

# He anamata para kore mō Pōneke

## A zero waste future for Wellington

Zero Waste Strategy











# Ngā ihirangi

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# He anamata para kore mō Pōneke

## A zero waste future for Wellington

We know that Wellingtonians care deeply about our city's environment and the roles we can all play to protect and enhance it. Addressing our city's waste is one step we can take to reduce the impacts of climate change.

A zero waste future for Wellington - our Zero Waste Strategy - is a first for Wellington. It sets the pathway for intergenerational sustainability in our city, outlining 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.

A waste-free Wellington will see:

- Products and services provided in Wellington being waste free
- Waste reduction will be made attractive and accessible for everyone
- The infrastructure and systems to increase resource circularity will be in place, and only waste that cannot be reused or recycled will enter the landfill.

Waste touches all aspects of how we live, work and play in our city, having long-term impacts on our environment and contributing to Wellington's carbon emissions.

To become a net zero carbon capital by 2050, the Council needs to look at the different roles we play to manage and minimise waste. As this is the first Zero Waste Strategy for Wellington, it delves into all aspects of our waste system and gives guidance on, for example, the design of our waste collection network and the services we offer to support businesses to minimise waste.

A zero waste future for Wellington will be a living strategy that is updated regularly, evolving as our waste system and the technology available to us evolves.

### How this strategy will be delivered

To enable this strategy, the Council is developing an accompanying WCC Waste Action Plan which will contribute to an equivalent plan of the Wellington region, the Wellington Regional Waste Management and Minimisation Plan.

We have established a Zero Waste Programme, which is a delivery vehicle for the individual projects and initiatives outlined in this strategy and the Wellington Regional Waste Management and Minimisation Plan.

A zero waste future for Wellington will be a living strategy that is updated regularly, evolving as our waste system and the technology available to us evolves.

## **Te whakapāpātanga Engagement**

The input provided by our internal and external partners and stakeholders has been invaluable in identifying the technical, social, cultural, environmental, and economic factors of a waste-free Wellington.

Through the development of this strategy and the accompanying Local Waste Action Plan, Wellington City Council has engaged with multiple internal and external stakeholder groups. Internally, the Council's Waste Operations, Zero Waste Programme, Mataaho Aronui - Māori Strategic Outcomes, and Climate Change Response teams have contributed input and advice on this strategy's content.

External partners and stakeholders engaged for the development of this strategy and the action plan include representatives of Taranaki Whānui, Waste Free Welly, multiple residents' associations and the Council's Youth Council and Environmental Reference Group.

Waste touches all aspects of how we live, work and play in our city, having long-term impacts on our environment and contributing to Wellington's carbon emissions.











# 1

**He aha te  
take me whai  
Rautaki Para  
Kore tātou**

Why do we need  
a Zero Waste  
Strategy?

**This is the first waste strategy for the Council and sets the direction for how we will achieve a zero waste future for Wellington.**

This strategy is written in the context of the Wellington City Council 2040 vision: An inclusive, sustainable and creative capital for people to live, work and play.

## **Why do we need a zero waste strategy?**

National legislative and regulatory changes, combined with evolving strategies, are signalling a push to transition to a circular economy and a drive to heavily reduce carbon emissions. A circular economy means redesigning products and services to reduce resource usage, keeping resources in use for as long as possible, and recycling or processing them when they reach their end of life, to reduce waste and support regenerative processes.

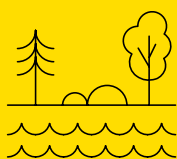
We have identified a need to create a Wellington City Council specific waste strategy to effectively contribute to and deliver on the Wellington Regional Waste Management and Minimisation Plan (WRWMMP).

Linked to the community outcomes, one of the key priorities outlined in the 2021 Long-term Plan is to expedite the city's transition to a zero-carbon and waste-free future. This objective aims to achieve several desired outcomes, including the adaptation of communities and the city's economy to climate change, the development of low-carbon infrastructure and buildings, and the promotion of increased waste minimisation efforts. By focusing on these outcomes, the city aims to foster a sustainable and resilient community while actively addressing the challenges posed by climate change and waste management. The Council's community outcomes are outlined opposite.





## Community Outcomes



### Environment

A sustainable, climate friendly eco capital

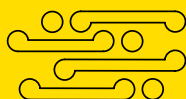
A city where the natural environment is being preserved, biodiversity is improved, natural resources are used sustainably, and the city is mitigating and adapting to climate change - for now and future generations.



### Social

A people friendly, compact, safe and accessible capital city

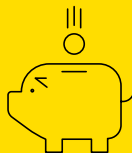
An inclusive, liveable, and resilient city where people and communities can learn, are connected, well housed, safe and healthy.



### Cultural

An innovative, inclusive and creative city

Wellington is a vibrant, creative city with the energy and opportunity to connect, collaborate, explore identities and openly express, preserve and enjoy arts, culture and heritage.



### Economic

A dynamic and sustainable economy

The city is attracting and developing creative talent to enterprises across the city, creating jobs through innovation and growth while working towards an environmentally sustainable future.

Embracing the principles of zero waste aligns closely with the desired community outcomes of a sustainable, climate-friendly eco capital, a people-friendly, accessible city, an innovative and inclusive cultural hub, and a dynamic and sustainable economy.



## Defining zero waste

“The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.”<sup>1</sup>

Around the world, consumption and waste is leading to environmental damage of our land, air and water. Resources are taken from the land to create products, which are then used or consumed, and the packaging and products end up in landfills, or worse, into waterways and eventually the world’s oceans. The resulting garbage patches in the ocean, such as the Great Pacific Garbage Patch, illustrate the dire consequences of contaminated waterways.

There are strong links between increased material use. Material extraction is heavily linked to carbon emissions, which are projected to more than double from 2011 to 2060.<sup>2</sup> In Wellington it’s hard to see our city’s true emissions, as we are not significant producers or manufacturers. However, we must recognise that we import many of the goods and materials we use and consume, and therefore have a role to play in influencing how those goods and services are used.

There is a growing global recognition that the Earth's finite resources are depleting at an accelerated pace, while our economy continues to operate linearly with a "take-make-use-dispose" approach. Only a mere 8.6% of the world's economy is circular, and this status quo urgently needs to change.<sup>3</sup>

A circular economy, known as Ōhanga āmiomio, designs out waste and pollution, keeps products and materials in use, and regenerates natural systems.<sup>4</sup> This means keeping resources in use for as long as possible, either as a product or, as components and raw materials. For example, a product might be shared and reused for its intended purpose, then repaired and at the end of its usable life be used for parts or recycled.

Materials are used as long as possible and then, when possible, returned to the earth through processes like composting and anaerobic digestion. Achieving circularity requires the implementation of systems and services that promote reuse and sharing, the design of durable and repairable products, improved recovery of materials, increased recyclable content, and responsible recycling practices. Embracing a circular economy brings numerous benefits, including long-term cost savings, local job opportunities, technical innovation, reduced harmful waste, and a positive impact on climate change by reducing the need for extracting new raw materials.

# Only 8.6% of the world's economy is circular - this needs to change.

1 Zero waste Definition – Zero waste International Alliance (zwia.org)

2 [oecd.org/environment/waste/highlights-global-material-resources-outlook-to-2060.pdf](https://www.oecd.org/environment/waste/highlights-global-material-resources-outlook-to-2060.pdf)

3 The world is now only 8.6% circular – CGR 2020 – Circularity Gap Reporting Initiative (circularity-gap.world)

4 What is a circular economy? | Ellen MacArthur Foundation





PALLETS of  
PAVERS  
\$350 each  
OR 2 pallets  
for \$250 each

IF YOU HAVE A  
POWER OUTAGE

NO CASH  
ON PREM

RECYCLE  
THIS

54

IF YOU  
SHO  
pleas



## Changing the system from managing waste to preventing waste

This strategy sets out the shifts in thinking and the approaches needed to achieve a waste-free transition for Wellington delivering on our four community outcomes. Environmental wellbeing is the core community outcome this strategy contributes to, by preventing the use of virgin resources, as well as resources that could be reused, repurposed, and remade, from entering the landfill and from creating harmful pollution of our land, air and water. This means the first intervention is to rethink and redesign how products and materials are produced, as illustrated in the waste hierarchy graphic opposite<sup>5</sup>. This strategy also has implications for Wellington’s economic wellbeing, as our economic activities are the creators and suppliers of products and services that we all consume. It also requires change to how we address social wellbeing and cultural wellbeing so, as a city, we can embed new ways of living, working and operating. In June 2019, the Council declared a Climate and Ecological Emergency and adopted Te Atakura - First to Zero, as well as developing a Spatial Plan in 2021. Collectively, these actions will, over time, shape the city’s urban growth, housing and transport development.

In 2022, the Council adopted a new Economic Wellbeing Strategy, directing a shift to a zero-carbon circular economy, building on one of the priority objectives in the 2021

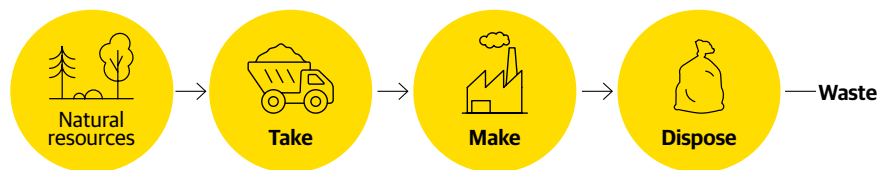
Long-term Plan of accelerating zero-carbon and waste-free transition.

Waste management and minimisation is a significant piece of the puzzle when it comes to achieving a circular economy. As global economies, including Aotearoa, transition to greater resource efficiency and move towards a circular economy (ie linear economy to a circular economy), it is expected that demand on resources will reduce over time. This will result in a demonstrable reduction in environmental impacts. The circular economy is supported by the waste hierarchy, which has long been a tool to illustrate the most important contributors to minimising waste. We see these two concepts as inherently related. They are illustrated below<sup>6</sup>:

- 2019**  
Council declared a Climate and Ecological Emergency  
**Te Atakura - First to Zero** was adopted
- 2021**  
**Spatial Plan** shape the city’s urban growth, housing and transport development  
**Long-term Plan** of accelerating zero-carbon and waste-free transition
- 2022**  
**Economic Wellbeing Strategy**, directing a shift to a zero-carbon circular economy  
**Tupiki Ora Māori Strategy** was adopted

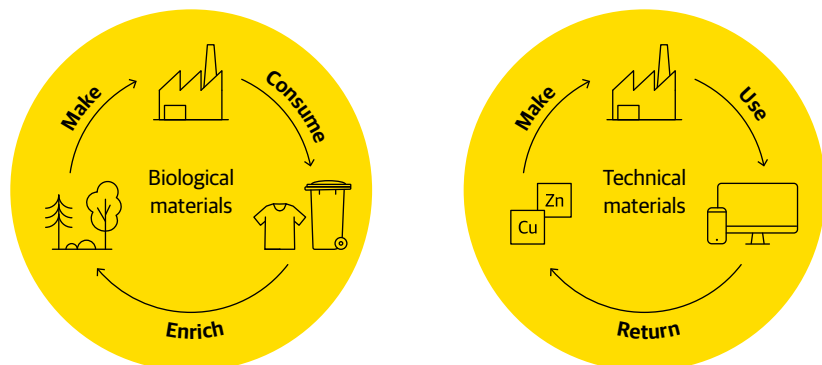
### Linear economy

Technical and biological materials mixed up. Energy from finite sources



### Circular economy

Energy from renewable sources



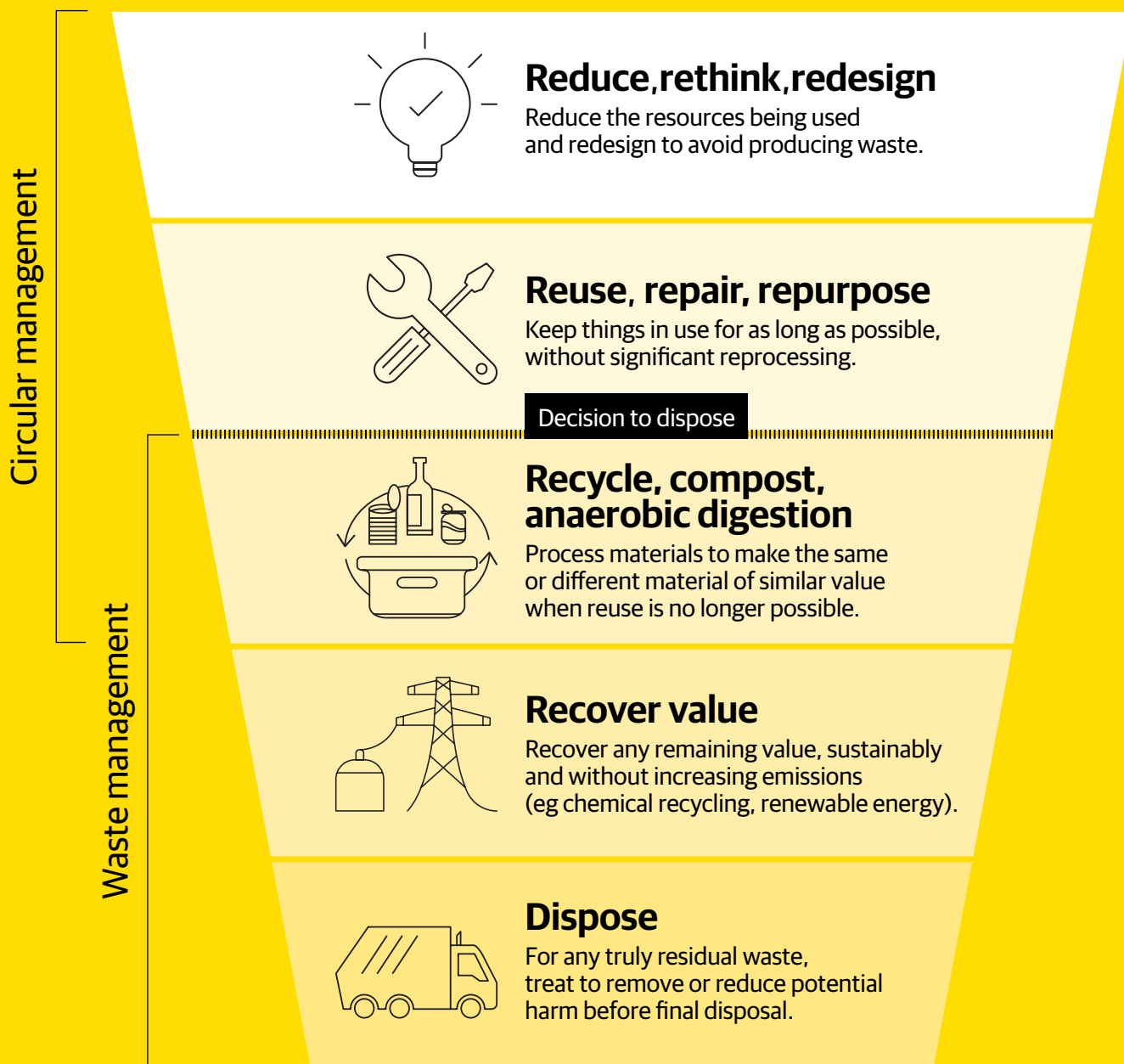
<sup>5</sup> Pūnaha whakarōpū para. Waste hierarchy as taken from the 2023 Ministry for the Environment Te rautaki para Waste Strategy document  
<sup>6</sup> Taken from Ministry for the Environment Waste Strategy Consultation document - wastestrategyandlegislationconsultationdocument.pdf (environment.govt.nz)

# Pūnaha whakarōpū para

## Waste hierarchy



Best option



Least favoured option





## What the Council is doing

The Council's waste system efforts have largely focused on kerbside collection of recyclables and the safe management of the residual waste sent to the Southern Landfill. We operate the Tip Shop and Recycle Centre at the Southern Landfill, diverting items from landfill for reuse or recycling, including an online TradeMe sales function. We also have a small team that runs initiatives aimed at raising awareness and facilitating behaviour change at an individual, corporate and community level. These include the delivery of the Zero Waste Education Programme in schools, provision of infrastructure and guidance on reducing event waste, workshops, campaign development and delivery on topics including Plastic Free July and Love Food Hate Waste, and encouraging Wellingtonians to be innovators through the provision of Waste Minimisation Seed Funding. We've run various trials to explore what services work, most recently a household battery recycling scheme. Residents can drop off their used household batteries at seven sites across the city, including the Tip Shop and some libraries and community centres. This reduces the hazards associated with landfilling batteries and saves valuable resources.

However, this hasn't been enough to change the trajectory of the waste profile in our society and economy. In fact, recycling rates are declining - in 2020/21 we collected 50.2kg of recycling per person compared with 53.8kg in 2016/17. Although, our waste per person is also declining - in 2020/21 we collected

418kg of general waste per person compared with 466kg in 2016/17.<sup>7</sup> Perhaps we are seeing a small change in consumer behaviour? Comparing 2016/17 to 2020/21 10% was recycled and 90% went into landfill, so while the volume of waste has slightly decreased, the proportions are staying the same. Our efforts are further hampered by the requirement for sewage sludge to be disposed of at landfill, with a consenting requirement to mix sludge with solid waste. A certain volume of waste needs to be available to dispose of the sludge appropriately.

It's time now for a different approach to waste that respects the environment, Tikanga Māori, and our long-term health and prosperity. Māori have an important role to play in addressing our many urgent environmental issues. This is not only because we are partners in Te Tiriti but because their very existence as tangata whenua (people of the land) depends upon the protection of the environment. Mātauranga Māori (Māori knowledge) ensures people live in harmony with te taiao (the environment). Our modern way of living and its unsustainable use of nature has upset this balance. We acknowledge the learnings held within mātauranga Māori can help us find the right solutions for Wellington, and we are committed to ensuring mātauranga Māori informs and guides our work.

As the waste hierarchy sets out, keeping materials and products in the economy for as long as possible, keeping waste to a minimum and reducing the amount of virgin material inputs will also reduce greenhouse gas (GHG) emissions.

### In 2020/21 we collected:



# 50.2kg

of recycling per person compared with 53.8kg in 2016/17



# 418kg

of general waste per person compared with 466kg in 2016/17

### Comparing 2016/17 to 2020/21:

# 10%

was recycled

# 90%

went into landfill

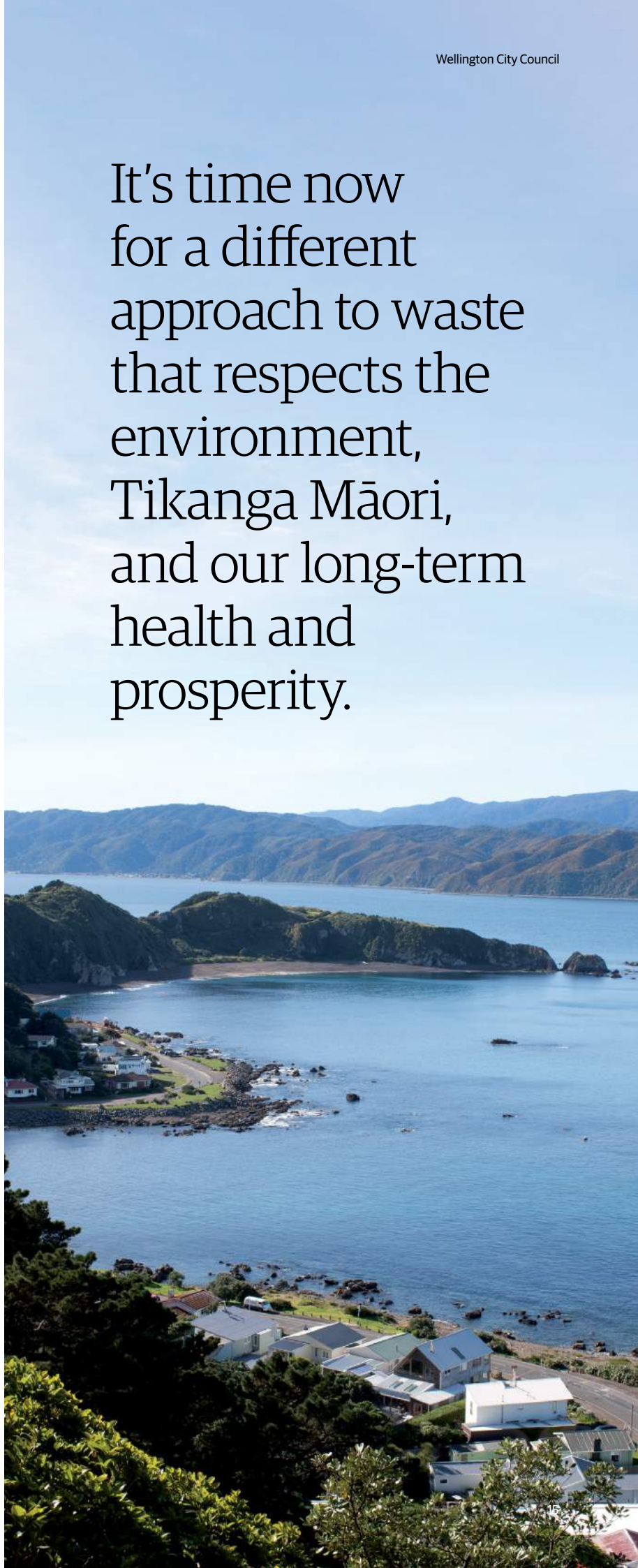
It's time now  
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Tikanga Māori,  
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health and  
prosperity.

Examples of such initiatives include:

- Resource recovery and reprocessing waste into secondary products (eg Tip Shop, organics processing).
- Reuse, repair and/or remanufacturing to extend the life of products (eg behaviour change and community engagement).
- Promotion and/or incentives for the use of recyclable content in product manufacturing or construction activities (eg supporting and encouraging businesses to use recovered materials, encouraging Council to promote via procurement the use of recovered materials in contractual arrangements where appropriate).
- Encouraging businesses in designing out waste through our own procurement and financial incentives, as well as facilitating conversations and advocacy (eg influencing system change).

To achieve this, we need to switch from managing waste to enabling a step-change to the production and treatment of waste, including how materials are used and recovered, all in keeping with the waste hierarchy outlined above. That means getting to the heart of the problem and using all the tools we have available to us. We need to understand the complex interrelationships and the role of the economy, society and the environment in the system of using materials and creating and disposing of waste.

It's time now for a different approach to waste that respects the environment, Tikanga Māori, and our long-term health and prosperity.











# 2

**Te horopaki  
ā-rautaki**

The strategic  
context



# Strategic context

New Zealand has the third highest annual waste to landfill of all OECD countries at 781kg per capita, measured by municipal landfill data - the highest being 851kg and lowest at 243kg per capita.<sup>8</sup> Although the measuring of this indicator is inconsistent across countries.

New Zealand includes construction and demolition waste whereas other countries data do not, it still signals that there is a way to go. Compared to other cities and districts across New Zealand, Wellington (including Porirua) sits in the middle of the pack, at 507kg per capita, compared with Gisborne at 305kg per capita and Upper Hutt & Hutt City at 874kg per capita (measured per annum).<sup>9</sup>

New Zealand has the **third highest** annual waste to landfill of all OECD countries at 781kg per capita...

Wellington again sits in the middle of the pack for annual per capita disposal of kerbside refuse at 206kg per capita Christchurch city had the lowest per capita disposal rate of kerbside refuse with 110kg and Rotorua District the highest at 216kg.



<sup>8</sup> Waste - Municipal waste - OECD Data (<https://data.oecd.org/waste/municipal-waste.html>)  
<sup>9</sup> Wellington Region Waste Assessment 2016

The strategic global, national and local context is illustrated in the diagram below.



### The intent of these changes is to reduce the amount of waste New Zealand produces, by:

1. Setting the direction for waste reduction
2. Increasing investment in waste reduction initiatives and infrastructure
3. Making system-level change
4. Addressing problems with individual products and materials
5. Strengthening compliance, monitoring, and enforcement.

### Transforming our recycling system is expected to involve three key areas:

- Implementing standardised kerbside collections for recyclables and food scraps across the country.
- Diverting residential and commercial organics (food scraps, garden waste) from landfill to reduce GHG emissions and make better use of organic material to help restore our soils.
- Implementing a Container Return Scheme to incentivise people to return empty beverage containers for recycling in exchange for a small refundable deposit (proposed 20 cents) (noting the government has, as at March 2023, deferred implementation of the scheme).

In turn, both global and national drivers will have influence on how each Territorial Local Authority undertakes waste management and minimisation activities to support Aotearoa's transition to a circular economy.



# Te kawenga ki a mātou mō te para

## Our role in waste

The Council has many roles which are outlined below and described in terms of how we can influence waste outcomes. Waste is also affected by how the Council carries out its activities.

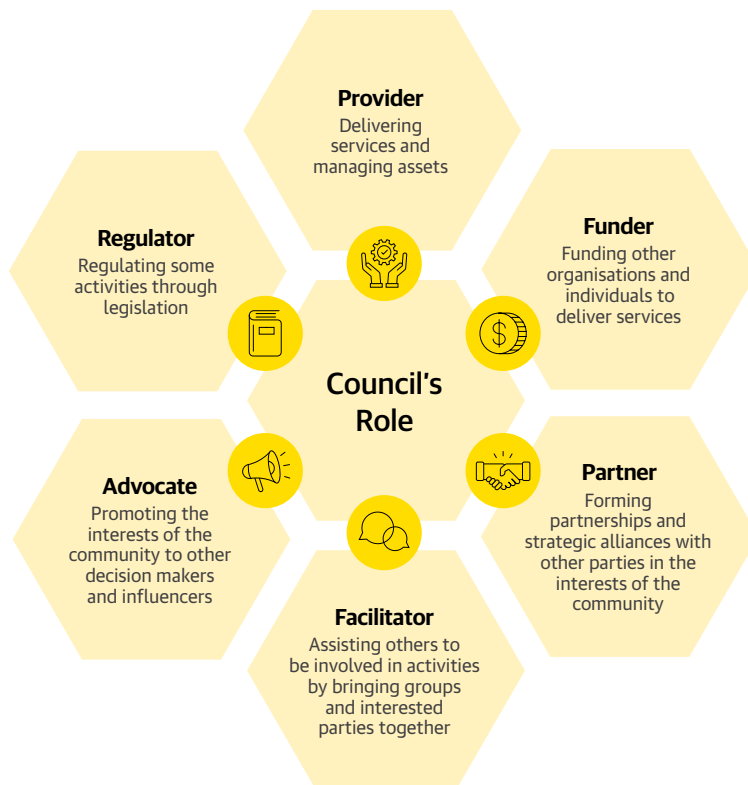
### Wellington City Council



**Provider** - The Council's core role is to invest and maintain civic infrastructure and facilities, which provide the foundation for businesses and residents to thrive. This includes transport, water and waste infrastructure, as well as civic facilities and venues. We provide waste services such as kerbside rubbish and recycling collections, the Southern Landfill and Tip Shop & Recycle Centre, and organics composting. The Council can influence waste reduction outcomes through our procurement policies and practices.



**Funder** - We provide support for businesses and communities by funding initiatives which will help our city to avoid, reuse, recycle and recover resources and waste. For example, our Waste Minimisation Seed Fund supports innovative solutions for reducing waste and diverting organics from landfill. Our Environmental and Accessibility Performance Fund supports residential developments to design a green certified building, conditional on reducing construction waste. Our Climate and Sustainability Fund supports communities and businesses to reduce carbon emissions.





**Partner** - We also partner with others to achieve waste minimisation outcomes, recognising where local providers can deliver alongside Council. We collaborate with councils across the region to coordinate our work programmes and collectively solve problems, for example through the Wellington Region Waste Management and Minimisation Plan, a cross-council regional waste minimisation plan. We also partner with mana whenua so we can align with a Māori worldview of waste minimisation. Our indigenous people have an in-depth knowledge of Aotearoa and Wellington's environment, and we must work together to draw from whakaaro Māori and achieve waste minimisation aspirations for Māori.



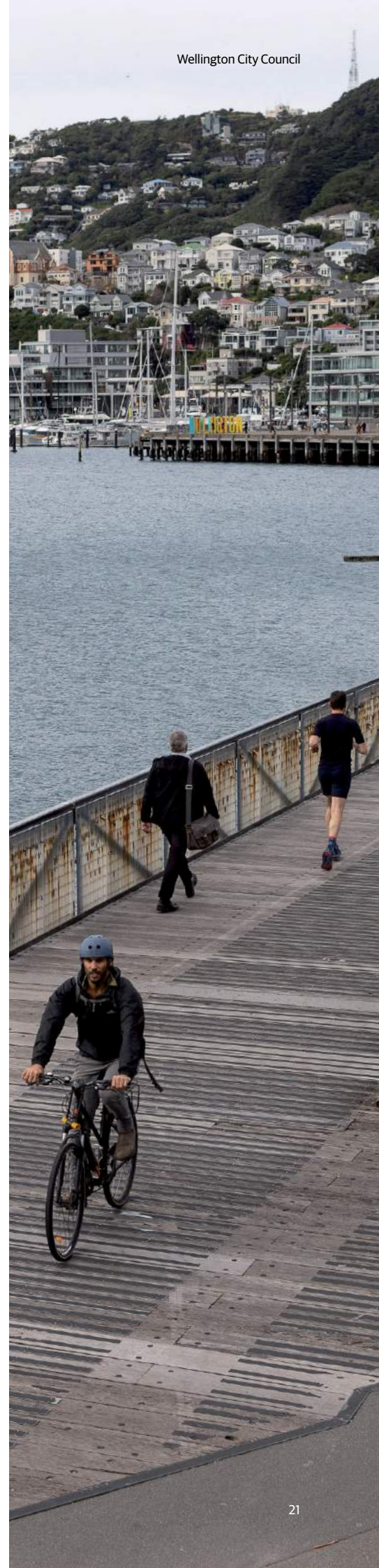
**Facilitator** - We bring people together to discuss issues, share ideas and connect people. This includes working with schools, communities and businesses to rethink waste. We offer free waste minimisation and composting education sessions for schools, community groups and workplaces. We also offer tours of the Southern Landfill for people to see first-hand where disposed waste ends up, and the alternative solutions available through the Tip Shop and Capital Compost.



**Advocate** - We advocate on behalf of our city and communities where we have no direct control. For example, through submitting to central government agencies and Parliament select committees on waste and environmental legislation and regulation changes. We also advocate internally to ensure initiatives being delivered by the Council's workforce are joined up and aligned to our strategies. This strategy will set the direction for our Council's and community's waste minimisation efforts across all our work.



**Regulator** - Our regulatory teams provide services such as liquor licensing and building consenting which are important for business success. In the waste space, we have a Solid Waste Management and Minimisation Bylaw and a Trade Waste Bylaw. Using our current bylaws and consenting processes, we can influence cross-sector outcomes to achieve waste avoidance and reduction. The Solid Waste Bylaw is anticipated to have substantial influence on how groups consider the management of waste and will also be an important opportunity to collect data to inform the Council's waste minimisation efforts.





## Collective ownership of the waste problem

Residents, businesses and the Council all have a vital role to play in protecting Wellington’s rawa taiao (environmental resources). We all need to make responsible choices for managing and minimising our waste by understanding our individual and community impact on our city and our environment. As a collective issue, waste demands a collaborative solution. To achieve this strategy’s objectives and targets, a model of collective responsibility and action is critical to achieving our zero waste outcomes. Transitioning from a take-make-dispose society to a circular economy where we keep resources in use for as long as possible is a vital step towards eliminating waste, circulating resources and adopting a low carbon, resource efficient system. Let’s look at the different roles required of our community.



### Waste operators

Waste operators in the city undertake both waste collection and waste management services. There are three landfills operating in Wellington city to manage the city’s waste - the Southern Landfill is owned by Wellington City Council, and two construction and demolition landfills are privately owned and operated. There are a few waste collection providers offering private collection services

or providing municipal collection services on behalf of the Council. Operators of landfills and collection services have a key role to play in shaping the behaviours of residents and businesses through the options made available to minimise and manage waste.



### Residents

Our city’s residents are the customers of our current take-make-dispose linear economy through our consumption of goods and services and are a key influence in every step of the waste hierarchy.

- **Rethink/Redesign** - Consumer whai wāhi (participation) in waste minimisation efforts will play a vital role in protecting our natural resources. Consumers can influence the prevention of extraction of virgin materials, and increased regeneration, by, for example, avoiding products that use superfluous packaging, or by avoiding purchasing products produced by ‘fast fashion’ brands.
- **Reduce** - Consumers can reduce waste by being more mindful and only buying what they really need and planning consumption and purchasing of perishables to avoid discarding spoiled food.
- **Reuse/Repurpose** - Consumers can maintain or repair items to retain their usefulness or repurpose products for alternative use and drop off items they no longer need at the Tip Shop for others to reuse or repurpose.

- **Recycle/Compost** - Consumers can choose products made from materials that are easily and continuously recycled, make sure their recyclables are going to the right places to be recycled; and ensure unavoidable food scraps and garden waste are composted.
- **Treat and Dispose** - Residents can aim to follow the waste hierarchy, so they no longer require waste disposal.



### Businesses

Building circularity into businesses’ waste systems helps to increase our city’s waste system resilience by placing more responsibility onto individuals and businesses to make waste minimisation front of mind. A circular economy also offers the potential to create new jobs, healthy lifestyles through reduced consumption and disposal, and sustainable growth by increasing repair and resource recovery activities. Through greater individual ownership of individuals’ impacts on the environment, we will ensure that Wellington can continue to be a creative, sustainable capital for people to live, work and play.

# Ngā ia huriao

## Global trends

Several international drivers and trends are forcing governments, including New Zealand, to rethink their approach to resource recovery and waste management.

Waste generation is linked to Gross Domestic Product (GDP) and population growth, with wealthier countries experiencing increasing volumes. As global economies and populations grow, continued pressure is put on Papatūānuku and rawa taiao (natural resources) to produce the wide range of products available on the market.

To limit this, it will require countries to implement policies that improve whakahaere rauemi (resource management) and ensure sustainable materials management, building on the principles of the pūnaha whakarōpū para (the waste hierarchy). The Platform for Accelerating the Circular Economy<sup>10</sup> reported that the global increase in material resource use is predominantly due to several factors including:

- global reliance on virgin materials rather than using existing resources
- ongoing growth of capital stock, including housing, infrastructure and machinery, to service a growing population
- lack of end-of-life processing systems and services
- poor design of products.

Countries around the world are recognising the multitude of issues related to waste and resource use and management. Natural resources are becoming scarcer; we're understanding that resources are finite and becoming more expensive and difficult to extract.<sup>11</sup> It is recognised not all waste is currently able to be reused, repurposed, composted, or recycled. However, most things going into landfill is wasteful and a loss of valuable resource. The following highlights trends around the world that demonstrate shifts towards a circular economy and improved environmental outcomes.

<sup>10</sup> [pacecircular.org](https://pacecircular.org)

<sup>11</sup> Explore the Circularity Gap Report 2021 - Circular Point





## Product stewardship

Product stewardship is a policy approach used globally, where producers are made responsible for the entire life cycle of the products introduced to the market, from design to disposal.<sup>12</sup> This responsibility may be financial and/or physical contributions. Companies must mitigate the environmental impacts of their products throughout the life cycle. This incentivises prevention of waste at the source and aligns with public recycling and waste disposal goals of the policy enforcer – encompassing the circular economy model.

Germany introduced the Green Dot System, which requires retailers to pay a fee to finance the cost of collection, sorting and recycling of their packaging. The licence fee disincentivises unnecessary packaging and rewards retailers cutting packaging down with reduced licence fees. Consumers see the Green Dot on the product purchased and can be sure the packaging will be recycled appropriately. This practice has been adopted throughout European countries, America, Canada, Australasia and Asia (Japan). Aotearoa has many (circa 40) distinct types of eco-labels and criteria, and alongside the unregulated green washing of products, can leave consumers confused and overwhelmed.

## Reduction and disposal of organics

More than half of food waste is generated by private households.<sup>13 14</sup> Many countries are developing strategies to meet the UN's sustainable development goal (12.3) of halving food waste from 2000 to 2030 – measured by retail, consumer, producer and supply chain losses.<sup>15</sup> Reducing avoidable food waste at source should be the priority, followed by feeding people, animal feed, exploring industrial uses to upcycle waste food, and finally composting of unavoidable food waste.

Food waste is difficult for many households to manage, as buying food in bulk can be cheaper, but does lead to increased wastage. This can be managed by learning to make the most of a household freezer. Additionally, time poor families struggle to find time to plan their meals.<sup>16</sup>

Cities around the world use legislation and bylaws to affect change. They may require household's and businesses' recycling, composting and landfill to be separated. Cities are also banning organics into landfills.<sup>17</sup> Some cities and countries have substantial fines for non-compliance. To support these changes, cities are providing waste collection options to households, drop-off locations, and community gardens that enable food waste diversion from landfill.

## Appropriate reuse and disposal of construction and demolition materials

In 2012, approximately 1.3 billion tonnes of construction waste were generated globally and accounted for almost half of all waste generated.<sup>18</sup> Construction waste includes that generated by building and transport construction, repair and demolition. Construction and demolition are responsible for almost 40% of energy and process related emissions globally<sup>19</sup> and in the European Union (EU) accounts for one third of waste. Recycling and material recovery varies from 10–90%. The EU promotes selective demolition with standardised specifications, including separation at the construction site. Germany achieved a 90% reduction in construction and demolition waste by 2010, but Spain had only achieved 15%. The main barrier appears to be high costs. Banning or raising levies or increasing taxes on raw materials have been effective policies to make landfill unattractive.<sup>20</sup> Other cities such as in Denmark<sup>21</sup> have begun to identify the impact of construction and demolition waste contributions, and local authority points of influence.

12 <https://rev-log.com/extended-producer-responsibility-outside-of-europe/>

13 More than half of food thrown away by households can be avoided: NEA study - TODAY (todayonline.com)

14 US households waste one-third of the food they buy: study (nypost.com)

15 <https://champions123.org/publication/sdg-target-123-food-loss-and-waste-2021-progress-report>

16 Why do we still waste so much food at home? | Environment | The Guardian

17 <https://www.wastetodaymagazine.com/article/organic-waste-legislative-update-foed/>

18 Construction Waste Market Share, Research Insights by 2025 (transparencymarketresearch.com)

19 2019 Global Status Report for Buildings and Construction (windows.net)

20 Report on the management of construction and demolition waste in the EU – Construction and demolition waste (europa.eu)

21 [denmark-without-waste-ii-wasteprevention.pdf](https://www.danishwaste.com/denmark-without-waste-ii-wasteprevention.pdf) (mst.dk)

In Sweden, practices such as eco-design and planned deconstruction are used to limit the use of raw materials, and use recycled and reclaimed materials as much as possible. This practice has been tested and proven in the construction of residential buildings.<sup>22</sup>

Japan is a global leader in this field, introducing the Construction Material Recycling Act, where demolition contractors must register their dismantling and recycling practices and on-site materials sorting facilities are provided for construction. Through the Act, and the demolition site patrols used to enforce it, 99% of concrete, 99% of asphalt and 94% of wood waste are recycled.<sup>23</sup> Wrecking balls and columns of trucks filing into landfill sites will soon be outdated; planned deconstruction is fast becoming a key stage in the construction industry value chain, involving every player in the industry, and supplying a plentiful source of recyclable and reusable materials.

### **Increasing consumer's convenience to make environmentally friendly choices**

A lot of plastic waste is due to the convenience plastic packaging provides. A qualitative study in Germany revealed that to prevent waste, more plastic-free or reusable packaging options need to be available for consumers, while effective measures to increase recycling include better information and education as well as providing easier recycling collection schemes.<sup>24</sup> In Germany and Australia, bottle return schemes are available at supermarkets and returners can receive a refund on their deposit. For those less inclined to use this service, containers are available beside street waste bins where other residents can collect the containers and make the deposit for monetary return.

### **From exporting recycling and waste materials to taking ownership**

Before Operation National Sword (2018), China imported recyclables from North America and Europe for two decades to make up for a shortage in domestic materials.<sup>25</sup> Aotearoa sent 15,000 tonnes of waste to China annually - mostly mixed paper and plastics that aren't locally recycled.<sup>26</sup>

China's purchasing of recyclables brought in materials for industrial growth, but it also brought in contaminated recyclables that slowly accumulated in China and increased pollution. The Chinese government responded with Operation National Sword. The policy imposed more stringent monitoring of acceptable recyclable imports and levels of contamination including a ban on 24 kinds of recyclable waste, for example, polyethylene terephthalate (PET), polyethylene (PE), polyvinyl chloride (PVC) and polystyrene (PS). From its implementation on January 1 2018, contaminants were reduced from a 5-10% acceptance rate to 0.5%, and global plastic imports dropped 99%.<sup>27</sup>

# Before 2018, Aotearoa sent **15,000 tonnes of waste** to China annually.

22 [https://issuu.com/cimark/docs/etude-eco\\_circulaire-2021-en\\_full\\_web/s/11902336](https://issuu.com/cimark/docs/etude-eco_circulaire-2021-en_full_web/s/11902336)

23 Wood waste measures includes reduction measures. <https://www.suishinkaigi.jp/en/Our%20works/case01.pdf>

24 First reduce and reuse, then recycle! Enabling consumers to tackle the plastic crisis - Qualitative expert interviews in Germany - ScienceDirect

25 <https://www.nature.com/articles/s41467-020-20741-9>

26 [thespinoff.co.nz/kai/07-10-298/new-zealand-faces-up-to-its-plastic-problem](https://thespinoff.co.nz/kai/07-10-298/new-zealand-faces-up-to-its-plastic-problem)

27 <https://www.lowyinstitute.org/the-interpretor/china-rejecting-rubbish>



## Increase in plastics recycling rate and bans on plastics

Global plastic production and waste exceeds 270 million tonnes per year. Around 3% of this ends up in oceans, injuring marine life and accumulating into garbage patches. Plastic waste has a negative impact on oceans and wildlife, predominantly in low-and middle-income countries. Marine life and seabirds can become entangled by plastic debris and may ingest plastics directly or unintentionally through ingestion of prey with plastic in their system. Plastics can cause a false sense of satiety leading to poor appetite and health and can cause lacerations leading to death. The impact on human health is largely unknown, but considered low risk, as humans don't tend to eat the digestive tract of fish, birds and animals.<sup>28</sup>

The ill environmental effects of plastic production are further worsened by the long decomposition period required, ranging from 20 to 500 years. Packaging is the largest contributor to plastic generation (followed by textiles, and consumer products). Due to the single-use nature of packaging and lack of availability or convenience of recycling facilities, this plastic packaging including soft plastics often ends up in the landfill.



# 270 million tonnes

of global plastic production and waste per year

Cities like Seattle and Minneapolis require all take-away packaging to be compostable or recyclable, and Portland has a 'GO box' programme with 80 outlets returning, sanitising and reusing packaging.<sup>29</sup> Single use takeaway food and drink containers, whether compostable, recyclable plastic or otherwise, should be replaced with reusable containers. Scotland is leading in this space, banning single use plastics including drink stirrers, straws, and polystyrene takeaway boxes.<sup>30</sup>

## Move away from incineration

Many countries have managed their waste and avoided landfill by incinerating. However, this disposal method is now recognised as poor practice and cities are trying to move away from this approach to one that values waste as a resource. Incinerators waste more energy than they produce, because incinerated



# 3%

of global plastic production ends up in oceans, injuring marine life and accumulating into garbage patches

materials need to be replaced by new materials. The energy costs of extraction and production of virgin materials far outweighs the benefits of incineration. Waste incineration uses three to five times the energy of reprocessing activities such as recycling and composting.<sup>31</sup> Incinerators also produce hazardous emissions that pollute the environment, such as leachates and greenhouse gases.<sup>32</sup>

In response to the move away from incineration, many countries are working to improve their recycling rates to reduce plastic waste going to landfill or incineration facilities. Globally, this has been achieved through education, communication and convenience. Germany and Switzerland have increased their recycling rates by combining waste disposal information and detailing where specific waste types must be disposed of, in either household waste bins, supermarkets or recycling depots.

28 <https://ourworldindata.org/plastic-pollution>

29 [https://localwiki.org/pdx/Go\\_Box](https://localwiki.org/pdx/Go_Box)

30 Scotland Zero Waste business assistance<sup>31</sup>

31 Morris, Jeffrey, Comparative LCAs for Curbside Recycling Versus Either Landfilling or Incineration with Energy Recovery, The International Journal of Life Cycle Assessment, July 2005. Available at: <http://www.springerlink.com/content/m423181w2hh036n4/> <http://www.springerlink.com/content/m423181w2hh036n4/>

32 [https://zerowasteurope.eu/wp-content/uploads/edd/2019/09/ZWE\\_Policy-briefing\\_The-impact-of-Waste-to-Energy-incineration-on-Climate.pdf](https://zerowasteurope.eu/wp-content/uploads/edd/2019/09/ZWE_Policy-briefing_The-impact-of-Waste-to-Energy-incineration-on-Climate.pdf)

Waste incineration uses **three to five times** the energy of reprocessing activities such as recycling and composting.<sup>31</sup>



# Te horopaki ā-motu

## National context

The Waste Minimisation Act 2008 which is currently under review encourages waste minimisation and a decrease in waste disposal to protect the environment and provide environmental, social, economic and cultural benefits. A Territorial Authority, such as the Wellington City Council, must promote effective and efficient waste management and minimisation within its district by adopting and implementing a Waste Management and Minimisation Plan that includes collection, recovery, recycling, treatment, and disposal services, facilities, and education activities.

Other legislation influencing the role of councils in waste management activities are the Resource Management Act 1991, Local Government Act 2002, Litter Act 1974, and Health Act 1956. New Zealand is also a member of several international agreements which influence some waste management and minimisation decisions at the local level.

Recent changes in the international market, including restrictions by China on the importation on waste and recyclables through Operation National Sword, have highlighted the need to take a closer look at the way Aotearoa manages its waste. As a result, Aotearoa's mixed plastic and paper waste is now sold at a lower price to Indonesia, Thailand and Malaysia, or stockpiled here.<sup>33</sup>

New Zealand's central government created a taskforce at the Ministry for the Environment to mitigate the effects of this ban and are currently using the Waste Disposal Levy to improve data systems, investigate onshore recycling plants and fund projects that will accelerate waste reduction.<sup>34</sup>

**The Ministry for the Environment is currently working with stakeholders to co-design product stewardship schemes for six priority groups: plastic packaging, tyres, electrical and electronic products e-waste including large batteries), agrichemicals, and their containers, refrigerants, and farm.**

Although this is a regulated scheme, product stewardship benefits businesses too. For example, Sharp Corporation of New Zealand exemplify successful incorporation of product stewardship, with a focus on scalable solutions that reduce environmental impact. Sharp offer a free toner recycling programme, free packaging removal and recycling, and end of life refurbishment for all electrical and electronic products. They also provide a consultancy service to advise businesses on eliminating paper for good.

In Christchurch a non-profit organisation, RAD, accepts old laptops and teach rangatahi in-demand tech skills by refurbishing them for students in need and thereby diverting e-waste from landfill.<sup>35</sup>

New Zealand's government has also implemented a multi-tranche phase-out plan to remove certain hard-to-recycle plastics by mid-2025. The first tranche phased out certain products in October 2022, and other early steps have already been taken, such as expanding the waste levy, phasing out single use plastics, and introducing regulation of product stewardship for six priority areas.

Upcoming legislative renewals will require system level change for New Zealand to become a waste-free country. The New Zealand Waste Strategy (2010) will soon be replaced by Aotearoa New Zealand Waste Strategy (2022). The government is also proposing to create new legislation that will replace the Waste Minimisation Act (2008) and the Litter Act (1979). The legislative context is evolving, and the Council will need to work alongside it and exercise foresight in developing this strategy. This is an opportunity to rethink practices in the Council, businesses, organisations, homes, and cities to prevent waste generation, extend the life of resources, return organics to the soil, and become a regenerative society and economy.

<sup>33</sup> [NZherald.co.nz/recycling-new-zealand-still-sending-plastic-waste-to-developing-countries/ZBDBB075SFVPLDZCVX46IHJ2U/](https://www.nzherald.co.nz/recycling-new-zealand-still-sending-plastic-waste-to-developing-countries/ZBDBB075SFVPLDZCVX46IHJ2U/)

<sup>34</sup> [environment.govt.nz/what-government-is-doing/cabinet-papers-and-regulatory-impact-statements/national-resource-recovery-taskforce-new-zealands-options-in-response-to-effects-created-by-the-implementation-of-the-national-sword-policy/](https://environment.govt.nz/what-government-is-doing/cabinet-papers-and-regulatory-impact-statements/national-resource-recovery-taskforce-new-zealands-options-in-response-to-effects-created-by-the-implementation-of-the-national-sword-policy/)

<sup>35</sup> [recycleadvice.nz](https://recycleadvice.nz)

# Te horopaki ā-rohe

## Local context

Wellington City Council has declared a climate and ecological emergency. This Zero Waste Strategy will begin to address the gap. In response to this, the Council is taking actions, including re-shaping where residents live, how we move about the city, and how we mitigate and adapt to the effects of climate change.

In 2019, Wellington City Council adopted Te Atakura - First to Zero, a blueprint for moving Wellington's carbon footprint to zero. It identifies that waste makes up 4% of the city's carbon emissions but it forms 83.8% of the Council's carbon emissions, mainly from the landfill.<sup>36</sup>

### Wellington's waste activities

Wellington City Council operates the Southern Landfill, which is classified as one of the three Class 1 landfills in the region. Additionally, we have a partial ownership stake in the Spicer Landfill located in Porirua, which serves as the waste disposal site for the northern suburbs of Wellington. At the Southern Landfill we run a Tip Shop and Recycle Centre where we encourage customers to drop off items that can be upcycled, reused or repurposed, before taking waste materials to our transfer station. Items such as clothing, furniture, bric-a-brac, tools, toys, renovation materials and electrical and electronic equipment are accepted. The Tip Shop team of 20 staff rescue quality items from the transfer station and accept reusable items to sell in the shop or on TradeMe, as well as offering a range of recycling services. We constantly seek to increase reuse opportunities, for example testing and tagging electrical items for resale in working order, rather than selling for parts or recycling as e-waste.

There are two privately owned and operated cleanfill sites in Happy Valley. However, resource consenting, capacity constraints, and accessibility in wet weather have resulted in difficulties using these sites. Kiwi Point Quarry is Council-owned and will be operational as a cleanfill site early 2023.

We also have a composting facility, Capital Compost, which accepts food waste from some commercial premises and events, and garden waste.

The Council has three staff who deliver behaviour change programmes for schools and the community. We also provide waste hoods that can be hired for events to help sorting and collecting of materials by waste types; unaddressed junk mail has been banned in the city, and battery drop-off points are being trialled.

The city's collection services are contracted out, and private operators are also allowed to obtain a licence for collection of waste and recycling. Our 2018 Waste Assessment found that we have a declining Council kerbside refuse market share at approximately 40% of households; households increasingly choose private services with bins that are much larger than the bags offered by the Council. However, larger wheeled bins lead to greater quantities of waste disposed, including materials that could be recycled or composted.



We have a Solid Waste Management and Minimisation Bylaw that contains broad goals and objectives to encourage waste minimisation and the transition to a circular economy over time, and outlines:

- management of litter in public places
- regulation of the public's waste disposal methods to minimise waste going to the landfill
- responsibilities of waste collectors and operators
- requirements for waste management and minimisation plans for events, construction and demolition, and multi-unit developments.

We must consider how we can shift our focus to the top of the waste hierarchy - avoid/reduce/reuse/recycle. We currently provide funding for organisations to develop innovative solutions that support reducing waste. We have signalled our desire to transition to a circular economy through the Economic Wellbeing Strategy 2022.

## Waste at the Southern Landfill

Waste to the Southern Landfill is a combination of kerbside collections, drop-offs at transfer station and dumping directly to the tip face. Data from the 2018 Waste Assessment highlights<sup>37</sup>:

- Organics (food scraps and gardenwaste) make up 57.8% of household waste (by weight for bags and bins collected at kerbside)
- Organics makes up 25.5% of all levied waste to the Southern Landfill
- Kerbside waste makes up 33.5% of all waste collected
- The refuse transfer station pit mainly receives trailer and carloads, 45.5% of this waste is timber, and a further 15.2% is rubble
- Potentially hazardous waste makes up 26.9% of all waste to the Southern Landfill and includes special waste such as sludge and asbestos. Approximately 97% of potentially hazardous material is special waste, primarily wastewater, otherwise known as sludge
- Construction and demolition waste can include timber, concrete, glass, steel, brick, packaging, metal, plasterboard and other items, and while it only makes up 22% of the Southern Landfill disposal, for the city this is far higher, as the city also has two private construction and demolition landfills

- Plastic waste at the Southern Landfill is 149 tonnes per week and makes up 8.5% of our landfill waste
- Textiles are items like furniture fabrics, clothing and carpet that are made from materials such as cotton, nylon and polyester. The Southern Landfill receives 93 tonnes per week, making up 5.3% of waste to landfill
- Paper and cardboard can come from packaging, office printing and documents, notebooks, books, wallpaper, newspaper and decorating. It makes up 6.8% of the Southern Landfill waste profile at 119 tonnes per week.

Giving effect to this strategy and the waste hierarchy can be achieved for many council activities, especially when it comes to waste prevention and minimisation.

Our city's population is expected to increase by 50-80,000 over the next 30 years. The absolute growth in population and economic activity is likely to drive up household waste generation, waste production, and waste disposal to landfill. Our economy is largely a knowledge economy supported by creative arts, hospitality and retail.<sup>38</sup> Household waste generation is generally linked to retail spending and population, and although household sizes are going down, the per capita waste is projected to increase.<sup>39</sup>

<sup>37</sup> SWAP full report (wellington.govt.nz)

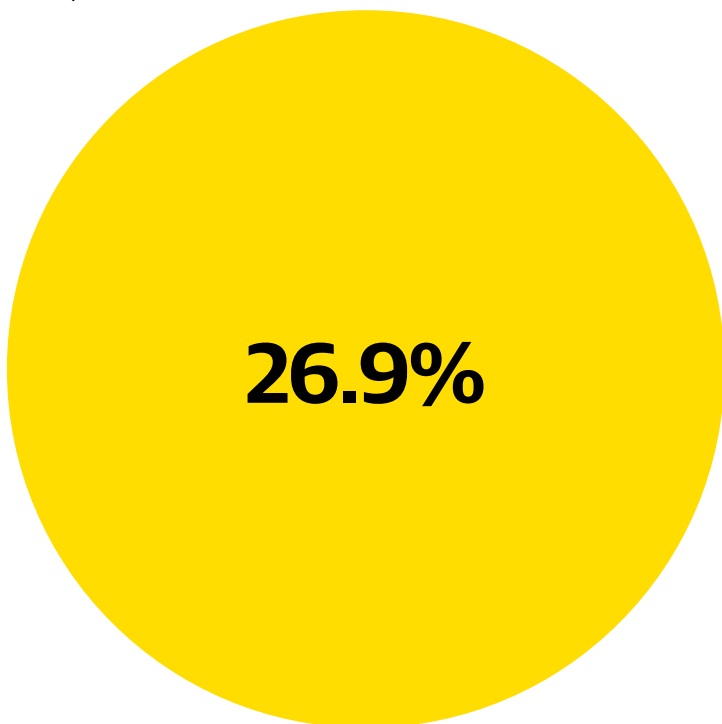
<sup>38</sup> Plans, policies and bylaws - Economic Wellbeing Strategy - Wellington City Council

<sup>39</sup> wellington.govt.nz/-/media/have-your-say/public-input/files/consultations/2017/04/wmmpfinalregionalwasteassessment090317.pdf

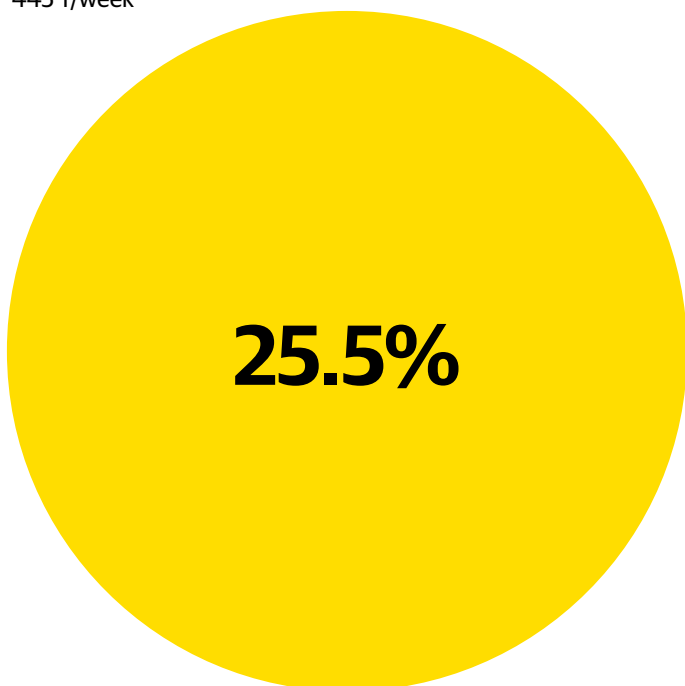
## Southern Landfill - All levied waste

Average 1,745 T/week - 3-30 November 2018

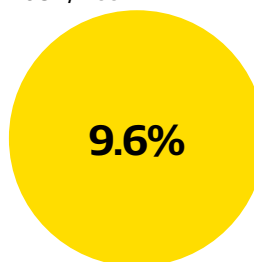
**Potentially hazardous**  
469 T/week



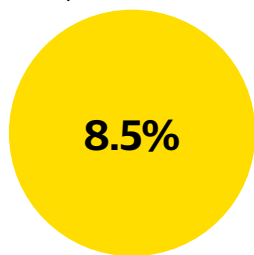
**Organics**  
445 T/week



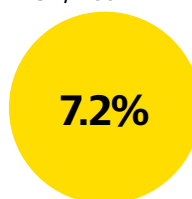
**Timber**  
168 T/week



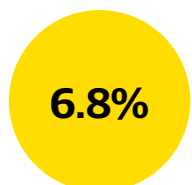
**Plastics**  
149 T/week



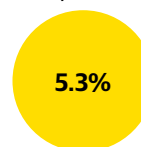
**Rubble**  
125 T/week



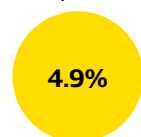
**Paper**  
119 T/week



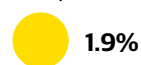
**Textiles**  
93 T/week



**Sanitary paper**  
85 T/week



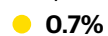
**Ferrous metal**  
33 T/week



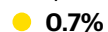
**Glass**  
34 T/week



**Non-ferrous metal**  
13 T/week



**Rubber**  
12 T/week





## Wellington's challenges and opportunities

### High volumes of waste compared with other cities

New Zealand has the third highest annual waste to landfill of all OECD countries at 781kg per capita, measured by municipal landfill data - the highest being 851kg and lowest at 243kg per capita.<sup>40</sup> Although the measuring of this indicator is inconsistent across countries, New Zealand includes construction and demolition waste whereas other countries data do not, it still signals that there is a way to go. Compared to other cities and districts across New Zealand, Wellington (including Porirua) sits in the middle of the pack, at 507kg per capita, compared with Gisborne at 305kg per capita and Upper Hutt & Hutt City at 874kg per capita (measured per annum).<sup>41</sup>

Wellington again sits in the middle of the pack for annual per capita disposal of kerbside refuse at 206kg per capita Christchurch city had the lowest per capita disposal rate of kerbside refuse with 110kg and Rotorua District the highest at 216kg.<sup>42</sup>

### Finding the right organics solutions

Organic waste is garden and kitchen waste (food scraps). Organics makes up approximately 25.5% of all levied waste to the Southern Landfill, and household collections are around 57% organic waste.<sup>43</sup> This is compared to approximately 50% of global waste being organic.<sup>44</sup>

A wide variety of 'compostable' packaging exists in the market. However, there is no New Zealand standard for products claiming to be compostable, so even in commercial facilities packaging may not break down as a result. Our commercial composting facility currently accepts very limited compostable packaging from tightly controlled events and venues.



Organics makes up

# 25.5%

of all levied waste to the Southern Landfill

Around

# 57%

of household collections are organic waste

### Switching the focus from waste management to influencing resource use and consumption

The circular economy is based on three principles: elimination of waste, circulation of products and materials at their highest value, and regeneration. Having used a linear economy model since the Industrial Revolution, although urgent and essential, the switch to a circular economy is not a simple task. Considering society have had 200 years of take-make-dispose, extracting our earth's natural resources, the switch to a circular economy requires undoing those behaviours and changing the systems and infrastructure. The Council's current focus on waste disposal through landfills sits at the bottom of the waste hierarchy.

We have a small community of businesses operating in the circular economy model in Wellington, proving what's possible in our own community. For example, Reusabowl provides a solution for plastic container waste; a durable bio-based takeaway container with a network of takeaway restaurants that participate in wash and return. The bowls can be purchased by individuals or workplaces to eliminate lunchtime container waste. Planet Protector Packaging utilises wool properties to maintain product quality in cold supply chains. Bata collect old gumboots and remanufacture them into new gumboots.

40 Waste - Municipal waste - OECD Data - data.oecd.org/waste/municipal-waste.htm

41 Wellington Region Waste Assessment 2016

42 Wellington Region Waste Assessment 2016

43 SWAP full report (wellington.govt.nz) - page 42

44 datatopics.worldbank.org/what-a-waste/trends\_in\_solid\_waste\_management.html



Photo: Kaibosh Food Rescue

### **Maximise reuse and regeneration of materials through convenience**

Household items contain plastics, electrical components, wood, textiles, paper and cardboard. Plastic, textiles, paper and cardboard make up a combined 361 tonnes (20.6%) per week at the Southern Landfill. These items include e-waste (such as laptops and phones, kettles, fridges, lamps, toys, tools, furniture, clothing, and plastic containers and packaging).

Currently, the main recycling method is through kerbside collections. In Wellington, residents can also use the Tip Shop, Recycle

Centre and other drop-off points around the city, such as the Sustainability Trust, for specified items such as plastic and metal lids, e-waste, curtains, metal, silicone, wool, car seats, bicycles, and more. However, recycling levels continue to drop, and contamination endures. The Tip Shop's location at the Southern Landfill is not easily accessible for all residents. In the current economic and social context, with a fast pace of life and dual income families, people are time poor, making the distance to the Tip Shop a barrier.

As the city grows and urban intensification evolves, solutions will need to cater to intensification

of Wellington neighbourhoods and to meet multi-unit development servicing needs. Future developments can be protected by making changes to the development requirements in the district plan, but existing units will still need to be addressed in order to bring the convenience of recycling to the doorstep of all inner-city residents. The Council has required a Waste Management Plan for all existing multi-unit dwellings through the Solid Waste Management Bylaw 2020. There are issues with some multi-unit dwellings, where there is not enough space for the necessary bins and the ability to collect is challenging.

Future developments can be protected by making changes to the development requirements in the district plan.



## Commercial, construction and demolition waste

Construction and demolition waste can include timber, concrete, glass, steel, brick, packaging, metal, plasterboard and other items. While it only makes up 7% of the Southern Landfill disposal, there are other landfills taking the bulk of this resource in Wellington. Construction and demolition waste makes up 40-50% of New Zealand's waste.<sup>45</sup> As Wellington city is projected to grow by 50,000-80,000 people over the next 30 years, our need for construction and demolition facilities will continue to increase, especially if changes to current practices aren't made.<sup>46</sup>

There is also a looming problem in the Wellington region with construction and demolition landfills reaching capacity - urgent solutions are needed. When thinking wider about construction and demolition and business activities, there is a perception that it is cheaper to send waste to landfill, or uneconomic to make the greener choice, however, this is not always the case. As landfill levies increase, the incentive to reuse, recycle and repurpose will become stronger.

Additionally, through the building code, architects must specify the requirements for building materials to be used for different building elements, depending on, for example, the required loads and strength needed. But architects often specify the branded product, which results in the building inspector not being able to approve anything other than the specified brand. This limits innovative options that may have a better waste outcome.

## Rethinking sludge practices

At the Southern Landfill, hazardous waste includes special waste such as sludge and asbestos categorised as potentially hazardous. Potentially hazardous waste makes up 26.9% of all waste to the Southern Landfill, of which, approximately 97% is special waste, primarily wastewater (otherwise known as sludge).<sup>47</sup>

In the 1990's, the Council decided to co-compost sludge with green waste at the Southern Landfill; to use the output to improve the soil quality of land not being used for food production. The building was completely sealed to prevent odours from reaching the community, but over time this failed. In 2008, Council determined to treat the sewage at the dewatering plant and dispose to landfill. The dewatering plant process has meant that 15,000 tonnes of sewage waste per year has gone into the landfill. The conditions of the resource consent included a requirement to mix one part sludge to four parts waste, to reduce odour and ensure the stability of the landfill. This requirement has limited what the city can do to reduce waste, as a reduction in waste would likely result in the Council breaching this condition.

To address the city's reliance on waste to safely dispose of the city's sludge, the Council began working with Wellington Water two years ago to identify a solution, resulting in consultation in the 2021-24 Long-term Plan for investment in new technology called Lysis Digestion. Lysis Digestion is a two-step process involving a pressure cooker to break down the materials followed by a digestion process using bugs which reduces the material volume and makes it safe for other uses.



Hazardous waste makes up

**26.9%**

of all waste to the Southern Landfill

Of which, approximately

**75%**

is sludge

<sup>45</sup> level.org.nz/material-use/minimising-waste

<sup>46</sup> News and information - Spatial Plan adopted - Wellington City Council

<sup>47</sup> SWAP full report (wellington.govt.nz) - page 42

As Wellington city is projected to grow by **50,000-80,000 people** over the next 30 years, our need for construction and demolition will continue to increase.<sup>46</sup>



# Tūpiki Ora me te para kore

## Tupiki Ora Māori Strategy and zero waste

**'He tirohanga Māori i te para me te mahi hangarua (Māori views on waste and recycling) emphasise whakapapa (genealogical) connections between humans and the natural world.'**

The respect for rawa taiao (natural resources) and the materials made from them is demonstrated by maintaining their value for as long as possible before they reach the end of their life, at which point they are disposed of in a way that causes the least harm to Papatūānuku. In this way, he tirohanga Māori i te para precedes the concept of a circular economy (ōhanga āmiomio) but similarly acknowledges the mauri (life force) of natural resources.<sup>48</sup>

Tūpiki Ora is a metaphor for the pursuit of wellbeing, establishing a new way of working together with our community to strengthen our relationships and support our whānau to prosper. The strategy document outlines the framework for the Council, mana whenua and Māori to follow to achieve this vision collaboratively.

Tūpiki Ora has eight guiding principles which provide direction on how the Council conducts itself to undertake the mahi required and make decisions that are mana enhancing for Māori in our community. Through this Zero Waste Strategy, we are placing

four of the Tūpiki Ora guiding principles front and centre in how we bring about the change required to make Wellington a zero waste city. As this strategy is brought to life, it will contribute towards the overall vision of Tūpiki Ora, especially the nourishment of our city's environment, as the actions taken over the next 10 years impact a generation of Wellingtonians.

**Mana ōrite:** we recognise equity as being important to Tūpiki Ora, to our relationships and partnerships, and to how we conduct ourselves. The Council will look for partnership opportunities with mana whenua and all community stakeholders who have a keen interest in the protection of our natural environment and the minimisation of waste.

**Mana Motuhake:** we recognise that mana whenua and Māori seek their own solutions for mana whenua and Māori issues, and that the Council plays a supporting role.

**Te Tiriti o Waitangi:** we recognise that Te Tiriti o Waitangi forms the underlying foundation of the Council - mana whenua relationship, and that the Council acts in accordance with Te Tiriti o Waitangi.

**Rangatiratanga:** we recognise and respect each other's autonomy, mandates, constraints and priorities, and acknowledge and respect our differences. The Council will use our services and infrastructure to meet our community's goals for zero waste, acknowledging that as the service provider for waste management in the city, we hold the greatest opportunities to effect change.

**Pito mata:** we recognise the potential for opportunities and growth in all possible situations. We will do our very best to pursue the opportunities that will lead us to greater and increased whānau wellbeing. The Council, through the behaviour change required in this strategy, will ensure our city's environment is left in a better, healthier state than when we found it, saving this precious taonga for future generations.

**Mahi tika:** We recognise that the policies, practices, roles and responsibilities developed under this strategy will reflect the tikanga and values of mana whenua.

**Toitū te whakaahu:** We recognise that there will be individual and shared opportunities to invest in and support the development, aims, aspirations and positive outcomes of mana whenua and Māori.

**Te auaha:** we recognise that working together means partners will seek to develop new, creative, and innovative models to achieve desired outcomes. The Council will provide opportunities, through the delivery of the Zero Waste Programme, for local partners and stakeholders to experiment and innovate in order to deliver the most effective services and waste minimisation system to Wellingtonians.

48 WasteMINZ, 2020, Recommendations for standardisation of kerbside collections in Aotearoa, p10



**This working approach with mana whenua and the community commits Wellington City Council to:**

1. Endeavour to act as kaitiakitanga to protect and enhance the mauri of resources by working towards a circular economy approach
2. Engage with, empower and involve our community in changing behaviour and solutions
3. Apply a waste hierarchy approach, to increasingly shift our effort and focus towards enabling redesign, reduction and reuse.

We believe taking a circular economy approach to the waste hierarchy helps us to understand the complexity of waste and resources and enables us to prioritise focusing efforts where the use of resources begins and follow it through its lifecycle.







# 3

**He anamata  
para kore  
mō Pōneke**

A zero waste  
future for  
Wellington

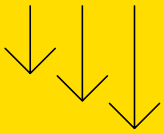


The goal of this strategy is to:

# Achieve intergenerational sustainability by moving to a circular economy.

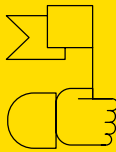
## Ngā mātāpono para kore Zero waste principles

This strategy is anchored by six core principles. These principles inform how we will achieve a zero waste future for Wellington city by guiding the development of this strategy's objectives, priority actions, and outcomes. These principles are informed by the New Zealand Ministry for the Environment's waste hierarchy, which guides the reduction and diversion of waste.



### Reduction of waste

Reducing our reliance on virgin materials by increasing material and product circularity.



### Community participation

Actively involve the community in design and delivery of resource efficiency systems, contributing to a culture shift towards reduction of waste.



### Materials reuse

Reusing products more than once for the same purpose they were intended for, or repurposing products for a different purpose without significant reprocessing.



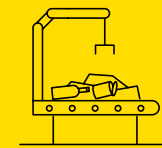
### Culture change

Shift our mindset, behaviours, and habits towards zero waste, ensuring the sustainable and responsible consumption, reuse and recovery of products and materials.



### Proximity principle

Encourage reuse, repurposing, recycling and processing by providing a network of services close to communities.

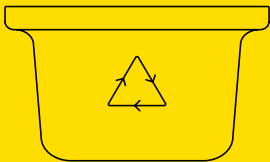


### Resilient waste system

Ensuring a city has the capacity and capability to manage and reduce its waste in extreme events and day-to-day operations.

## Our zero waste targets

The overarching targets each of these outcomes will collectively contribute to are:

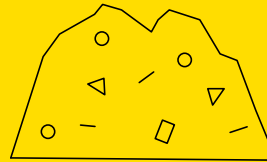


### Kerbside waste

Reduce per capita kerbside waste by

**40%**

by 2030

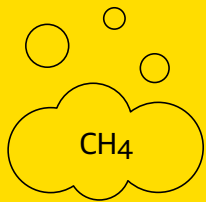


### Waste to landfill

Reduce total waste to landfill by

**50%**

by 2030

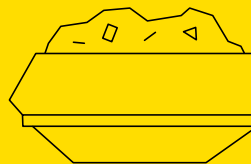


### Gas emissions

Reduce biogenic methane gas emissions by at least

**30%**

by 2035



### Construction and demolition

Divert

**50%**

of Construction and demolition waste from landfill by 2030; 70% by 2035



### Organic waste

Divert

**50-70%**

of organic waste from landfill

by 2030



# Ngā whāinga para kore

## Zero waste objectives and outcomes

Zero waste is an ambitious goal for Wellington. It signals a significant shift in how we as city think about waste, the services and infrastructure we provide, and how businesses, residents and the Council can contribute to making a difference for our city's environmental, societal and economic future.

We will know the implementation of this strategy has been successful when we see the following outcomes occurring, demonstrating the cumulative positive effects of a zero waste future for Wellington.

### **Outcome 1: Wellington moves towards a circular economy**

We are taking the lead to design waste out, empowering businesses, organisations and communities to avoid unnecessary resource use. This involves intervention at the earliest point in the waste lifecycle - encouraging the redesign of systems and products in businesses and at the Council so waste is not created in the first place

### **Outcome 2: The community is equipped to reduce waste**

It is convenient for residents, businesses and consumers to recycle their waste. The networks, services and infrastructure are in place to enable residents, consumers and businesses to sort their waste for reuse, recycling, and composting, making waste minimisation the default mindset of everyone.

### **Outcome 3: Resources are repurposed and regenerated in Wellington**

We recover and process materials to regain value from resources. This will return value to the materials collected through the Council's waste management services, minimising the reliance on virgin resources.

### **Outcome 4: Landfill capacity is treated as a finite resource**

We treat the waste infrastructure built today as a finite resource that requires careful management of residual waste. We recognise that transition to a zero waste city will take time, and that hazardous waste will continue to need to be managed in the long-term for the health and safety of our people and the environment.



Reliable waste data and insights are critical to measure the below outcomes. The Council will work with industry, partners, operators and community to gather accurate data to measure waste outcomes in the city.

This will include identifying gaps in data collection, and the required solutions to address these. Once a review of the data capture processes is complete, a more comprehensive plan will be developed to identify the measures and indicators for this strategy's outcomes. To deliver this strategy's outcomes, a model of collective responsibility and action is critical. This strategy identifies Wellington specific waste issues, placing a focus on waste types that are of significant volume and will therefore achieve the greatest gains in the next 10 years. Our focus waste types are:

- Sludge
- Organics
- Construction and demolition
- Household items and consumables.

Our focus waste types, combined with our zero waste principles, inform the four outcomes and objectives outlined in this strategy which set the future direction for Wellington's waste system. The objectives are:

- Objective 1: Products and services provided in Wellington are waste free
- Objective 2: Waste reduction is made attractive and accessible to Wellingtonians
- Objective 3: Infrastructure and systems to increase resource circularity are in place
- Objective 4: Waste that cannot be avoided, reduced, reused, repaired, or recycled is managed safely.





## Focus waste types



### Sludge

At the Southern Landfill, hazardous waste includes special waste such as sludge and asbestos and are categorised as 'potentially hazardous'. Potentially hazardous waste makes up 26.9% of all waste to the Southern Landfill. Approximately 97% of potentially hazardous material is special waste, primarily wastewater, otherwise known as sludge.<sup>1</sup>

Our focus is to remove sludge from the landfill by investing in a sludge minimisation facility to remove the city's reliance on waste to dispose of sludge, as well as creating a biosolids by-product. Removing sludge from the landfill unlocks opportunities to drive waste minimisation and resource recovery once solid waste is no longer needed to make the landfill safe.

Once operational, the sludge minimisation facility will result in the sludge material being dried and its quantity in the landfill significantly reduced to 2,000 tonnes per year. This volume can be further reduced, as the material is a potential resource which, if a use is identified, could avoid entering the landfill entirely. The Council will investigate beneficial use of the material.

Hazardous waste also includes pesticides and herbicides, lead-acid and other batteries, electronic or electrical waste (e-waste), waste from the production of leather, ink, dyes, paint, latex, glues, and wood preserving chemicals, and clinical and pharmaceutical waste.<sup>2</sup>

For the purposes of this strategy, e-waste is included within plastics, packaging and consumables.

49 SWAP full report (wellington.govt.nz) - page 42

50 [epa.govt.nz/industry-areas/hazardous-substances/hazardous-waste/hazardous-waste-types/](https://epa.govt.nz/industry-areas/hazardous-substances/hazardous-waste/hazardous-waste-types/)







## Organics

Organic waste is green and kitchen waste or food scraps and makes up approximately 25.5% of all levied waste to the Southern Landfill; household collections comprise around 57% organic waste.<sup>51</sup>

The Council's focus is to remove all organics from the landfill through investment in an organics capture/ collection and processing system.

Organic waste in landfills is a large contributor to greenhouse gas emissions. Yet, organic material processing, such as composting, can reduce or eliminate the need for fertilisers, and present cost savings through higher crop yields and better water retention.<sup>52</sup> Actively changing the systems in place for

organic waste will significantly reduce waste to landfills. Organic food loss refers to the decrease in edible food as it moves from harvest to processing and transporting. Food waste refers to discarded food by retailers, hospitality and consumers<sup>53</sup> and may be avoidable - food that could have been eaten - or unavoidable, such as eggshells and fruit cores.

We're focusing on food waste, as the Wellington economy has very little food production, with a large hospitality sector. We will focus on hospitality, grocery, as well as households. We already have a fund available that targets innovative projects that minimise organic waste.

We have been a partner in delivering the Love Food Hate Waste (LFHW) campaign, coordinated at a national level by WasteMINZ, since 2016.

LFHW aims to reduce the amount of food going to waste at the household level by raising awareness and sharing tips, tricks and recipes that make it simple to reduce food scraps and save money. Initially receiving Ministry for the Environment funding, the campaign is now resourced by participating Councils, and there is scope to significantly build on and extend the work done so far.

We will need to continue advocating to central government for appropriate standards and regulation of products and work closely with the packaging industry to ensure product compliance.

51 SWAP full report (wellington.govt.nz) - page 42

52 [epa.gov/sustainable-management-food/reducing-impact-wasted-food-feeding-soil-and-composting](https://epa.gov/sustainable-management-food/reducing-impact-wasted-food-feeding-soil-and-composting)

53 [fao.org/platform-food-loss-waste/en/](https://fao.org/platform-food-loss-waste/en/)





### Construction and demolition

Our third waste focus is construction and demolition. Construction and demolition waste can include timber, concrete, glass, steel, brick, packaging, metal, plasterboard and other items. While it only makes up 22% of the Southern Landfill disposal, there are other landfills taking the bulk of this resource. Construction and demolition waste makes up 40-50% of New Zealand’s waste.<sup>54</sup>

There is also a looming problem in the Wellington region with construction and demolition landfills reaching capacity - urgent solutions are needed. A large volume of construction and demolition waste is unnecessary, with multiple repurposing and regeneration

opportunities. However, separation and processing are considered time-consuming and costly. Added to this, separation and processing are currently not regulated at a national level, and we lack data to understand in detail the scope of the problem and potential waste minimisation opportunities across the country. The Ministry for the Environment are beginning to gather construction and demolition waste data.

Wellington City Council requires a Construction and Demolition Waste Management and Minimisation Plan for developments over \$2 million, allowing Council officers to track the planned disposal of the construction and demolition waste. However, the Council does not include separation and processing requirements as a component of the CDWM plans, leaving disposal of construction and demolition waste largely unregulated at a local level.

There are a few companies supplying deconstruction services in Aotearoa, but this is not yet widespread practice. Kāinga Ora adopted an 80% diversion from landfill target. They have worked with a deconstruction company in Auckland on their first pilot involving deconstruction of 10 homes and rebuilding 50 homes - and achieved 85% diversion.<sup>55</sup>

54 [level.org.nz/material-use/minimising-waste](http://level.org.nz/material-use/minimising-waste)

55 [kaingaora.govt.nz/news/reducing-waste-through-deconstruction](http://kaingaora.govt.nz/news/reducing-waste-through-deconstruction)







## Plastics, packaging and consumables

Our fourth focus waste type is household items and consumables. Household items contain plastics, electrical components, wood, textiles, paper and cardboard.

Plastic, textiles, paper and cardboard make up a combined 361 tonnes (20.6%) per week at the Southern Landfill. Examples of these items include e-waste (such as laptops and phones, kettles, fridges, lamps, toys, tools, furniture, clothing, and plastic containers and packaging).

Plastic waste at the Southern Landfill is 149 tonnes per week and makes up 8.5% of our landfill waste. High income countries including

New Zealand generate more plastic waste per person due to higher rates of production and consumption. Although we do not generate significant volumes due to our smaller population base, there is a high amount of environmental harm caused by raw material extraction in the production of plastic, and plastic as a single-use product.

Textiles are items like furniture fabrics, clothing and carpet that are made from materials such as cotton, nylon and polyester. The Southern Landfill receives 93 tonnes per week, making up 5.3% of waste to landfill. The textile waste stream is growing quickly, up 109% from 2009 when it averaged 45 T/week. In New Zealand, we don't produce many textiles, but they make up 2% of the nation's GDP. 100,000 tonnes of textiles go to landfill in Aotearoa every year.<sup>56</sup>

Paper and cardboard can come from packaging, office printing and documents, notebooks, books, wallpaper, newspaper and decorating. It makes up 6.8% of the Southern Landfill waste profile at 119 tonnes per week. There are many opportunities to avoid this type of waste, such as through digitisation of traditionally written or printed materials.

Electrical appliances generally contain plastics, metals, and chemicals known to be hazardous to human health. These items present a significant opportunity for reuse, repair, and repurposing. New Zealand produces 80,000 tonnes of e-waste per year, but only 2% is recycled.<sup>57</sup> As a country we produce one of the highest amounts of e-waste per capita, yet we are the only country in the OECD that does not have a national e-waste scheme.

<sup>56</sup> nzherald.co.nz/brand-insight/govt-biggest-problem-in-clothing-carbon/EOTEb7ESZiAXLJHCUXtGP2I4GQ/

<sup>57</sup> rnz.co.nz/programmes/the-detail/story/2018733818/our-gigantic-e-waste-problem





# Whāinga 1: Ko ngā hautaonga me ngā ratonga e whakaratoa ana ki Pōneke, he para kore

## Objective 1: Products and services provided in Wellington are waste free

We aim to avoid unnecessary resource use and to design waste and pollution out.

### Why is this important?

This objective contributes to Outcome One - Wellington moves towards a circular economy. Through Wellington City's Economic Wellbeing Strategy, we have signalled a shift to a Circular Economy away from a linear 'take-make-dispose' model. Avoiding waste is at the top of the waste hierarchy, to prevent unnecessary extraction of our rawa taiao (natural resources). Intervention should be at the earliest possible points in the lifecycle of a product or service, as well as at every point along the way; this will have the greatest impact on reducing waste.

Wellington's economy is highly connected to the global economy, and while it might appear that we are doing well on the climate impact scale, we don't directly see the impacts on the environment from the production and transportation of imported goods. However, we

see the end waste products such as packaging, and broken and unwanted items in our landfill.

Collectively, we need to think about the ways we can influence our suppliers and make changes in our own practices that result in less waste being created. In the circular economy model, this means focusing effort to influence the design of products and services. This is about the choices local businesses and organisations make to influence the level of waste entering our system. The efficient design of consumables can result in less use of paper, plastic, textiles and electronic goods, and using recycled materials can drive this down even further.

Designing products to be resource efficient and repairable will save a significant volume of material use and reduce the amount of waste being disposed of. This includes ensuring products are made to last, are repairable, are package free, or use reusable or recyclable

packaging, and eliminate waste as far up the supply chain as we can. This also means supporting and encouraging the normalization of reusable packaging systems, or that increase and make the best use of product/service sharing systems (eg toy and tool libraries, repair cafes). For example, an electronics retailer could ask for changes to be made to the packaging, insist on use of recycled materials, and introduce return and repair solutions. Examples of activities that enable repair and sharing in Wellington include RepairED which enables workshops to enable repair of items, Again Again which provides a technology platform enabling companies to loan, track and assure returnable packaging that is relevant to a organisations goods and customers, The Rubbish Trip Zero Waste Guide and Interactive Shopping Map to support consumers make informed decisions and provide tips on reducing plastic consumption, Mevo which Council has supported via provision of 30 electric car parking spaces and Zero waste grocers and refilleries such as Hopper Refill provide package free options so customers can use their own reusable containers. Sharing examples include tool and toy libraries and vehicle sharing.

## Our approach

### Rethink Council's waste management practices

Rethinking how we manage waste is a critical element of success for the Council's own activities. Removing sludge from the landfill, targeting Council's waste generating activities, and investing in diversion technology will have the most impact.

We are one of the few councils in New Zealand sending sludge to landfill. This contributes significantly to our emissions and limits our ability to drive waste minimisation, as we must mix sludge 1 part to 4 with solid waste for health and safety. To remove sludge disposal from the landfill, we will progress investment in new sewage treatment technology as agreed in the 2021 Long-term Plan. This will break down the sewage into a beneficial substance that can regenerate our city's soils and allow us to minimise waste without relying on it for sludge processing.

We will also work with our internal business units to identify waste generators and solutions for avoiding waste. This could include office activities, public facilities such as pools, sports fields and libraries, events and infrastructure. This will enable critical thinking to redesign our practices. We're already using bus boarding platforms made from recycled plastic.

Another challenge for the Council is supporting many more residents, businesses and organisations to make changes towards the circular economy. There is an opportunity to drive change through the existing Council spend by ensuring our processes and criteria for contracts

and procurement meet the strategic direction for environmental, social, cultural and economic outcomes.

We will invest in technology to divert waste streams away from landfill from a mix of funding sources; landfill revenue, service delivery charging mechanisms of rates funding and through grants and minimisation funding. We will invest in system resilience to future proof our infrastructure for unexpected change. The idea is to have a system that can moderate and correct itself when exposed to vulnerability.

We will aim to achieve this by increasing community market capability, gaining commercial leverage through our procurement strategy to achieve our waste service delivery, processing systems, and waste emissions objectives.

Re-thinking the Council's waste management practice also requires identifying appropriate funding mechanisms (eg, rates funded vs non-rates funded, pay-as-you-throw) which need to be underpinned by detailed options analysis. To achieve this step change in the way we view waste and the amount of waste we each produce, we also need to recognise that collectively we need to share the burden of this transition, including the choices we make, and the investment needed.

## **Encourage Wellington's businesses to design waste out of their products and services**

Recycling alone is not enough for sustainable waste management. Waste management activities such as recycling and composting reduce waste to landfill and help mitigate greenhouse gas emissions, but are considered downstream activities, at the lower end of the waste hierarchy. However, upstream measures include influencing the business activities and supply chains to reduce waste. In our role as a facilitator, we want to work with businesses and organisations across Wellington to help with avoiding waste creation and reducing dependence on use of new and imported materials, particularly relating to organics, household items and consumables, and construction and demolition. As a council, we can build a local understanding of the challenges we need to overcome to achieve change alongside businesses and communities. We can also collectively advocate for change in regulations around importing requirements to further reduce waste in Aotearoa.

To do this, it's necessary to consider how best to facilitate sector-wide conversations and knowledge dissemination to bring about change at scale, whilst also supporting smaller grassroots change programmes. We'll use our waste priorities to guide how we work with each sector. This includes government administration and the knowledge economy, retail (including grocery), hospitality, and construction and demolition. We'll also develop a grassroots

programme that is adaptable across different businesses. The focus will be on providing detailed support to a few businesses in different sectors that are then able to share their knowledge more broadly within their networks.

As outlined in the city's Economic Wellbeing Strategy, we aim to collaborate with universities, crown research institutes, and WellingtonNZ to connect businesses with science and innovation and minimise duplication of effort. This is a significant addition to how we encourage others to adopt waste mitigation practices and will require funding investment to be effective. We're also supporting zero waste businesses through the promotion of eco-tourism, our waste minimisation seed funds, and procurement strategy. We are also conscious that the Council is looking to work with businesses to improve transport and carbon emission outcomes, so we'll make sure to coordinate and integrate that work.

Regarding construction and demolition, Council is actively promoting the Resource Efficiency in Building and Related Industries (REBRI) resources. Our 2020 Solid Waste Management and Minimisation Bylaw requires high value projects to submit a waste management and minimisation plan using the REBRI template. We'll work with demolition specialists, developers, architects and builders to drive better practices that result in as much reuse and recycling as possible to maximise our bylaws' effect. We'll need to continue to review the Bylaw to identify whether the regulatory measures are having an impact. We'll also

promote adaptive reuse practices, as these tend to result in lower material costs, but higher labour costs which supports the local economy and protects our built heritage.

We already have an Environmental and Accessibility Performance Fund to encourage economic development, accessible design and recognise the strategic importance of green certified buildings across newly built and refurbished residential and commercial developments in Wellington. In the short term, we'll actively encourage use of construction materials made from recycled materials, while looking to consider requirements for deconstruction in the longer term.

## **Inspire Wellingtonians to make conscious consumer choices**

Consumer whai wāhi (participation) in waste minimisation efforts will play a vital role in protecting our natural resources. Consumers can influence the prevention of extraction of virgin materials, and increased regeneration, for example, by avoiding products that use superfluous packaging, or by avoiding purchasing products produced by 'fast fashion' brands. With improved access to information, through media channels and word of mouth, residents can make informed choices about the support they provide to companies that are not actively addressing the environmental impacts of their production practices. If a consumer has a choice between two equally priced products, one made from virgin plastic and one made from recycled plastic, by being



well-informed, they are likely to choose the sustainable option. Some consumers are willing to pay a premium for environmentally sound purchases, however sometimes it may mean the environmentally conscious product is not equally available to all. A 'Just Transition' is an important consideration; where impacts and opportunities are more fair, equitable, and inclusive for all.

Circular economy businesses already exist, and we need to help inform people, organisations, and businesses to choose products and services that are waste-free or made from regenerated materials. We can achieve this by promoting businesses and organisations that are rethinking and redesigning their products, services, systems, and processes, to demonstrate what is available and how to access it. Many people want to make sustainable choices but find it difficult to access and navigate the options available. This includes concerns about greenwashing where products are labelled as environmentally friendly because of one aspect, but don't tell the full story.

We want to make it easy for people to make conscious consumer choices. This might be through using the Council's existing communications platforms such as placing information available on our website, public campaigns, or other alternative incentive programmes. We'll investigate how best to do this, and whether there are local policies or bylaws we can introduce to incentivise or require companies to design waste out of their services, products and packaging as well. This might include our Solid Waste Bylaw, Food and Liquor Licencing, and Building Consenting. We'll collaborate with other organisations to ensure actions are complementary. The Council has a search tool to assist in identifying where residents can dispose of materials in an environmentally friendly way; we need to ensure it remains relevant, kept up-to-date and adopts best practice from international examples so the tool is well used by the community.

## Priority actions

- Active use of Council regulations, compliance activities and enforcement to support behaviour and system change.
- Deliver lasting behaviour change interventions by making people understand the benefits of change and then help them make that long term change easy.
- Work with Mana Whenua partners and stakeholders to deliver lasting behaviour change interventions that empower and inspire Wellingtonians to reduce waste and leakage into the environment.
- Work with Central Government agencies to inform and shape system changes.
- Work with Mana Whenua partners and other stakeholders to transform Wellingtonians relationship with packaging and reusables.
- Work with Mana Whenua partners and other stakeholders to support the redesign of systems.
- Support and encourage businesses, social enterprise and charities to provide services and create local and regional markets for waste products and materials.

We will invest in system resilience to future proof our infrastructure for unexpected change.

## Whāinga 2: Ka whakamaneatia ngā tāngata o Pōneke ki te whakaiti i te tuku para, ā, kia māmā ake te āheinga ki a rātou kia pērā

### Objective 2: Waste reduction is made attractive and accessible to Wellingtonians

We aim to make it convenient for residents, businesses and consumers to reduce and recycle their waste.

#### Why is this important?

This objective contributes to Outcome two - The community is equipped to reduce waste. The Council recognises that becoming a net zero carbon city will only happen with the support of our entire community. Both systematic transformation by the public and private sectors and individual behaviour changes are needed to achieve zero emissions - one without the other will not achieve the necessary scale of change at the requisite pace.

Greater emphasis is being placed on activities to support recovery of materials before they are disposed of to landfill. With organics being 57% of household waste by weight, organics is an obvious focus area. To support this, we should consider food waste reduction behaviour change programmes, home composting subsidies, kerbside collection of organic

waste, and drop-off facilities. Globally, approximately 36% of plastic is single-use packaging and plastic items, designed for on-the-go convenience. Plastic is the greatest proportion of the litter stream by item count (69%) and the third greatest by weight (19%). Construction related plastics such as cable ties, safety tape and plastic wrap also make up a large proportion of plastics. These statistics clearly indicate that making reusable alternatives more convenient would make a significant difference in reducing this waste stream from entering our economy.

Influencing consumption patterns within households will go a long way to reducing household waste. A lot of waste is created by today's fast fashion and consumerism. As a consumer society we need to become more conscious of our purchasing decisions to help reduce waste. We should consider alternatives to buying new items, like sourcing items second-hand, or temporarily borrowing it. If we

do really need it, we should also consider whether it must be new, or finding a second-hand item or borrowing from someone would work. The Council can work to stimulate and support the sharing economy. However, society is accustomed to linear systems of take, make, dispose so to move away from this we need to normalise zero waste choices and practices that keep resources in use for as long as possible (eg shared service systems). In addition to finding creative ways to share and promote changes in behaviour and social norms, we also need the right services and facilities to enable these right behaviours.

Knowing where and how to reduce waste is a crucial step to ensuring materials and products are not sent to landfill unnecessarily. With today's busy lifestyles, we must consider how best to make waste minimisation as easy and convenient as possible. To achieve this, people need accessible information about where and how to reduce, reuse, repair, repurpose and recycle. They also need such facilities and services to be located conveniently. This might mean kerbside collections, local community hubs, and services provided by retailers that can collect items for repair or repurposing.

Repairing items rather than replacing them, and sharing services or products can be smart choices for reducing waste. However, there are very few businesses that can repair items, and many items are not made with repairing in mind. Further to this, the skills needed to repair products is also exceedingly rare. We need to consider how to enable repair and shared service arrangement options in our communities.

## Our approach

### Provide collection services and community hubs

In many cases, waste infrastructure has been viewed, for example, as a landfill, recycling building, disposal facility or kerbside rubbish bins. However, we know that sustainable waste infrastructure must relate to all other facets of society from construction and demolition of buildings, development of policies and regulations and providing goods and services to communities. Investment in sustainable waste infrastructure needs to consider risk (eg, availability of offshore recycling markets, disaster events), and putting security and resilience (eg, climate change resilience) at its centre. Investment also needs to consider existing infrastructure and how these facilities fit into providing current and future services.

Requirements for services and processing facilities are being considered by the Ministry for the Environment. This includes the introduction of a container return scheme, and the need for better data collection to monitor and measure waste improvement over time. Our Council and city will have a role to play in supporting this.

Changes to kerbside collections are also coming. We must consider the best ways to collect recyclables and organics from households, including multi-unit dwellings, and from businesses and organisations. We must recognise that as the city's population continues to grow and more people move into apartment living, the way in which we provide waste services must also adapt

ensuring equitable service to all Wellingtonians. In Melbourne, bookable bins for hard waste and e-waste collections are available for this purpose.

Organic waste reduction results in emission reductions. Tauranga City Council have shown how quickly change can occur - within one year of introducing food scraps and garden waste collection, waste going to landfill has almost halved. The results from the Para Kai trial indicated that if a weekly food waste collection service is introduced in the current collections schedule, approximately 37% of food scrap will be diverted from landfill. A plan will need to be in place to develop the market for use of the products generated by organics processing. We'll consider adjusting frequencies of collection - for example reducing collection of residual waste from weekly to fortnightly or monthly, and retaining or increasing the frequency of recyclables and introducing weekly organic waste collection.

We are trialling battery recycling drop-off locations around the city, through community centres, libraries and the Tip Shop, although more could be done to raise awareness of these services; e-waste can be dropped off at the Tip Shop. Many e-waste items received by the Tip Shop are refurbished and tested, with mobile devices and computers reset, and sold in the shop or on TradeMe. Lower quality items are broken down for parts or for recycling. Sustainability Trust offers similar collection services, working with local partners to redistribute working items and recycle others.



Most small household appliances, digital devices and office equipment can be accepted by both. However, many residents stockpile their old items or send them to landfill as there is little awareness of these services and disposing of e-waste and other tricky household items is inconvenient. We must consider how we can make these services more accessible in a way that works for the future city intensification, such as providing drop-off points in all town centres. This will be essential as we progress housing intensification, pedestrianisation, and reduced parking availability through the Let's Get Wellington Moving infrastructure investments.

Wellington is growing rapidly. Our waste service infrastructure will need to cater to the growth of our city; that means collections, processing, disposal, chain of custody, advocacy and resilience. This is an opportunity to understand the mix of options, standardisation vs customisation of services and charging mechanisms to align with the strategic objectives in this document. For example, improving and providing long-term sustainable waste solutions will require each of us to take more responsibility to reduce the amount of waste we produce and to seek new ways to repurpose materials rather than dispose of items. To support this, this strategy sets a way forward to plan, implement and deliver a range of sustainable waste infrastructure and services that are attractive and accessible to Wellingtonians. This may for example include, establishing a network of resource recovery facilities for Wellingtonians to drop-off unwanted household items and purchase repaired and/

or good quality pre-loved items, partnering with community and social enterprises to deliver strong outreach education programmes, and providing all Wellingtonians with an attractive and accessible kerbside collection service for a range of items including food scraps. We must also recognise that as the city's population continues to grow and more people move into apartment living, the way in which we provide waste services must also adapt ensuring equitable service to all Wellingtonians.

### **Standardise provision in our own facilities and events**

We want to set an example for the city by putting best practice into place at our facilities and events. We want to ensure our staff know how to avoid and reduce waste creation and appropriate recycling behaviours are followed. It will require setting standards and expectations that are consistent across the organisation, with budgets to enable it. This means providing a level of service that is predictable and exemplifies best practice across the waste hierarchy. This demonstrates our ability to discard waste appropriately so that recycling and composting can occur, while encouraging and enabling activity at the top of the waste hierarchy like sharing and reuse.

### **Grow repair, reuse, and second-hand services and initiatives.**

When it comes to household items and consumables, resources can be given an extended or new life through repair and reuse. We can facilitate the expansion of the repair economy by encouraging consumers

to choose alternatives to landfill.

In conjunction with promoting repair and reuse consumer behaviours, we'll work with businesses and organisations keen to establish repair and reuse services. This repair and reuse economy is a critical part of the circular economy and is beginning at a grassroots level, but there is a limit to what is possible without active support. We already have a seed fund available for innovative solutions to reducing waste, however, capacity and capability to deliver such services needs incubation of talent on a larger scale. Many skills to repair products have been depleted and it will take time to regrow this skillset across many industries, such as electronic goods, furniture and toys. Growing the repair economy will not only reduce waste, but also add value to the local economy. We have indicated in the Economic Wellbeing Strategy the work that will be needed to develop skills for the future. This may be through promotion of local repair businesses and continued support of initiatives like the Sustainability Trust's RepairEd programme, the Tip Shops E-waste diversion activities, and repair cafes.

For appliances and bulky household items, we want to support the 'right to repair' movement across the globe. This focuses on the consumer and independent repairer's rights to repair goods which requires products to be designed in a way that is easily repairable. However, this can be considered a barrier to technological progress, hindering the movement. Another option is in changing the business model to a pay to access rather than pay to own, in which case the business



retains the responsibility for repairing items. It's likely that both models will advance, depending on the level of complexity and technology involved. Enabling DIY repairs is considered empowering for citizens as the journey of learning new skills is uplifting and provides opportunities for social connection. We'll consider opportunities to facilitate the repair economy through running fix it events or providing spaces for repair services and workshops to establish. We'll also encourage retailers to voluntarily participate in

Product Stewardship and take back old goods and packaging materials when supplying new goods to consumers - building a repair, reuse, and repurpose economy. The second-hand economy is reasonably well established with the likes of TradeMe, Cash Converters, Opportunity Shops, The Tip Shop, and other trading stores that enable the economic exchange of pre-loved items. However, there is still plenty of room for this to grow. Part of the challenge is encouraging more people to realise the benefits of this. Many people who are time-

poor may find this challenging, so alternative drop-off or collection opportunities may be needed. Active promotion of options for repurposing items and purchasing second-hand may be necessary to normalise this activity. Furthermore, a sharing economy successfully facilitates sharing of goods that are infrequently used, which reduces demand for purchasing individual items. This can be facilitated through physical and virtual libraries and rental services.

## Provide information so residents know what to do

We want to influence household behaviours and patterns of consumption, from enabling efficient use of leftovers at the end of the week, encouraging ‘slow-fashion’, to encourage buying second-hand clothing or furniture.

Holistic behaviour change programmes are proven to be effective in changing social norms and actively engaging communities. We’ll establish campaigns and behaviour change programmes to raise awareness and encourage change, help people find information they need, navigate recycling systems, and support reuse and repair. We currently have a limited resource for behaviour change activity. We have strong relationships with community-based and not-for-profit groups and largely work with schools. We will need to increase our behaviour change resources to extend this work across businesses and consumers to significantly reduce waste to landfill. To be successful in this we’ll adopt techniques that are most likely to motivate individuals through their own self-interests - ideas and messaging that support people to feel competent, needed, and enhance quality of life.

The greatest opportunity in household and community waste reduction is organics, plastics and e-waste. We can teach people how to do organic composting at home and provide better information on how to recycle plastics and e-waste. Behaviour change works best when the infrastructure and services change alongside it to enable the right behaviours. As container return schemes become active, we’ll have a prime opportunity to promote plastic recycling. We’ll also actively promote where and how to extend the life of products and encourage active engagement in the repair and reuse economy. Investing in public drinking water access and having policies to facilitate public drinking water access at shops and other facilities, will assist in reducing single use plastic bottles.

## Priority actions

- Support the provision of consistent, equitable and accessible collection services, drop off points and community zero waste hubs.
- Support Wellington’s reuse, repair and recycling capacity by acting as a catalyst for other investment.
- Deliver value for money and effective waste reduction services to Wellingtonians.
- Innovation encouraged to support delivery of Wellingtons transition to a zero-waste future.
- Monitoring and evaluation of waste arisings (salvage of secondary or waste products) to support effective policy making and insights.
- Deliver lasting behaviour change interventions by making people understand the benefits of change and then helping them make that long term change easy.
- Work with Central Government agencies to inform and shape system changes to support the transition to zero waste.
- Promote and encourage the reuse of materials for the same purpose and recover materials so that they can be reused throughout Wellington.
- Increase the amount of material that is recovered, reused and recycled to minimise waste and reduce the amount of virgin materials used in production.
- Work with Mana Whenua partners and other stakeholders to scale up interventions to support the citywide goal to be a leader in minimising the use of resources and maximisation of reuse and recovery.





# Whāinga 3: Kia whakatūria ngā pūnaha me te tūāhanga e tika ana, hei whakakaha ake i te hangarua

## Objective 3: Infrastructure and systems to increase resource circularity are established

We aim to decrease virgin material use and recover and process products and materials to keep resources in circulation for as long as possible.

### Why is this important?

This objective contributes to Outcome three - Resources are reused, recycled and composted / processed, repurposed and regenerated in Wellington.

It is critical that the collection of recyclable and reusable products and materials is accompanied by the reuse, repurposing and processing of these resources, retaining their value while decreasing the need for virgin resources. To achieve this, Wellington needs the right facilities to return resources into valuable outputs. We need to identify the degree of intervention the Council should play in the market for the reuse, recycling and processing of products and resources. To do this, the Council will work with businesses to support the development of reprocessing facilities; where it makes greater sense for the community to own the

facility, the Council can investigate the case for investment. Having the facilities in place also provides residents with confidence that their efforts are paying off.

Not only do we need new facilities and regulations to cater for the waste Wellington already produces, but as the city grows, the facilities and regulations will need to cater for the current and future population. This is an opportunity to understand the mix of options, standardisation versus customisation of services and charging mechanisms to align with the strategic objectives in this document.

One example of where the Council could support further resource recycling or reprocessing efforts in the city is with food and garden waste. Food waste, once processed, can improve soil health by returning natural resources to the ground. It also absorbs carbon rather than releasing it and reduces reliance on fertilisers and pesticides to improve

soil fertility. A broader outcome of healthy soils for the community is that healthy topsoil is also more resilient to flooding and droughts.<sup>58</sup>

However, not everyone can compost their organic waste. To address this, local authorities can intervene by investing in facilities to process organics on a large scale and then marketing the nutrient rich products, supporting local food production, nature reserves, parks, gardens and other green spaces.

Environmentalists in Japan have demonstrated how this can be undertaken successfully by harnessing their country's rich religious and cultural history to encourage a circular economy. 'Mottainai' is a Japanese expression of regret at the value of something not being used to its full potential, dating back to the 15th century.

This expression reflects the idea that people should respect all objects and not waste them. This was disseminated as a slogan to encourage citizens to reuse and repurpose their products and demonstrates why communication is crucial to the implementation of regenerative practices.

## Our approach

### Use market demand to inform outputs from processed resources

In order to understand the demand for the outputs of processed resources, what needs to be understood are the opportunities and potential markets for these products. This is essential for establishing the right facilities with

the right technologies and will help to inform any potential investment requirements. It will also inform the Council of partnership opportunities with different organisations and businesses that have an interest in enabling innovation and commercialisation of processed products. We will undertake an investigation into the potential market opportunities and work with businesses, and research and innovation organisations to identify and make progress. This investigation will consider gaps in market offerings or supply issues as well as what technologies are available to progress ideas. Supply of building materials is an obvious consideration, where supply of products may be strained and alternative products from recycled materials may present a long-term solution. We'll consider all types of materials, with a specific focus on our priority waste streams - organics, plastics, and construction and demolition. We also need to consider how we can support advancing technologies so that plastics are recycled to add value, rather than losing their value. We'll support businesses to establish recycling and re-engineering of plastics.

### Invest in organics processing

The Council will undertake a detailed investigation to consider the benefits of investing in an organics capture/collection and processing system to manage the city's significant volume of organic waste. This will require investigating technology and site options and then, if investment is decided, building the processing

plant(s). Any plant(s) would need to have robust design measures to ensure that community health and safety, as well environmental impacts, are mitigated.

Other cities around the world and the country are already delivering organic kerbside collections which are achieving significant waste reductions. The Para Kai Miramar Peninsula Trial, which concluded in early 2022, provided 500 households with a weekly kerbside food scrap collection service. Another 450 households were provided a compost bin, worm farm or bokashi system. Surveys and audits were undertaken to understand participant's perceptions and the amount of food scraps which was diverted from landfill. The findings of this trial will help inform organic waste processing and capture/collection options for residents. We'll need to consider what worked more effectively and how we'll fund organic materials solutions.

For businesses, we need to consider different issues in various locations and for different business types. Our local economy has some food production businesses, plenty of hospitality businesses, plus those businesses in grocery and landscaping. Hospitality will have a larger volume of food scraps than others and greater needs for collection services. Ensuring the solutions we implement are easy for businesses to adopt, regardless of the mechanisms used - for example, regulations, incentives, and education - is key. We need to ensure transparency of information to support customers to make informed decisions.

58 [ellenmacarthurfoundation.org/regenerate-nature](https://ellenmacarthurfoundation.org/regenerate-nature)



## Invest in construction and demolition resource recovery facilities and to facilitate sector change

Regionally, approximately 600 thousand tonnes a year of construction and demolition material go into landfills - three times the amount of general waste (200 thousand tonnes). The Council, together with construction sector stakeholders, must consider the opportunities for sorting, reusing and repurposing construction and demolition materials. We have levers in place that enable us to require waste management and minimisation plans by developments over \$2 million. However, there is not sufficient resourcing or processes to critique, provide support, and enforce these plans. Regionally, an automated calculator has been developed that shows the baseline requirements based on value and size of a construction process which, over time, could be developed to support this.

Added to this, New Zealand does not currently have national legislation surrounding construction and demolition deconstructing practices, making it difficult for local authorities to create proper and consistent criteria. Central Government intervention and leadership will help to support the market shifts required. Kāinga Ora adopted an 80% diversion from landfill target. They have worked with a deconstruction company in Auckland on their first pilot involving deconstruction of 10 homes and rebuilding 50 homes - and achieved 85% diversion.



Regionally

# 600 thousand tonnes

a year of construction and demolition waste go into landfills, which is about three times the amount of general waste (200 thousand tonnes a year)

In Auckland, pilot programmes have proven it's possible to deconstruct a house at equal or better pricing than demolition and have successfully diverted 87% of the material from landfill. Evidence indicated that material sorting should ideally occur at the development site to minimise the potential damage and contamination. Some smaller collectors provide residential refurbishments with skips bins and do a sort at the depot before sending the non-valuable items to the landfill. Given Wellington's density and topography, the Council will need to undertake further investigation to consider what would work best for our city to achieve a target rate of 80% diversion from landfill as the city undertakes further intensification.

Not only does Wellington need services in the city for deconstruction, but we also need a facility that can receive, store and market the materials for reuse, repurposing, and regenerating. This facility needs to be in place

as soon as practical - likely in the three-to-five-year horizon. For too long it's been too easy to throw construction and demolition waste into a hole in the ground. The wrong incentives have been in place for the landfill operators meaning the profit comes from filling the hole. The Council will explore the potential for requiring the Class 2-4 landfill operators to run mandatory diversion and recycling facilities or developing our own, for example at Kiwi Point Quarry. We will also support the sector to develop the end markets for the reuse and recycled materials.

## Incentivise compliance of Council's regulations to ensure all resources are recovered

In order to successfully minimise waste in Wellington, the Council will need to review our regulatory levers to ensure they are fit-for-purpose, effective, and ultimately leading to change in the sectors which are the largest contributors to waste in Wellington. This is particularly crucial given possible regulatory changes being considered by central government.

The Ministry for the Environment has recently released (as at March 2023) the new Te rautaki para Waste strategy which includes a series of priority actions including introducing a nationwide standardized kerbside collection of household food scraps to all urban households by 2030. In addition to providing accessible and convenient organic diversion services, this anticipated change will require adequate enforcement resource to ensure compliance.

The Council can also consider our own bylaws and advocate to central

government for change. Through the Waste Bylaw the Council requires Waste Management Plans to be provided and reported on (for significant events, multi-unit developments and larger construction projects worth more than \$2 million). This will mean that applicants/developers/organisers will need to think carefully about how materials are managed, and then report back to the Council. We also have a provision for licencing construction and demolition waste operators. Through this process (which is under development) the Council will have the ability to influence how these materials are managed, but there needs to be appropriate infrastructure in place for these materials to be recovered.

There currently is not sufficient resourcing for the review, approval and enforcement of the Construction and Demolition Waste Management Plans. To date, the Council's resources to undertake enforcement of the Waste Bylaw

have had to be split between other regulatory compliance services the Council must deliver. We should consider providing examples of a good plan, and alternatives for the construction and demolition work. The resale network isn't currently in place; the Council needs to investigate what role we can play to stimulate this.

Furthermore, we should consider whether the \$2 million threshold is too high and whether reducing that amount to a lower figure, such as \$500,000, will encourage the reuse, recovery and resale network in the construction industry.

Considering the Council's compliance and enforcement levels of service for waste will be a visible and important piece in achieving our strategy. The regulatory component will be crucial to measure the performance and outcomes of the other actions the Council will be taking to minimise waste.

The Council's compliance and enforcement levels of service for waste will be a visible and important piece in achieving our strategy.

## Priority actions

- Support the provision of consistent, equitable and accessible kerbside recycling, organics and waste collection services, drop-off points and community zero waste hubs for Wellingtonians
- Work together with households, producers, collectors and reproducers to extract the maximum value possible from food that would otherwise be wasted
- Implement a kerbside organic collection and processing service to produce nutrient-rich products from organic waste that can be applied to soil and/or generate energy, depending on the technology selected
- Promote and encourage the reuse of materials for the same purpose and recover materials so that they can be reused throughout Wellington
- Work with mana whenua partners and other stakeholders to scale up interventions to support the citywide goal to be a leader in minimising the use of resources and maximisation of reuse and recovery
- Create a waste ecosystem that demands and influences the right behaviours for desired outcomes
- Support the creation of markets for secondary materials.

## **Whāinga 4: He haumarū te tukatuka o ngā para kāore e taea ana te raungaiti, te tukurua, te tapi, te hangarua rānei.**

Objective 4: Waste that cannot be avoided, reduced, reused, repaired or recycled is managed safely

We aim to treat waste infrastructure built today as a finite resource and carefully manage it, working to preserve its capacity and lifespan as long as possible, and without harm or leakage to the environment.

### **Why is this important?**

This objective contributes to Outcome Four - Landfill capacity is treated as a finite resource. The Council is currently operating the city's 37th landfill in 157 years. We are committed to ending the legacy of digging new landfills every time one is filled. The Council's aspiration is that the Southern Landfill located at Happy Valley is the city's last one, however the city will continue to need landfill capacity for some time yet as transitioning our economy to ensure products and materials are reused, recycled and processed requires time to build the right facilities to collect, repair, process and remanufacture, and to undertake behaviour change. It will also take time for global product redesign to completely design waste out of the system.

The role of a landfill is to manage waste through burying waste materials. Landfills are also a critical piece of infrastructure to support the resilience of cities, particularly when managing and disposing of waste materials safely in response to emergencies and natural disasters. The COVID-19 Pandemic illustrated how crucial core municipal functions such as landfills are, as they were required to safely manage the significant increase in medical waste, as well as household waste due to people spending more time at home. Landfills are crucial infrastructure to maintain the resilience of cities.

Without landfills, people would dump waste in vacant spots and create an unhealthy environment. Landfills themselves can also have negative effects on nearby residents, wildlife and waterways, so it is vitally important that landfill sites are well-managed. This includes



preventing animals from feeding off the landfill and ensuring the design of the landfill prevents leachate and enables gas capture. As Wellington eliminates the need for landfills, there will continue to be legacy hazardous waste products that will require disposal and management while mitigating possible risks to the health and safety of our people and environment. Hazardous waste requires segregation and management to prevent environmental and population health issues. Hazardous waste contains materials that may catch fire, explode or be corrosive or toxic and can include asbestos, paints, cleaners, batteries, pesticides and aerosol cans.

## Our approach

### **Allow only resources that cannot be reused or recycled in the landfill**

Currently, approximately 1,745 tonnes of waste are deposited into the Southern Landfill every week. Without change, this will increase as the population grows. About a quarter of this is special waste, or potentially hazardous waste. The bulk of this is made up of sludge disposal. As described in Objective 1, the Council is re-developing our approach to managing sludge; this will unlock the potential for reuse, recycling and processing of waste as resources.

The Ministry for the Environment are also increasing the waste disposal levy from \$10/tonne to \$60/tonne by 2024. This will increase the pool of funds available to Wellington City Council in direct levies and via targeted funding from the Ministry

for the Environment. Significant waste reduction to landfill will also reduce our emissions trading scheme financial liability.

This will enable a shift to treat the landfill as a precious asset and means only allowing that which cannot be avoided, reduced, reused, recycled or processed, into the landfill. If this can be achieved, Wellington city should not need another landfill - at least not for a very long time.

Delivering on the first three objectives and prioritising investments needed to enable reuse, recycling, and processing of resources will result in the decreased reliance on landfill capacity. Regulations, education, and enforcement will also support this shift. To ensure they are fit for purpose will require a review of the Council's policies and bylaws, as well as ensuring enforcement and education activities are geared for success. Looking at the process of delivering resources to the refuse transfer station, and how resources can be diverted from the landfill at this point, also requires investigation on how to achieve this safely.

Materials that cannot be reused or recycled include asbestos and contaminated soils. Asbestos, when airborne, provides a risk to peoples' health as it can enter the respiratory system. The use of asbestos was banned in the 1990s. As it is removed from buildings through demolition, there is a need to dispose of and manage it safely. The Council's current asbestos management protocols have been recently updated to be more stringent. The Council

will accept asbestos at the landfill from approved asbestos handlers, and it must be pelletised and double wrapped. The pellets are carefully placed into the landfill, GPS tagged and covered - an expensive process to manage.

Contaminated soils come from sites that have exposure to petroleum or chemicals, such as disestablished petrol stations. Materials must be tested first, and disposers must inform the landfill of what contaminants the soil contains. The current consent conditions require contaminated soil to be disposed of in the landfill - if the consent allows, it could be used as capping material. As landfill capacity is decreasing, contractors will need to identify alternative locations for this material.

### **Capture gas emissions from landfill**

Capturing gas emissions from the landfill and convert this to energy cleanly involves installing wells and pipes to capture the gas to an electricity generator. The Council has been doing this for the past 20 years but have gained little benefit from the process. Added to this, the Council must pay for the greenhouse gas emissions under the Emissions Trading Scheme (ETS) based on calculation of our unique emission factor (UEF); our current UEF is 0.89:1. By establishing new contractual arrangements with a specialist landfill gas capture service provider, the Council has incentivised UEF reduction, assisting carbon footprint reduction and better utilising the gas available, in turn reducing our payments under the ETS.

## Address immediate cleanfill gaps

Wellington City has two cleanfill sites in the region for construction and demolition waste, however one has recently reached capacity and the other is considering closure as it nears its current capacity. This creates an immediate issue with regards to where and how Wellington's construction and demolition waste can be disposed, as well as testing the resilience of the city's waste system when managing waste from slips and floods. Without addressing this gap, the Southern Landfill may become the only option for disposing of cleanfill, which will consume the limited capacity available there. The other alternative is transferring cleanfill waste out of the region.

The Council is already acting to address this issue, with a new cleanfill site at Kiwi Point Quarry planned to be operational early in 2023. However, this is a short-to-medium term solution. More work is required to include the full waste hierarchy process to minimise the volumes going straight to landfill. The Council will investigate where and how best to facilitate or provide construction and demolition sorting and remanufacturing services and the required infrastructure to do this.

## Increase resilience to reduce our waste system's vulnerability

The COVID-19 pandemic impacted nearly every aspect of running a city, including the management of waste. The pandemic produced increased quantities of household waste due to national and localised lockdown orders, and produced increased hazardous medical waste from both medical facilities and households.

The global pandemic, as well as the range of disaster events across Aotearoa New Zealand, has exposed vulnerabilities in the resilience of our waste system and has increased the risk of system failure. The traditional approach to increasing waste system resilience has been to plan for post-event response and recovery. To help change the way Wellington manages waste into the future, system resilience needs to include greater focus on the role it plays before an event.

The Zero Waste Strategy aims to increase resilience to reduce our waste system's vulnerability to natural and socio-economic events, and to support our city to absorb, accommodate, adapt to, transform and recover from the effects of a hazard. Increasing system resilience is complex due to the diverse network of partners and stakeholders and the evaluation needed to assess physical, social, economic, and natural conditions.

The Zero Waste Strategy, supported by the Wellington Waste Action Plan, will aim to build waste system resilience by:

- Building a socio-economically resilient waste management system that can build back stronger faster and better after a shock (eg, China National Sword) or disaster (eg, earthquakes, biosecurity incursions)
- Shift from disaster event management to proactive disaster event risk management
- Establishing long-term local and regional resilience strategies.

## Priority actions

- Manage the treatment and disposal of sludge
- Provide for and manage emergency waste
- Safely manage hazardous waste
- Ongoing management of the Southern landfill and Wellington's closed landfills to support Wellington's transition to a zero waste city
- Work with Mana Whenua partners and other stakeholders to scale up interventions to recover and divert as much product and material from landfill as possible
- Ensure that any remaining waste is appropriately managed at Southern Landfill to protect our environment.





Jenbacher  
gas engines



# Te Rautaki Para Kore me te Hōtaka Para Kore

## Zero Waste Strategy and the Zero Waste Programme

To enable this strategy, the Council is developing an accompanying WCC Local Waste Action Plan which will contribute to an equivalent plan of the Wellington region, the Wellington Regional Waste Management and Minimisation Plan.

This strategy is a key contributor to the wider direction setting of the Council’s Zero Waste Programme. The Zero Waste Programme is the Council’s delivery vehicle for zero waste projects and initiatives in Wellington.

This programme is a part of the Council’s Priority Investment Programme, reflecting the significant level of investment the Council is committing to reduce waste in our city. The Council’s Investment Delivery Framework is a quality assurance and financial viability assessment tool. This framework is being applied to the Programme’s projects and initiatives to help assess their viability.

### Reporting on progress

Regular reporting on the strategy and accompanying action plan will take place through the Zero Waste Programme governance structure and the Priority Investment Reporting (quarterly). This will include measurement and reporting on progress towards the strategy’s outcomes.

A review of this strategy will take place in 18 months’ time. This will primarily assess progress on the priority actions.

## The Zero Waste Programme

Programme Governance		
Programme Management		
WMMP Action Plan 2023–29 Regional WMMP 2023–29	Regional Waste Assessment	Behavioural Change Programme (Business & Residential)
Organics Processing	Rethinking Collections (kerbside)	Resource Recovery Network Expansion
Residual Waste – Southern Landfill Extension Piggyback Option	Construction and Demolition Landfills	Biosolids Reuse Strategy



E-WASTE

DROP OFF

NO walk ups

Join the Queue

Line up  
outside  
Counter

Find out more at [COVID-19.govt.nz](https://www.govt.nz)

UNACCEPTED ITEMS  
DUE TO SPACE AND MARKET DEMANDS

JHF 422

# Appendix A: Zero Waste Strategy Glossary

## **Anaerobic digestion**

Microbial breakdown of organic matter in the absence of oxygen.

In a circular economy, anaerobic digestion can be used to convert food by-products, sewage sludge, and other biodegradable materials into biogas and digestates (or 'biosolids'). Biogas can be used as a fuel for vehicles or used to generate electricity. Digestate (or biosolids) can be used as a fertiliser and supply of organic matter.

## **Biological cycle**

The processes - such as composting and anaerobic digestion - that together help to regenerate natural capital. The only materials suitable for these processes are those that can be safely returned to the biosphere.

## **Circular economy**

A systems solution framework that tackles global challenges like climate change, biodiversity loss, waste, and pollution. It is based on three principles, driven by design: eliminate waste and pollution, circulate products and materials (at their highest value), and regenerate nature. It is underpinned by a transition to renewable energy and materials. Transitioning to a circular economy entails decoupling economic activity from the consumption of finite resources. This represents a systemic shift that builds long-term resilience, generates business and economic opportunities, and provides environmental and societal benefits.

## **Composting**

Microbial breakdown of organic matter in the presence of oxygen.

In a circular economy, composting can be used to convert food by-products and other

biodegradable materials into compost, which can be used as a nutrient-rich soil improver.

## **Design for circular economy**

For products to be successfully circulated in either the biological or the technical cycle, it is essential they have been designed with their eventual circulation in mind. There are many products in our current economy that cannot be circulated in either cycle and end up as waste. There are products that fuse technical and biological materials in such a way that we can't separate them and circulate them - for example, textiles that blend natural and plastic fibres. If designers thought about how their product could fit into the technical or biological cycles after use, that product could be made with that onward path in mind. For example, products destined for technical cycles would benefit from being easy to repair and maintain, easy to take apart, and made of modular components that can be replaced. They could be durable enough to withstand the wear and tear of many users. And they could be made from materials that are easily recycled. If products like wooden furniture were designed - as well as to be easy to maintain and repair - with the biological cycle in mind, their biodegradable materials (like wood) would be easily separated from their technical materials (like screws) and if glues and paints were used they would be biodegradable.

## **Durability**

The ability of a product, component or material to remain functional and relevant when used as intended. Durability often applies to the physical attributes of a product (its ability to resist damage and wear), though with some products

durability can be technological (for example the ability of software to be upgraded many times), and it can be emotional (for example the ability of certain clothes to stay desirable over time).

## **Finite Materials**

Materials that are non-renewable on timescales relevant to the economy, ie not geological timescales. Examples include: metals and minerals; fossil forms of carbon such as oil, coal, and natural gas; and sand, rocks, and stones.

## **Lifespan/Lifetime**

The period of time from when a product is released for use after manufacture to the moment it becomes obsolete beyond recovery at product level.

## **Linear economy**

An economy in which finite resources are extracted to make products that are used - generally not to their full potential - and then thrown away ('take-make-waste').

It is a wasteful and polluting system that degrades natural systems.

## **Product and material circularity**

The second principle of the circular economy is to circulate products and materials at their highest value. This means keeping materials in use, either as a product or, when that can no longer be used, as components or raw materials. This way, nothing becomes waste and the intrinsic value of products and materials are retained.

There are a number of ways products and materials can be kept in circulation and it is helpful to think about two fundamental cycles - the technical cycle and the biological cycle. In the technical cycle, products are reused, repaired, remanufactured, and recycled. In



the biological cycle, biodegradable materials are returned to the earth through processes like composting and anaerobic digestion.

### **Recycle**

Transform a product or component into its basic materials or substances and reprocessing them into new materials.

Embedded energy and value are lost in the process. In a circular economy, recycling is the last resort action.

### **Redistribute**

Divert a product from its intended market to another customer so it is used at high value instead of becoming waste. For example, a supermarket can redistribute surplus edible food to a food-bank.

### **Refurbish**

Return a product to good working order. This can include repairing or replacing components, updating specifications, and improving cosmetic appearance.

### **Regenerate nature**

The third principle of the circular economy is to regenerate nature. By moving from a take-make-waste linear economy to a circular economy, we support natural processes and leave more room for nature to thrive.

### **Regenerative production**

Regenerative production provides food and materials in ways that support positive outcomes for nature, which include but are not limited to: healthy and stable soils, improved local biodiversity, improved air and water quality.

### **Remanufacture**

Re-engineer products and components to as-new condition with the same, or improved, level of performance as a newly manufactured one.

Remanufactured products or components are typically provided with a warranty that is equivalent to or better than that of the newly manufactured product.

### **Renewable energy**

Energy derived from resources that are not depleted on timescales relevant to the economy, ie not geological timescales. Examples include: wind, solar, hydropower, hydrothermal, ocean (wave and tidal), geothermal, and biogas from anaerobic digestion.

### **Repair**

Operation by which a faulty or broken product or component is returned back to a usable state to fulfil its intended use.

### **Repairability**

The ease with which a product or component can be repaired.

### **Repurpose**

Repurposing includes food rescue and using unwanted by-products from one process as the raw materials for another process.

### **Reuse**

The repeated use of a product or component for its intended purpose without significant modification. Small adjustments and cleaning of the component or product may be necessary to prepare for the next use.

### **Reuse Economy**

The reuse economy consists of systems and services that extend or maximise a products lifespan through; maintenance, repair or refurbishment to retain value, usefulness and function; remanufacture with disassembled parts; repurpose products for alternative uses.

### **Reusable Packaging**

Reuseable packaging is designed for multiple trips or rotations so it can be refilled or reused for the same purpose for which it was developed.

### **Sharing**

The use of a product by multiple users. It is a practice that retains the highest value of a product by extending its use period. Sharing reduces product overduplication and under-utilisation and therefore reduces resource usage.

### **Sharing Economy**

A model in which goods and resources are shared by individuals and groups in a collaborative way (eg library systems for books, tools or toys, laundromats or public transport and car-sharing systems).

### **Technical cycle**

In the technical cycle, products and materials are kept in circulation through processes such as reuse, repair, remanufacture and recycling.

### **Virgin materials**

Materials that have not yet been used in the economy. These include both finite materials (eg iron ore mined from the ground) and renewable resources (eg newly produced cotton).

### **Zero waste**

The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.

Sources:

How to Build a Circular Economy  
Ellen MacArthur Foundation  
[environment.govt.nz/assets/publications/Te-rautaki-para-Waste-strategy.pdf](https://environment.govt.nz/assets/publications/Te-rautaki-para-Waste-strategy.pdf)

Zero Waste Definition - Zero Waste International Alliance ([zwia.org](http://zwia.org))





★ELECTRONICS

Woman in a red shirt working in the background.

Person holding a red stuffed lion in the foreground.

Can Co TO

Mountain





EXIT

HAPPINESS

GINGER BEER KIT  
GINGER BEER KIT

MAXIMUM WEIGHT  
TABLE 50kg  
MOUNTAIN

Pinket



