considered as part of the 2024-2034 Long Term Plan, to assist affected landowners with the retention and reuse of grey water. This will be done with Wellington Water and Greater Wellington Regional Council and give particular emphasis to Mana Whenua with respect to water reuse.	In progress	Note that this action will be an action for the Strategy and Policy Teams
23/06/2022	177	Environment and Infrastructure Committee	2.1 Approval of Proposed District Plan for Public Notification	19	Request that officers investigate options to incentivise development on underdeveloped land as part of the wider review of the Rating Policy, including land value only rating (as recommended by the Productivity Commission) and a targeted rate on underdeveloped land in the city centre, metropolitan, local and neighbourhood centres.	In progress	Note this is an action for the Strategy and Policy Team

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
23/06/2022	178	Environment and Infrastructure Committee	2.1 Approval of Proposed District Plan for Public Notification	20	Agree that officers report back early in the new triennium on the short stay accommodation market in Wellington provided by AirBnB and other providers, and the effectiveness of options used here in New Zealand and abroad to manage and or regulate the short stay accommodation market provided by AirBnB and other providers.	In progress	Note this is an action for the Strategy and Policy Team
11/11/2021	316	Environment and Infrastructure Committee	2.1 Wellington Water Limited - Community Infrastructure Resilience	2	Agree that the Council investigate the development of a proactive strategy for sale and delivery of water tanks enabling increased access at places deemed appropriate such as libraries, service centres, and weekend markets.	Completed	WREMO and WCC joint presentation on Water Tanks promotion through websites, community engagement completed in 2022 - action was completed, yet tracking was not updated to reflect.
9/12/2021	321	Environment and Infrastructure Committee	2.3 Strategic Waste Planning Overview	7	Agree that officers will progress ongoing co-design and collaboration with mana whenua, key stakeholders and the community between February and October 2022, to refine the waste minimisation initiatives contained in the draft roadmap and to develop a new (draft) WMMP Action Plan and investment plan, with a report to Committee on the progress and outcomes in October 2022	In progress	This occurring as part of the Wellington Region WMMP

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
27/04/2022	333	Environment and Infrastructure Committee	3.1 Land Disposal (Isolation Strips) - Hanson Street Service Lane, Mount Cook	2 (c)	<p>Recommend to Council that it:</p> <p>a. Declare that an approximately 7.24m² (subject to survey) part of fee simple land adjoining the Hanson Street service lane and being Lot 3 DP 67283, ROT WN36C/236 and part of Part Lot 1 DP 8308, ROT WN379/283 (the Land) is not required for a public work and is surplus to operational requirements.</p> <p>b. Agree to dispose of the Land to the adjoining owner of 25 Hanson Street (Lot 1 DP 358660, ROT 238839), for amalgamation with that property.</p> <p>c. Delegate to the Chief Executive Officer the power to conclude all matters in relation to the disposal of the Land, including all legislative matters, issuing relevant public notices, negotiating the terms of the sale or exchange, imposing any reasonable covenants, and anything else necessary.</p> <p>d. Note that the Land comprises isolation strips that are only 400 millimetres wide</p>	In progress	29/08/2023 - WCC lawyer obtaining new title for subdivided isolation strip, which will trigger settlement. Expecting settlement late July/early August. (Note I am on three-month secondment to the Property and Assets team. This project to be completed by Seth B)
15/09/2022	769	Environment and Infrastructure Committee	2.1 Approach to Speed Management	8	Note that the next Council will consider the feedback from the consultation and make decisions on safe and appropriate speed limits considering feedback from the public.	In progress	29.08.23 The consultation on this has been retracted with a briefing to be undertaken with Councillors in November
15/09/2022	770	Environment and Infrastructure Committee	2.1 Approach to Speed Management	9	Agree that officers will work with mana whenua and Waka Kotahi to implement bilingual Te Reo traffic signs to support this mahi where possible in accordance with the vision of Te Tauihu, Wellington City Council's Te Reo Policy.	In progress	29.08.23 A submission has been made on behalf of WCC to Waka Kotahi to enable this. We are awaiting the results of the Waka Kotahi consultation to be able to implement fully.
15/09/2022	781	Environment and Infrastructure Committee	2.4 Future Access Road between Strathmore and Moa Point	3	Agree that Council includes the acquisition and construction of a public road in the 30 Year Infrastructure Strategy for consultation through, and consideration at, the next LTP.	In progress	In progress (12.07.23)

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
15/09/2022	783	Environment and Infrastructure Committee	2.4 Future Access Road between Strathmore and Moa Point	5	Note Officers will continue engaging with WIAL on Stewart Duff Drive, and work towards a solution if public access through this road is restricted as WIAL plan their airport terminal expansion.	In progress	Continuing progress (12.07.23)
15/09/2022	794	Environment and Infrastructure Committee	2.7 Newtown to City bike and bus improvements - traffic resolution approval	2	Note the submissions	Completed	
15/09/2022	796	Environment and Infrastructure Committee	2.7 Newtown to City bike and bus improvements - traffic resolution approval	3	Note the consultation summary report, and responses to design feedback shown in Attachments 1 and 2	Completed	
15/09/2022	797	Environment and Infrastructure Committee	2.7 Newtown to City bike and bus improvements - traffic resolution approval	2	Note the submissions	Completed	
15/09/2022	798	Environment and Infrastructure Committee	2.7 Newtown to City bike and bus improvements - traffic resolution approval	4	<p>Agree to make the following amendments to the traffic resolution:</p> <p>a) Extend the proposed loading zone from 24 metres to 30 metres on Cambridge Terrace, removing one additional metered parking space outside 73 Cambridge</p> <p>PŪRORO ĀMUA PLANNING AND ENVIRONMENT COMMITTEE 15 SEPTEMBER 2022</p> <p>Minutes of the Pūroro Āmua Planning and Environment Committee 15/09/2022 Page 23</p> <p>Terrace, to accommodate car transporters</p> <p>b) Relocate the start of the Bus lane on Riddiford Street 50 metres north to improve legibility</p> <p>c) Alter 3 parks on the south side of Mein Street to P10 pick up and drop off 8:30am-9am and 2:45pm-3:15pm Monday – Friday during School terms only, P120 at all other times</p> <p>d) Alter 3 parks on east side of Riddiford Street to P10 pick up and drop off 8:30am-9am and 2:45pm-3:15pm Monday – Friday during School</p>	Completed	TRs all approved - installation ongoing and expected to be complete for whole route in Q4 FY 22/23

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
15/09/2022	801	Environment and Infrastructure Committee	2.7 Newtown to City bike and bus improvements - traffic resolution approval	7	Request officers report back to Council on the initial monitoring and evaluation of the impacts of the Newtown to City bike and bus improvements, particularly the economic impacts on businesses within 6 months of installation being complete.	In progress	Initial economic impact report will be published in September.
15/09/2022	802	Environment and Infrastructure Committee	2.7 Newtown to City bike and bus improvements - traffic resolution approval	9	Request that officers investigate improvements to the bike network that will provide alternatives to the waterfront route.	In progress	Investigations are underway
15/09/2022	804	Environment and Infrastructure Committee	2.7 Newtown to City bike and bus improvements - traffic resolution approval	10	Request that officers work with LGWM to deliver permanent upgrades as soon as practicable to remove the need for shared paths.	In progress	On-going
15/09/2022	805	Environment and Infrastructure Committee	2.7 Newtown to City bike and bus improvements - traffic resolution approval	11	Report back to council on the use of the bus platforms, particularly how they operate in Adelaide Road where they are in more constrained space.	In progress	Waka Kotahi research project underway which will provide robust monitoring and evaluation data of Adelaide Rd bus stop
15/09/2022	806	Environment and Infrastructure Committee	2.7 Newtown to City bike and bus improvements - traffic resolution approval	12	Request officers to continue working with walking and disability groups to refine detailed design concerns raised following installation.	In progress	Following feedback from disability groups, a new approach to bus stop platforms is being progressed.
15/09/2022	807	Environment and Infrastructure Committee	2.7 Newtown to City bike and bus improvements - traffic resolution approval	13	Request officers to work further with willing businesses along the route to properly understand what signage might help direct customers to off street and side street parking.	In progress	Meeting with newly established Newtown Business Group planned for mid June.
24/08/2022	816	Environment and Infrastructure Committee	2.5 Let's Get Wellington Moving - Aotea Quay Roundabout Notification and Traffic Resolution Approva	4	Request officers investigate options to improve wayfinding signage encouraging pedestrians to use Hutt Road/Thorndon Quay rather than Aotea Quay	In progress	Wayfinding signage at the Railway Station and the Ferry Terminal is outside of the project extents of the Thorndon Quay and Hutt Road Project, but wayfinding signage along the route pointing to both of those locations is to be included in the design at several key points, including at the bus stops nearest to the Aotea Quay overbridge which provide pedestrian and cycle access to the ferry terminal.
24/08/2022	817	Environment and Infrastructure Committee	2.5 Let's Get Wellington Moving - Aotea Quay Roundabout Notification and Traffic Resolution Approva	5	Request, as a matter of high priority, officers investigate options to improve the safety of the Aotea Quay pedestrian crossing to the ferry terminal	In progress	An at-grade crossing is being provided. This is a signalised pedestrian crossing on a raised safety platform. From here, pedestrians can use the existing pedestrian facilities to access the ferry terminal.

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
24/08/2022	819	Environment and Infrastructure Committee	2.5 Let's Get Wellington Moving - Aotea Quay Roundabout Notification and Resolution Approva	7	Request officers to bring back a traffic circulation report which shows the traffic flow around the city early in the new triennium	In progress	Officers continue to engage with the LGWM partners around the incorporation of low traffic interventions, including a traffic circulation plan. Principles that have been adopted by LGWM.
8/12/2022	968	Environment and Infrastructure Committee	2.2 E-Bike Share Trial Scheme	3	Agree that officers will report back to committee on the outcome of the trial late in 2023 to inform any future licence beyond 30 March 2024	In progress	This will remain in progress until late in 2023 when we report back to Committee
2/02/2023	1261	Environment and Infrastructure Committee	2.1 Residual Waste - Southern Landfill Extension (Piggyback Option) Business Case	2	Note the project is at preliminary design stage and has identified a range of potential future risks that will be eliminated or validated through the detailed design and procurement processes. This is planned for June and September 2024 respectively.	In progress	as per previous update
2/02/2023	1267	Environment and Infrastructure Committee	2.1 Residual Waste - Southern Landfill Extension (Piggyback Option) Business Case	8	Request officers do more work to come up with a suggested due date for the closure of the southern landfill.	In progress	To provide an answer, Officers need to a council/LTP decision on the kerbside and organics Business Case in June 2024. The officers need to determine the effectiveness of system changes and sludge removal, and SLEPO go live date. It will take a few years to Truly understand the diversions tonnes and remaining capacity. Officers will be a position to report bacm the SLF closing date in March 2030.
16/03/2023	1390	Environment and Infrastructure Committee	2.1 Major slip events of July & August 2022	2	Note that Officers will undertake a review of the available budgets for resilience activities in time for the next LTP with a view on ensuring that funds are deployed into climate change adaption strategies as well as mitigation.	In progress	29.08.23 Progress is underway to review these budgets as part of the LTP
16/03/2023	1391	Environment and Infrastructure Committee	2.1 Major slip events of July & August 2022	3	Note that Officers have identified that a policy review is required in line with Council's rights, obligations, and relevant legislation and this policy review is currently underway and is due for completion before the end of 2023.	In progress	29.08.23 A policy review is underway with an aim to bring a paperback to Council later in 2023

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
27/04/2023	1469	Environment and Infrastructure Committee	2.2 Climate Adaptation Community Engagement Roadmap	4	Direct officers to proceed implementing the first three phases of the Roadmap which includes: a. Phase 1 – Scoping and groundwork b. Phase 2 – City-wide engagement on education of impacts c. Phase 3 – Public consultation on the draft Adaptation Framework that will guide how and where the local adaptation planning (phases 4-6) are implemented.	In progress	New staff to support the delivery have been appointed and the delivery of actions in phases 1 and 2 are being progressed.
27/04/2023	1470	Environment and Infrastructure Committee	2.2 Climate Adaptation Community Engagement Roadmap	5	Direct officers to report back on the progress of the Roadmap delivery to the Kōrau Tūāpapa Environment and Infrastructure Committee as part of quarterly Te Atakura Reporting processes and/or at key milestones.	In progress	
27/04/2023	1471	Environment and Infrastructure Committee	2.2 Climate Adaptation Community Engagement Roadmap	6	Direct officers to ensure that from the outset, a structure for the programme will be created which strongly and specifically reflects our partnership agreement, guaranteeing mana whenua decision-making rights throughout. Mana whenua and Māori values will be embedded into the approach, and sufficient time and support (financial if necessary) to mana whenua will be provided to allow for meaningful engagement. This will mitigate any potential limitations in our current consultation framework and ensure that the engagement process recognises Māori rangatiratanga over their own lands, resources, and taonga.	In progress	Staff have been appointed and advice from Mataaho Aronui is guiding the approach.
8/06/2023	1670	Environment and Infrastructure Committee	2.2 Submission on the Climate Change Commission's advice to government for the second emissions reduction plan	2	Approve the submission and covering letter to the Climate Change Commission (due 20 June 2023).	In progress	
8/06/2023	1671	Environment and Infrastructure Committee	2.2 Submission on the Climate Change Commission's advice to government for the second emissions reduction plan	3	Authorise the CEO, the Chairperson, and the Deputy Chairperson of the Committee to make minor editorial changes to the cover letter and submission to give effect to any feedback from Councillors.	In progress	

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
8/06/2023	1674	Environment and Infrastructure Committee	2.4 Wellington Region Waste Management and Minimisation Plan Consultation Approach	2a	approve the draft Wellington Region Waste Management and Minimisation Plan (2023-2029) for public consultation.	Completed	
8/06/2023	1675	Environment and Infrastructure Committee	2.4 Wellington Region Waste Management and Minimisation Plan Consultation Approach	2b	hear and deliberate on submissions received on the draft Wellington Region Waste Management and Minimisation Plan (2023-2029).	In progress	
8/06/2023	1677	Environment and Infrastructure Committee	2.3 Frank Kitts Park Development Plan and Fale Malae	2	Agree to the preferred development plan for Frank Kitts Park and request officers to prepare resource consent submission.	In progress	Resource Consent preparations currently underway. Aiming for submission by early 2024.
8/06/2023	1678	Environment and Infrastructure Committee	2.3 Frank Kitts Park Development Plan and Fale Malae	3	Agree to approve the initial stage of landowner approval for the proposed development plan, ensuring compliance with the Waterfront Framework and the Significance and Engagement Policy. Noting, therefore, this does not trigger the strategic asset transfer process	In progress	
8/06/2023	1680	Environment and Infrastructure Committee	2.3 Frank Kitts Park Development Plan and Fale Malae	5	Note that officers will come back to Council to seek the approval of the Key Commercial Terms and Operational Principles that would inform a lease between Council and the Fale Malae Trust, prior to Resource Consent.	In progress	
8/06/2023	1681	Environment and Infrastructure Committee	2.3 Frank Kitts Park Development Plan and Fale Malae	6	Note that funding will be allocated as part of the 2022/23 Year-End Capital Carry Forward & Prioritisation process to support resource consent lodgement.	In progress	
8/06/2023	1683	Environment and Infrastructure Committee	2.1 Wellington City Council Housing Action Plan 2023 - 2025	2	Adopt the Housing Action Plan 2023-25, which sets the priorities and tangible actions for the next three years regarding the Council's work toward delivering on the long-term outcomes set by the Wellington City Council Housing Strategy (2018 – 2028), with the following changes:	In progress	

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
8/06/2023	1684	Environment and Infrastructure Committee	2.1 Wellington City Council Housing Action Plan 2023 - 2025	2 a-c	Rental Housing a) Direct officers to report back to the Kōrau Tūāpapa Environment & Infrastructure Committee on the pilot programme agreed with MBIE to inspect rental properties in 2024 in time for Long Term Plan discussions to assess whether additional resourcing is needed to run the scheme on a permanent basis. b) Organise two meetings annually between the Council and renting organisations to evaluate the health of homes in the city with a report going to the Committee outlining the experience of renters once a year. c) Direct officers to provide a stocktake of legislation and standards pertaining to renting that need to be amended and advocated for by elected members, for example reform of the Residential Tenancies Act, Income Related Rent Subsidies and the Health Act that will improve the quality of life for renters.	In progress	
8/06/2023	1685	Environment and Infrastructure Committee	2.1 Wellington City Council Housing Action Plan 2023 - 2025	2 d-f	Planning for Growth d) Agree to investigate the possibility of including a Papakāinga chapter in the District Plan, likely to be introduced in late 2024 once the district plan is operative. e) Agree to develop targets for public and affordable housing along the Mass Rapid Transit route. f) Request officers bring advice on how to implement the Urban Design Panel that include recommendations on who pays, as part of the LTP 2024.	In progress	

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
8/06/2023	1686	Environment and Infrastructure Committee	2.1 Wellington City Council Housing Action Plan 2023 - 2025	2 g-h	<p>Consenting and Compliance Improvements (also note change of title in this section to include compliance)</p> <p>g) Consider and advise on appropriate improvements in the consenting function to assist owners of earthquake buildings and those wanting to build affordable and public housing.</p> <p>h) Scope and cost for Council approval an advocacy programme to the Government with technical support from officers on the following matters relating to the Building Act and Code:</p> <p>i. Improving fire safety in multi-storey developments</p> <p>ii. Increasing universal design and ensuring accessibility for all</p> <p>iii. Assessing whether requirements around earthquake resilience are fit for purpose and affordable for owners</p> <p>iv. Increasing standards for sustainability and to reduce the carbon footprint of all buildings.</p> <p>v. Stronger penalties for non-compliant building</p>	In progress	
8/06/2023	1687	Environment and Infrastructure Committee	2.1 Wellington City Council Housing Action Plan 2023 - 2025	2 i-m	<p>Mana Whenua and Māori Housing</p> <p>i) This programme supports whānau Māori achieving housing security, with a focus on increasing Māori home ownership and long-term rentals in Te Whanganui-a-Tara.</p> <p>j) Assisting with establishing or re-establishing marae within the city and associated (kaumātua) housing traditionally coupled with marae.</p> <p>k) Supporting mana whenua to create wāhi kāinga, whenua kāinga, and papakāinga within Te Whanganui-a-Tara.</p> <p>l) Collaborating with mana whenua to establish housing solutions allowing Māori to transition into a whare they own.</p> <p>m) Providing whanau with better access to support that helps them get into and out of temporary/emergency housing as their needs change.</p>	In progress	

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
8/06/2023	1688	Environment and Infrastructure Committee	2.1 Wellington City Council Housing Action Plan 2023 - 2025	2 n	Homelessness n) Develop a new strategy to end homelessness by the beginning of 2024 for approval by Kōrau Mātinitini Social, Cultural and Economic Committee. This work would be undertaken in part to enable the development of business cases for new initiatives to end homelessness in time for the Long Term Plan that do not duplicate any work currently being undertaken	In progress	
8/06/2023	1689	Environment and Infrastructure Committee	2.1 Wellington City Council Housing Action Plan 2023 - 2025	2 o-s	Affordable Housing o) Provide advice on how local and central government can encourage more co-housing developments in the city by the end of 2024 from a policy, consenting and funding perspective. p) Add Polytechnics and organisations representing young people not in tertiary education to regular forums to address housing for young people. q) Advocate to the government for financial support to scale up the Te Kāinga programme. r) Direct officers to provide advice on how to scale up the Warm Up Wellington and the Home Energy programmes to improve the environmental performance of more Wellington homes in time for the Long-term Plan. s) Advocate to Government to undertake the requisite analysis to support the development of a more culturally diverse finance system with appropriate services and products and to identify barriers that stop	In progress	

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
8/06/2023	1690	Environment and Infrastructure Committee	2.1 Wellington City Council Housing Action Plan 2023 - 2025	2 t-u	Further amendments that do not sit within a priority programme t) Direct officers to report back to the Committee on their progress on the council's response to private housing that are earthquake prone for the December 2023 December meeting. u) Request officers to produce targets and outcomes for each new project and initiative into the plan by December 2023 for approval by committee.	In progress	
8/06/2023	1691	Environment and Infrastructure Committee	2.1 Wellington City Council Housing Action Plan 2023 - 2025	3a	In relation to the Old Johnsonville Library Project: Note that there is a Green Space review in progress for Johnsonville to ensure sufficient access for residents with intensification under the proposed District Plan	In progress	
8/06/2023	1692	Environment and Infrastructure Committee	2.1 Wellington City Council Housing Action Plan 2023 - 2025	3b	In relation to the Old Johnsonville Library Project: Note that there is a potential legal barrier to using the site of the Old Johnsonville Library for a purpose other than housing and that legal advice is being sought on this matter	In progress	
8/06/2023	1693	Environment and Infrastructure Committee	2.1 Wellington City Council Housing Action Plan 2023 - 2025	4	Agree to find at least the equivalent-size green space as the Old Johnsonville Library site, in the Johnsonville metropolitan centre.	In progress	
8/06/2023	1695	Environment and Infrastructure Committee	2.5 Chaytor Street, Raroa Crescent, Curtis Street, Karori - Safety Improvements Options	2	Note that Council Officers will progress with the preferred safety improvements Option 1: Traffic calming combination.	In progress	29.08.23 Progress is underway to implement this option in 23/24
8/06/2023	1699	Environment and Infrastructure Committee	3.1 Te Kāinga update and review	All clauses	All clauses	Completed	
8/06/2023	1701	Environment and Infrastructure Committee	3. Public Excluded	2	Note that, following the meeting, the information that can be released pertaining to the resolutions will be made publically available for item 3.1 Te Kāinga Update and Review.	In progress	
3/08/2023	1848	Environment and Infrastructure Committee	2.1 Proposed Land Acquisition - Kaiwharawhara	1	Receive the information.	Completed	

Date	ID	Committee	Title	Clause number	Clause	Status	Comment
3/08/2023	1849	Environment and Infrastructure Committee	2.1 Proposed Land Acquisition - Kaiwharawhara	2	Recommend that Te Kaunihera o Pōneke Council agree to acquire approximately 98m ² of land being part of 1 Curnow Way, Kaiwharawhara, legally described at Lot 15 DP 321404 and held on ROT 85348 (the Land).	In progress	29/08/23 - Surveyor engaged and working on draft of legal agreement. Land value agreed.
3/08/2023	1850	Environment and Infrastructure Committee	2.1 Proposed Land Acquisition - Kaiwharawhara	3	Authorise the Chief Executive Officer to acquire the Land and pay up to \$50,000 including GST (if any).	Completed	28/08/23 Completed when resolution was carried at meetin
3/08/2023	1851	Environment and Infrastructure Committee	2.1 Proposed Land Acquisition - Kaiwharawhara	4	Delegate to the Chief Executive Officer the power to conclude all matters in relation to the above, including all legislative matter, issuing any relevant public notices, negotiating the terms of the acquisition, imposing any reasonable covenants, and anything else necessary.	Completed	28/08/23 Completed when resolution was carried at meeting.
3/08/2023	1852	Environment and Infrastructure Committee	2.1 Proposed Land Acquisition - Kaiwharawhara	5	Note that this acquisition will be funded from the existing Transitional Cycleway Ngaio Connection budget 2094.	Completed	28/08/23 Completed when resolution was carried at meeting.
3/08/2023	1853	Environment and Infrastructure Committee	2.2 Frank Kitts Park Playground Options	1	Receive the information.	Completed	
3/08/2023	1854	Environment and Infrastructure Committee	2.2 Frank Kitts Park Playground Options	2	Agree to adopt the recommended option of a rescoped playground design to a total budget of \$3.5m.	In progress	
3/08/2023	1855	Environment and Infrastructure Committee	2.2 Frank Kitts Park Playground Options	3	Agree to delegate to the Chief Executive to enter a contract for construction and delivery of the playground.	In progress	
3/08/2023	1856	Environment and Infrastructure Committee	2.2 Frank Kitts Park Playground Options	4	Agree to delegate to the Chief Executive to review the public release of the decisions and report by 31 December 2023.	In progress	
3/08/2023	1857	Environment and Infrastructure Committee	2.3 Actions Tracking	1	1. Receive the information.	Completed	
3/08/2023	1858	Environment and Infrastructure Committee	2.4 Forward Programme	1	Receive the information.	Completed	

FORWARD PROGRAMME

Kōrero taunaki | Summary of considerations

Purpose

1. This report to Kōrau Tūāpapa | Environment and Infrastructure Committee (the Committee) provides the Forward Programme for the next two meetings (hui) of the Committee.

Strategic alignment with community wellbeing outcomes and priority areas

Aligns with the following strategies and priority areas:

- Sustainable, natural eco city
 - People friendly, compact, safe and accessible capital city
 - Innovative, inclusive and creative city
 - Dynamic and sustainable economy
- Strategic alignment with priority objective areas from Long-term Plan 2021–2031**
- Functioning, resilient and reliable three waters infrastructure
 - Affordable, resilient and safe place to live
 - Safe, resilient and reliable core transport infrastructure network
 - Fit-for-purpose community, creative and cultural spaces
 - Accelerating zero-carbon and waste-free transition
 - Strong partnerships with mana whenua

Relevant Previous decisions

Not applicable.

Financial considerations

Nil

Budgetary provision in Annual Plan / Long-term Plan

Unbudgeted \$X

Risk

Low

Medium

High

Extreme

Author	Tian Daniels, Democracy Advisor
Authoriser	Liam Hodgetts, Chief Planning Officer

Taunakitanga | Officers' Recommendations

Officers recommend the following motion

That the Kōrau Tūāpapa | Environment and Infrastructure Committee:

1. Receive the information.

Whakarāpopoto | Executive Summary

2. The Forward Programme sets out the reports planned for the Kōrau Tūāpapa | Environment and Infrastructure Committee in the next two hui that require the Committee's consideration.
3. The Forward Programme is a working document and is subject to change on a regular basis.

Takenga mai | Background

4. Not applicable.

Kōrerorero | Discussion

5. The following item is scheduled to go to the Committee's hui:
6. Rāpare Thursday, 30 Whiringa-ā-rangi November 2023
 - Housing Action Plan 6-monthly update (Chief Planning Officer)

Ngā mahinga e whai ake nei | Next actions

7. Not applicable.

Attachments

Nil