



Glenorchy
City Council

2025

Waste and Resource Recovery Strategy

Prepared by CoastEco Consulting Pty Ltd
In association with Athena Waste Management

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ABBREVIATIONS AND GLOSSARY

C&D	construction and demolition	MBT	mechanical biological treatment
C&I	commercial and industrial	MRF	materials recovery facility
CO2-e	carbon dioxide equivalent	MSW	municipal solid waste
EfW	energy-from-waste	MUD	multi-unit dwelling
EPA	Environment Protection Authority	PET	polyethylene terephthalate
FOGO	food organics and garden organics	PFAS	per- and poly-fluoroalkyl substances
GHG	greenhouse gas	RRC	resource recovery centre
HDPE	high-density polyethylene	SUPs	single use plastics
LDPE	low-density polyethylene	WRRS	waste and resource recovery strategy

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Acknowledgement of Aboriginal People and Country



GLENORCHY CITY COUNCIL ACKNOWLEDGES THE MUWININA PEOPLE AS THE TRADITIONAL OWNERS OF THIS LAND.

We recognise all Tasmanian Aboriginal people as the original owners and continuing custodians of the land and waters of this island, Lutruwita. We pay our respect to Aboriginal Elders, past and present. We commit to working in a way that welcomes and respects all Aboriginal and Torres Strait Islander people.



Executive Summary

Glenorchy City Council’s *Waste and Resource Recovery Strategy* provides direction on delivering effective and sustainable waste management in the city over the next five years.

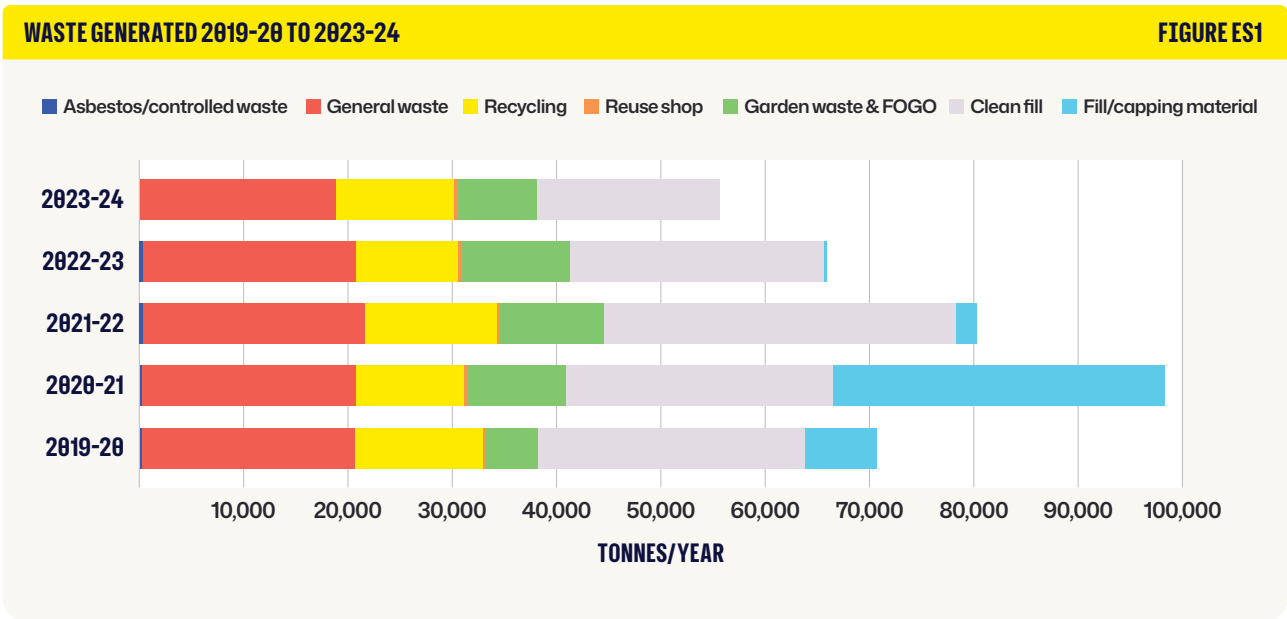
The strategy is based on the principles of a circular economy and waste minimisation – to prioritise reduction, reuse, repair, remanufacture and recycling of materials, avoiding disposal to landfill wherever possible.

The strategy aligns with Australian Government, Tasmanian Government and regional planning while focusing on areas that are within Council’s control, including delivery of services and infrastructure, educating and advocating for change, and governing where necessary.

The quantities of waste generated in Glenorchy over the past five financial years are shown in Figure ES1.

Figure ES1 shows that the total amount of material received each year is highly variable, mostly related to the amount of clean fill received at the Jackson Street landfill. While clean fill can be generated in large quantities, it is generally re-used and not deposited in landfill. The data shows that both landfilled waste and recovered resources peaked in 2021-22 but since then has shown a small reduction.

Overall, generation of both waste and recycling has remained relatively stable over the 5-year period. Significant changes to our consumption behaviours and improvements to Tasmanian recycling initiatives will be required to meet the challenge of reducing landfilled waste.





Glenorchy City Council provides waste, recycling and food organics and garden organics (FOGO) kerbside collection services to Glenorchy residents, as well as litter, illegal waste dumping, public place waste and recycling services.

The Jackson Street landfill is the major waste facility in Glenorchy; it offers drop-off facilities for various recyclable materials and is expected to fully utilise existing airspace in 2043.

An extension to the airspace is currently being considered; subject to EPA approval, landfill operations could continue at the site for an additional 35-40 years.

Further development of recovery opportunities (via a recycling hub) is planned at the site. A privately operated reuse shop is also located on the site.

The need for change to existing waste management is driven by both challenges and opportunities arising from different attitudes to use of diminishing resources, future regulations (to product stewardship and the use of plastics, among others), the need to reduce greenhouse gas emissions, the safe management of materials, and many other issues.

An action plan (summarised in Figure ES2) has been developed to reduce waste generation, minimise the amount of waste deposited in landfill, make separation and recovery systems more effective and improve circular economy outcomes.

ACTION PLAN SUMMARY

FIGURE ES2

Council Leadership

1.1	Continue to utilise Council procurement code in decision-making for tenders and contracts
1.2	Explore options for regional database on recycled content products for procurement
1.3	Explore options for development of regional best practice guidelines for recycling in new MUDs
1.4	Develop a policy which encourages venues and events to reduce waste, increase resource recovery and participate in circular economy
1.5	Continue to work with the EPA and TasWaste South on measures to reduce littering and illegal dumping
1.6	Advocate for relevant policy shifts and/or supporting regulation for: - appropriate changes to Tasmanian planning laws - stronger responses to extended producer responsibility - increased investment in recovery and recycling initiatives from the waste levy - local projects focusing on product repair, reuse and remanufacture
1.7	Maintain equitable 'user pays' approach to waste management costs
1.8	Maintain knowledge of waste management and resource recovery issues in Australia (including performance of EfW facilities)

Community Education

2.1	Support regional education planning and implementation by TasWaste South
2.2	Support TasWaste South development of a regional waste education centre
2.3	Amalgamate existing Council waste websites into single source of information
2.4	Continue to support information sharing through Rethink Waste Tasmania and TasWaste South
2.5	Encourage TasWaste South to develop a regional waste-wise business group for peer-to-peer learning
2.6	Ensure process is established for community feedback on regional waste education initiatives

Infrastructure & Services

3.1	Continue operations at Jackson Street landfill as long as possible
3.2	Continue to reduce GHG emissions by diverting food waste from landfill and capturing landfill gas for energy generation
3.3	Develop plan for future operations and development at Jackson Street landfill (including consideration of infrastructure upgrades such as use of solar panels and micro wind turbines to generate renewable energy, landfill leachate evaporation system)
3.4	Recycling hub developed at Jackson Street landfill
3.5	Consider development of expanded resource recovery centre (RRC) and transfer station at Jackson Street landfill

Infrastructure & Services

3.6	Assess future need for reuse area at Jackson Street landfill
3.7	Explore options for development of local recycling precinct in Glenorchy
3.8	As kerbside bins reach end of life, ensure replacements comply with Australian Standards
3.9	Consider replacing public litter and recycling bins at end of life with solar compacting bins at specific locations
3.10	Assess potential for expansion of public place recycling network
3.11	Address high contamination rates in FOGO and recycling collections
3.12	When Tasmanian recycling facilities are established for additional materials, explore options and feasibility of collection or drop-off systems for new materials
3.13	Consider regional options for increasing FOGO diversion from the commercial sector (including statewide lobbying)
3.14	Explore options for centralised collection of selected commercial waste streams
3.15	As part of annual landfill pricing review, consider - adequacy of price differential for disposal of separated materials and C&I waste - assess need to charge for selected recovered materials

Monitoring Performance

4.1	Support TasWaste South to undertake regular audits of regional waste and recycling bins
4.2	Undertake periodic landfill audits, with particular focus on C&I and C&D waste streams
4.3	Regular reporting of FOGO recycling contamination levels, materials, location, etc.
4.4	Monitor and record data on public place waste and recycling services
4.5	Publish relevant performance data on Council waste website
4.6	Expand annual Council community satisfaction survey to include more detailed feedback on waste services
4.7	Annual performance monitored and reported to Council
4.8	Undertake mid-term review of strategy

“SIGNIFICANT CHANGES
TO OUR CONSUMPTION
BEHAVIOURS AND
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REDUCING LANDFILLED
WASTE”



Vision & Principles

The *Glenorchy Waste and Resource Recovery Strategy 2025* has been developed to guide waste management and resource recovery planning in the City of Glenorchy for the next 5 years.

The vision and principles underlying development of the strategy are outlined below.

1.1 VISION

Glenorchy City Council has a vision for Glenorchy to be a clean, safe and vibrant city that works together to minimise waste and conserve resources for the future.

This is consistent with the aspirations outlined in Glenorchy City Council’s *Strategic Plan* (Glenorchy City Council 2023) and *Annual Plan 2024/25-2027/28* (Glenorchy City Council 2024), including the following objectives:

- delivering services to meet community needs
- working for a safe and clean City
- encouraging responsible growth
- managing community resources to deliver what matters most
- protecting and managing the natural environment and special places now and for the future.

In delivering this vision, this strategy builds on the goals identified in the *Glenorchy City Council Waste Management Strategy 2020*:

GOAL 1

To promote the sustainable management of resources

GOAL 2

To provide convenient and affordable waste services that meet the needs of the community

GOAL 3

To minimise negative impacts of waste on the natural and built environments.



1.2 PRINCIPLES

There are two key principles which underpin this strategy: **the circular economy** and **the waste hierarchy**.

These principles focus on optimising our use of the earth's finite resources and minimising the environmental impacts of our waste.

Circular Economy

Our current economic model is based on a linear 'take – make – throw away' use of resources. But a circular economy is one where resources are valued and reused efficiently, and discarded only when their component materials have no possible further use.

This concept is shown in Figure 1 overleaf.

A circular economy designs out waste and pollution, keeps materials in use as long as possible, and returns materials to the economy through efficient recycling processes. Materials may be reused, repaired, recycled and remanufactured into different products many times before reaching their ultimate end of life. A circular economy minimises environmental impacts by reducing consumption of finite natural resources and limiting the amount of waste to landfill, both of which help to avoid climate and ecological degradation. Its success relies on each participant in the economy playing

their part in effective material management systems – designers, manufacturers, retailers, consumers, recyclers and waste managers. The circular economy principles are built into Australian legislation and Tasmanian waste planning frameworks.

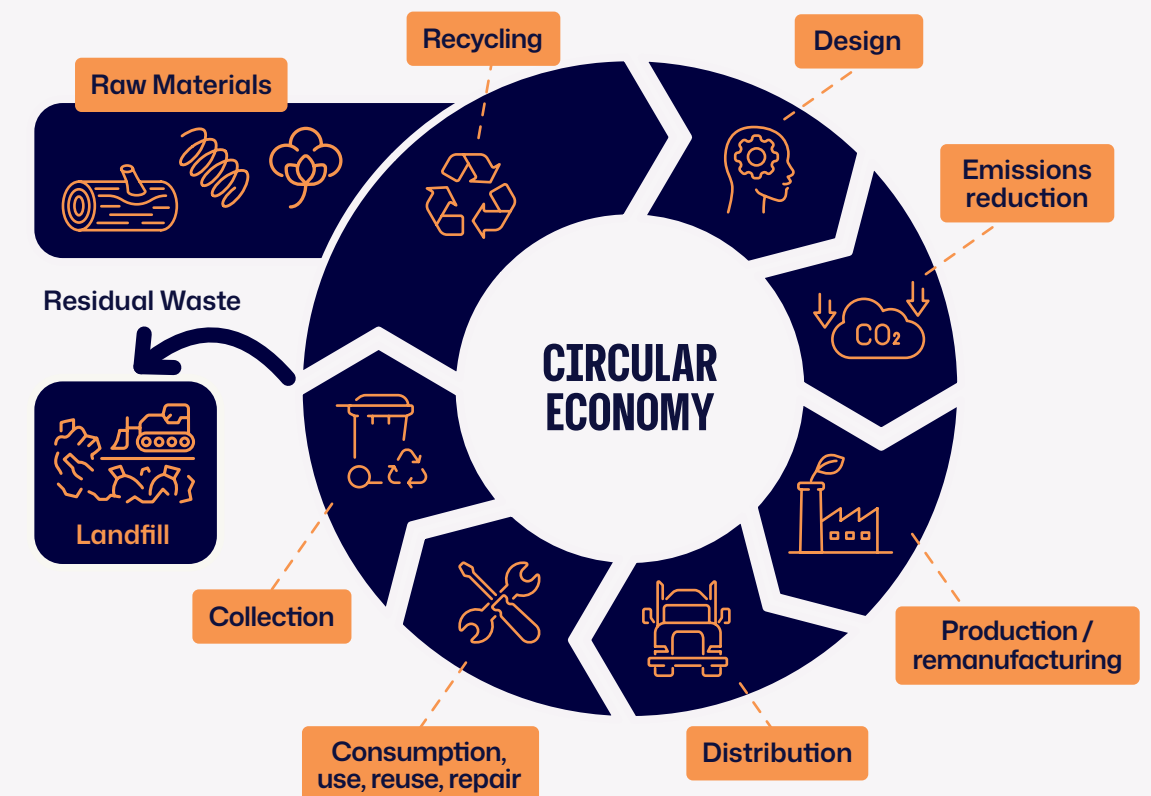
Waste Management Hierarchy

The waste hierarchy states that waste should be managed in order of preference (as shown in Figure 2) – avoid, reduce, recycle, recover (including energy), treat (to reduce impacts) and dispose to landfill only as a last resort.

The hierarchy has been the foundation of Australian waste legislation for many years.

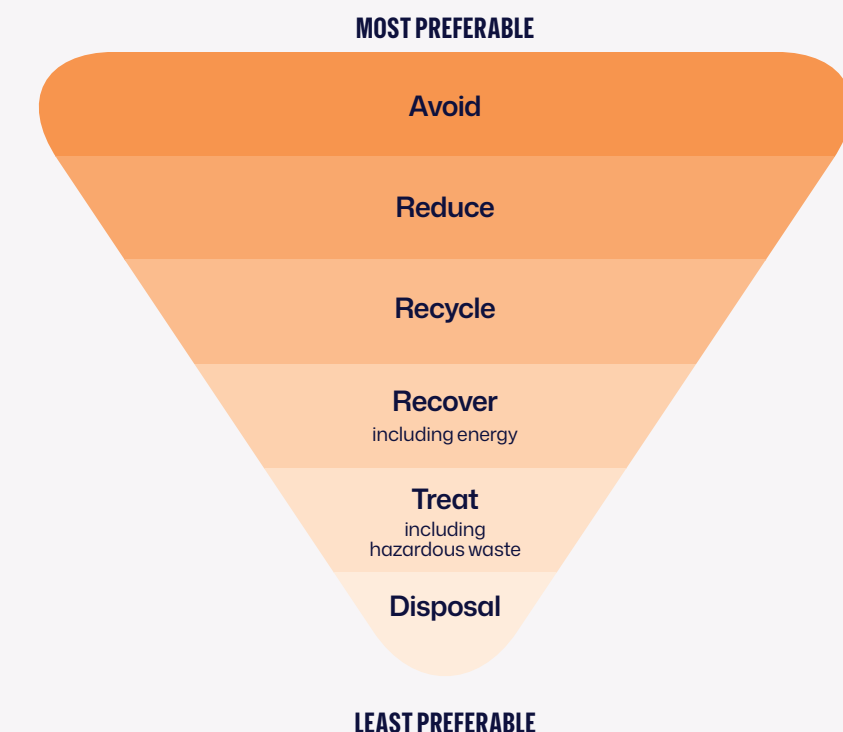
CIRCULAR ECONOMY

FIGURE 1



WASTE MANAGEMENT HIERARCHY

FIGURE 2



Strategic and Policy Context

The *Glenorchy Waste and Resource Recovery Strategy* is influenced by national, state and local government acts, legislation and policies, as well as state and regional initiatives.

These are discussed in the following sections.

2.1 NATIONAL

Australia's Circular Economy Framework (DCCEEW 2024) was released in December 2024 and is intended to drive a transition to a circular economy and ensure efficient use of resources and materials.

With the goal of doubling the circularity of the economy by 2035, it prioritises remanufacturing and recycling; design for durability, reuse and lightweighting; reuse of buildings; industrial symbiosis; product as a service; and reducing food waste.

The framework establishes three key targets:

1. shrinking our per capita material footprint by 10%
2. lifting material productivity by 30%
3. safely recovering 80% of our resources.

The *National Waste Policy Less Waste More Resources 2018-2030* provides a national framework for waste and resource recovery.

The policy treats waste as a resource and applies circular economy principles to a whole of waste management system with overarching principles and strategies to:

- Avoid waste
- Improve resource recovery
- Increase the use of recycled material and build demand and markets for recycled products
- Better manage material flows to benefit human health, the environment and the economy
- Improve information to support innovation, guide investment and enable informed consumer decisions.

Targets and actions to implement these strategies are incorporated in the *National Waste Policy Action Plan 2019*, which includes national targets to:

- reduce total waste generated in Australia by 10% per person by 2030
- achieve 80% average resource recovery rate from all waste streams following the waste hierarchy by 2030
- significantly increase the use of recycled content by government and industry
- phase out problematic and unnecessary plastics by 2025
- halve the amount of organic waste sent to landfill by 2030
- make comprehensive, economy-wide and timely data publicly available to support better consumer, investment and policy decision
- ban the export of waste plastic, paper, glass and tyres.

The *Recycling and Waste Reduction Act 2020* establishes a national framework to regulate the export of waste materials and manage the impacts of products, including through voluntary, co-regulatory and mandatory product stewardship schemes. The Act is currently undergoing statutory review, with revised legislation expected in late 2025.

National product stewardship arrangements regulated under the Act address waste oil, packaging, and televisions and computers. Other voluntary schemes (led by industry) incorporate batteries, tyres, paint and mobile phones, while coverage of other products (such as bedding, clothing and solar panels) is under development. A priority list for development of other product stewardship arrangements is usually released each year, however a current list has not been released due to the review of the Act.

The Commonwealth Government also

establishes National Environment Protection Measures (NEPMs) that set the basis for agreed national objectives for protecting or managing particular aspects of the environment. Current waste-related NEPMs address used packaging materials and the movement of hazardous waste between states/territories.

National plans and strategies for some materials have also been developed, with others yet to be finalised:

- The *National Food Waste Strategy 2017* aims to reduce food waste by 50% by 2030 by prioritising policy, market development, business improvement and behaviour change.
- The *National Plastics Plan 2021* establishes targets to address Australia’s plastics problem through multiple interventions across the entire plastics lifecycle, including the waste export ban on unsorted mixed plastics. The plan supports the Australian Packaging Covenant Organisation (APCO) industry-led product stewardship scheme to meet the agreement to make 100% of packaging in Australia reusable, recyclable or compostable by 2025 or earlier through the following targets:
 1. 70% of plastic packaging will be recycled or composted
 2. 30% average recycled content will be included across all packaging
 3. problematic and unnecessary single-use plastic packaging will be phased out through redesign, innovation or alternative delivery methods
- The *Australian Government Net Zero Plan* (yet to be finalised) will guide the transition to the legislated target of net zero greenhouse gas emissions by 2050. Six major sectors of the economy will have an emissions reduction plan designed and resourced to implement the Net Zero Plan. The waste and resource recovery sector forms part of the industry sector plan.



2.2 STATE

The *Environmental Management and Pollution Control Act 1994* provides overarching environmental governance to waste management operations in Tasmania. The *Environmental Management and Pollution Control (Waste Management) Regulations* regulate controlled wastes and implements Tasmania’s responsibilities under the *National Environment Protection (Movement of Controlled Waste between States and Territories) Measure*.

The *Waste and Resource Recovery Act 2022* encourages the diversion of waste from landfill and increasing material recovery. The Act establishes the Tasmanian Waste and Resource Recovery Board, and the Waste and Resource Recovery Account for the purpose of receiving funds from the landfill levy introduced on 1st July 2022.

The *Waste and Resource Recovery Regulations 2022* define the application of the levy funds from the Waste and Resource Recovery Account, and sets the amount of levy (currently \$45.84 per tonne of waste landfilled) to be applied up to and beyond 1st July 2026. The Regulations also address the required operational functions, records

and reporting associated with administration of the landfill levy for the respective landfill and resource recovery facilities.

The *Container Refund Scheme Act 2022* and the *Container Refund Scheme Regulations 2023* set out Tasmania’s Recycle Rewards container deposit scheme, which commenced operations in May 2025. Refund points (including reverse vending machines) have been established across the state to provide a 10c refund for each eligible container returned. Tasmania joins all other states and territories now legislating extended producer responsibility for single use drink containers.

The Tasmanian Government has also committed to a phase-out of various problematic single use plastics, including utensils, foodware, drinkware, bags and produce items, cosmetics, party goods and expanded polystyrene.

A staged approach is proposed, with different plastics to be phased out or banned from 2025–2027; legislation enforcing the phase-out is expected to be enacted later in 2025.

The Tasmanian Waste and Resource Recovery Board is responsible for the management and distribution of waste levy-derived funds to regional waste authorities and through grants programs to local government, community organisations and industry.

The Board released the *Tasmanian Waste and Resource Recovery Strategy 2023-2026* outlining a vision of Tasmania being a place where nothing is wasted. The strategy guides the Board and the Tasmanian Government on how the landfill levy should be reinvested. The strategy promotes the designing out of waste in new products, keeping materials in circulation and improving remanufacturing and recycling. These are core strategic principles supporting the creation of a strong circular economy, investment in critical programs that reduce waste generation and greenhouse gas emissions and improve amenity, liveability and sustainability in Tasmania.

The strategy provides a framework to move toward a circular economy and establishes focus areas to achieve the vision through integrated planning and action, strategic investment, prioritisation of circularity, and engagement and partnerships.

The Tasmania Government also released the *Bioenergy Vision for Tasmania* in 2023. The vision is focused on renewable energy generation from solid and liquid organic wastes and residues generated by industry, agriculture, municipal and forestry sources, and includes a commitment to a policy and regulatory framework which supports investment in commercially and environmentally sustainable bioenergy projects.

The vision recognises the drivers to the adoption of bioenergy in the state as being:

- renewable energy production
- greenhouse gas emissions reduction
- jobs and economic development
- waste management and resource recovery.

2.3 LOCAL

TasWaste South is a Local Government Joint Authority representing the 12 southern councils and established to drive better waste outcomes and efficiencies for its member councils and their communities.

TasWaste South has developed an inaugural Strategic Plan 2024-2027 based on four strategic pillars to support joint initiatives to:

- coordinate activities between member councils to achieve consistent service standards and policies, optimise regional waste infrastructure and minimise duplication across waste activities
- build relationships with member councils, regional and state waste authorities and engage with private sector operators, research institutions and key producers of industrial wastes in the region
- lead change in the region by focusing on minimising waste to landfill and increasing diversion to the circular economy, including contributing to council, state and Commonwealth waste policy settings
- change waste behaviours through coordinated public education programs designed to reduce kerbside contamination and reduce littering and illegal dumping.

Waste in Glenorchy is currently managed under Glenorchy City Council's *Waste Management Strategy* (Glenorchy City Council, revised 2020); once adopted by Council, this *Waste and Resource Recovery Strategy 2025* will replace it.

Glenorchy City Council also has a number of strategies and plans that address the broader implications of waste from an environmental and amenity perspective:

- The *Strategic Plan 2023-2032* recognises that in order to protect and manage the City's natural environment and special places there is a need to:
 - a. manage waste responsibly and innovate to reduce waste to landfill
 - b. work to reduce resource use and carbon emissions to prepare the City for the impacts of a changing climate.
- The *Waste Services Policy 2021* sets out the waste collection services provided by Council.
- The *Climate Change Mitigation Action Plan 2024* recognises the role of waste in greenhouse gas emissions generated in the City, and includes initiatives to:
 - a. maintain the food and garden organics kerbside collection service and promote understanding in the community of the benefits of using it
 - b. maximise landfill gas extraction and collection.

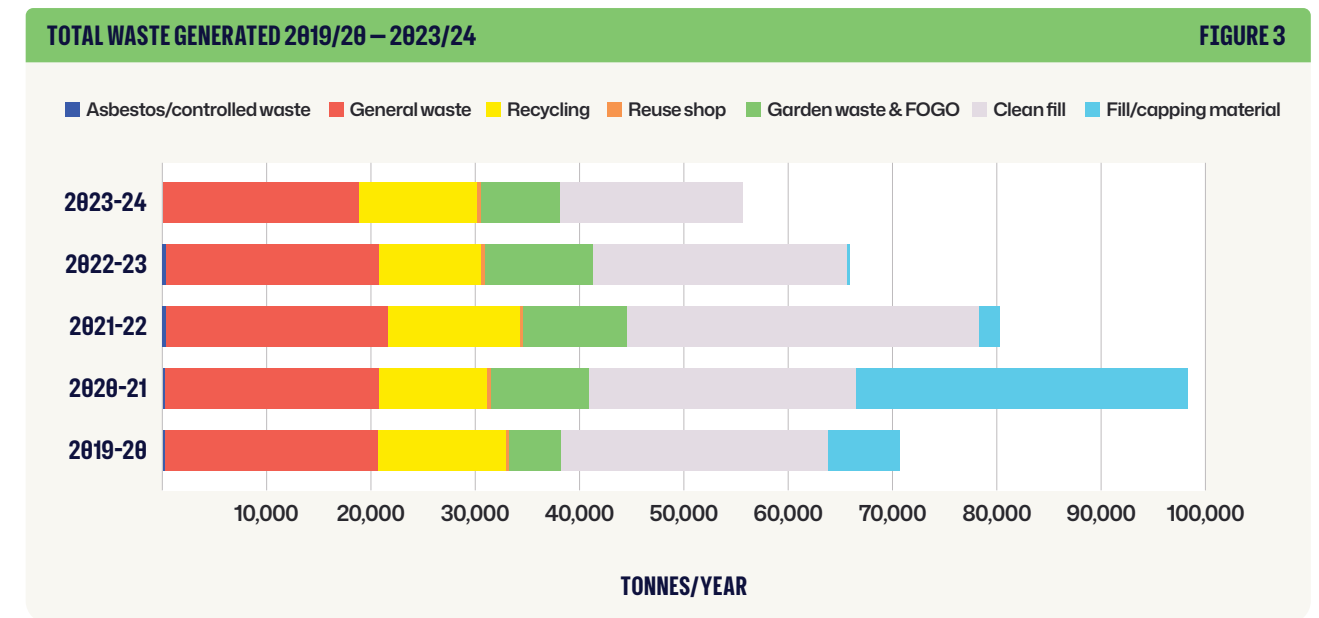


Waste in Glenorchy today

The current status of waste and recycling in Glenorchy is outlined below, and provides a baseline for future improvements.

3.1 WASTE GENERATED

While information on the amount and type of waste materials generated in Glenorchy has some gaps, the best available data shows the quantities of waste and recyclables generated over the past five financial years in Figure 3 below. This is based on data from the Jackson Street landfill and kerbside collections. Quantities of commercial and industrial (C&I) waste and construction and demolition (C&D) waste generated in Glenorchy but deposited at facilities other than the Jackson Street landfill are



excluded.

Figure 3 shows that the total amount of material received each year is quite variable, and mostly related to the amount of clean fill received at the Jackson Street landfill. Clean fill can often be generated in large quantities, particularly when large developments are undertaken. However

clean fill generally is not deposited in landfill cells and can be re-used, either off-site by private contractors or on-site by Council for internal landfill roads and capping of landfill cells. Figure 3 shows that in some years (particularly 2020-21), Council purchases additional fill/capping material to meet ongoing landfill management requirements.

WASTE AND RECOVERED RESOURCES (TONNES/YEAR)					
	2019-20	2020-21	2021-22	2022-23	2023-24
Waste to landfill ¹	20,685	20,840	21,708	20,816	18,901
Recycling and reuse ²	17,602	20,168	22,900	20,564	19,308
Clean fill	25,634	25,488	33,656	24,300	17,482
TOTAL	63,921	66,496	78,264	65,680	55,691

Notes: 1. Comprising asbestos/controlled, general and kerbside waste. Excludes cover and capping material.
2. Comprises recycling and reuse material (including from reuse shop).

The amount of core waste – comprising asbestos/controlled waste, general waste, recycling, reuse shop, garden waste and food organics/garden organics (FOGO) – is less volatile, although this too has changed in recent years, as shown in Table 1.

Table 1 shows that the amount of waste to landfill slowly increased, peaked in 2021-22 and dropped a little in 2023-24. The amount of material recycled and reused shows a similar steady increase, peak in 2021-22 and small drop in 2023-24. It is possible the 2021-22 peak for all materials may relate to activities postponed during the COVID-19 pandemic with some stabilisation in subsequent years, however it is unclear whether the small decrease in waste to landfill in 2023-24 is sustainable. The matching decrease in recycling and reuse quantities does not support this view.

The challenge therefore remains to reduce Glenorchy’s landfilled waste.

Waste generation has historically related to population, with growing populations leading to increased waste. However the rate of change in Glenorchy’s population does not fully explain the five-year trend in Glenorchy’s total waste generation. Shifts in causal factors have also been experienced at a state and national level. The *National Waste and Resource Recovery Report 2024* (Blue Environment 2024) notes that from 2016-17 to 2022-23 waste generation grew

by 17% in Tasmania (to 1.1 million tonnes/year) and over 13% across Australia (to 65 million tonnes/year).

These growth factors are higher than population increases. Growing amounts of waste appear to be socially endemic, requiring structural change to our consumption behaviours to reduce it.

For this reason, the amount of waste that Council will need to manage in future is uncertain. Tasmanian Government population projections (Tasmanian Government 2024) for the next 10 years indicate Glenorchy’s population growth rate will vary between 0.28% and 0.44% per annum (based on a medium projection), and continue at around half this level for the following 10 years.

Excluding highly variable clean fill, the total amount of waste and recovered resources that Council will need to manage by 2035-36 would be around 40,000 tonnes/year based on the Tasmanian Government projected population rate.

However, based on the population increase experienced in Glenorchy over the past 5 years, the amount needing to be managed by 2035-36 may be more than 47,000 tonnes/year.

This level of uncertainty underscores the need for robust recovery and recycling systems to be put in place at a local level, maximising diversion from the finite availability of future landfill airspace.

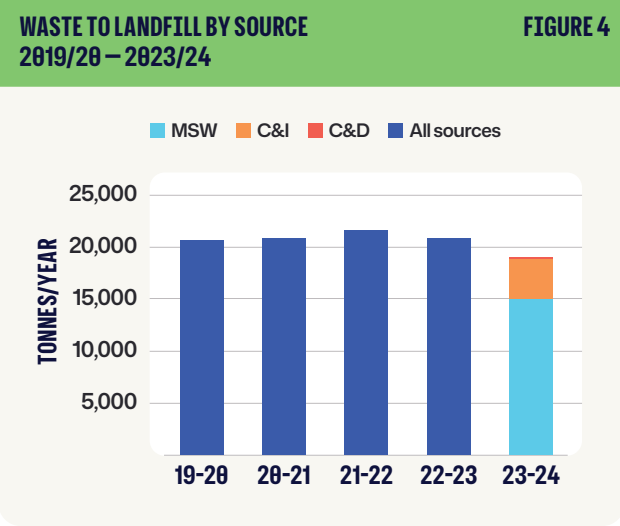
Source

Where data allows, waste has been analysed according to its source type: either municipal solid waste (MSW), C&I waste or C&D waste. This excludes landfilled waste for the four years from 2019-20 to 2022-23. Due to categorisation data recording issues, accurate classification of landfilled waste was not possible over this period; these issues were overcome in 2023. However anecdotal evidence suggests that the proportions of MSW, C&I and C&D waste in 2023-24 is broadly consistent with previous years, with the majority of landfilled waste coming from MSW sources, smaller amounts from the C&I sector, and minor amounts from the C&D sector.

Data for the last 5 years for both landfilled waste and reuse/recycling in Glenorchy is shown in the following figures. Note both figures exclude clean fill, some of which is re-used on site for landfill works such as cover and capping.

Figures 4 and 5 show that the majority of both waste and recycling quantities in Glenorchy come from households (MSW). C&I waste quantities are low and expected to remain so as the majority received at Glenorchy’s Jackson Street landfill is recycled; it is likely that most C&I waste is deposited at Southern Waste Solutions’ dedicated C&I facility at Lutana (for transport to the Copping landfill). Significant quantities of C&I and C&D materials are recycled; this has increased over time.

The figures also show that the amount of material transferred from the landfill to the privately-operated reuse shop at the site is quite low; most reusable material is accepted directly by the operator and is not recorded in Council’s database.

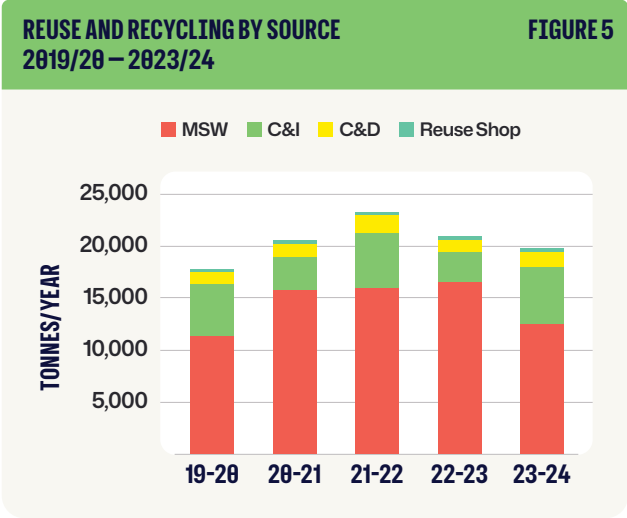


Recovery

Figure 5 shows that the increase in recycling since 2022-23 has largely been driven by improved recovery of construction and demolition waste (e.g. bricks, concrete, garden organics).

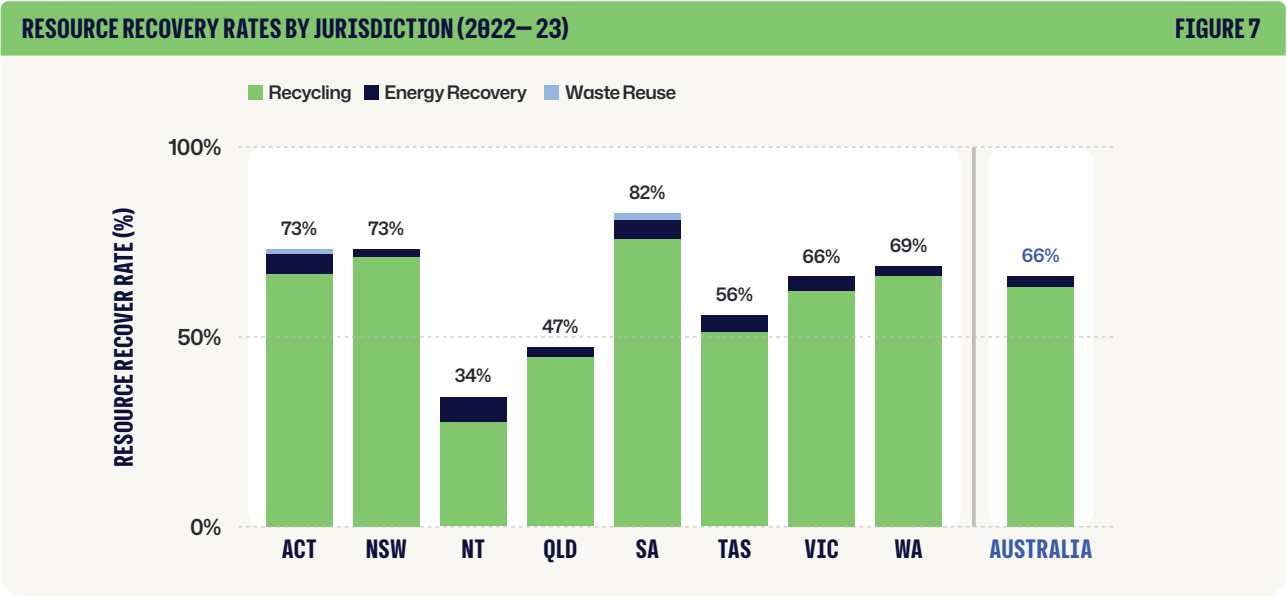
The introduction of FOGO collection services in February 2020 also saw a rise in diversion of food and garden organic waste, although this peaked in 2022-23 and has since declined (shown in Figure 3). While some of the reduction in FOGO collected in 2023-24 may potentially result from recent drier climatic conditions, it is unlikely to fully account for the 26% reduction from the previous year.

Over the five-year period the rate of increase in the overall recycling rate is almost equivalent to the rate of increase in per capita waste generation. This shows that resource recovery is mostly keeping pace with increased generation but is making no inroads on the underlying waste quantities being disposed to landfill (as shown in Figure 4), and clearly challenges remain.

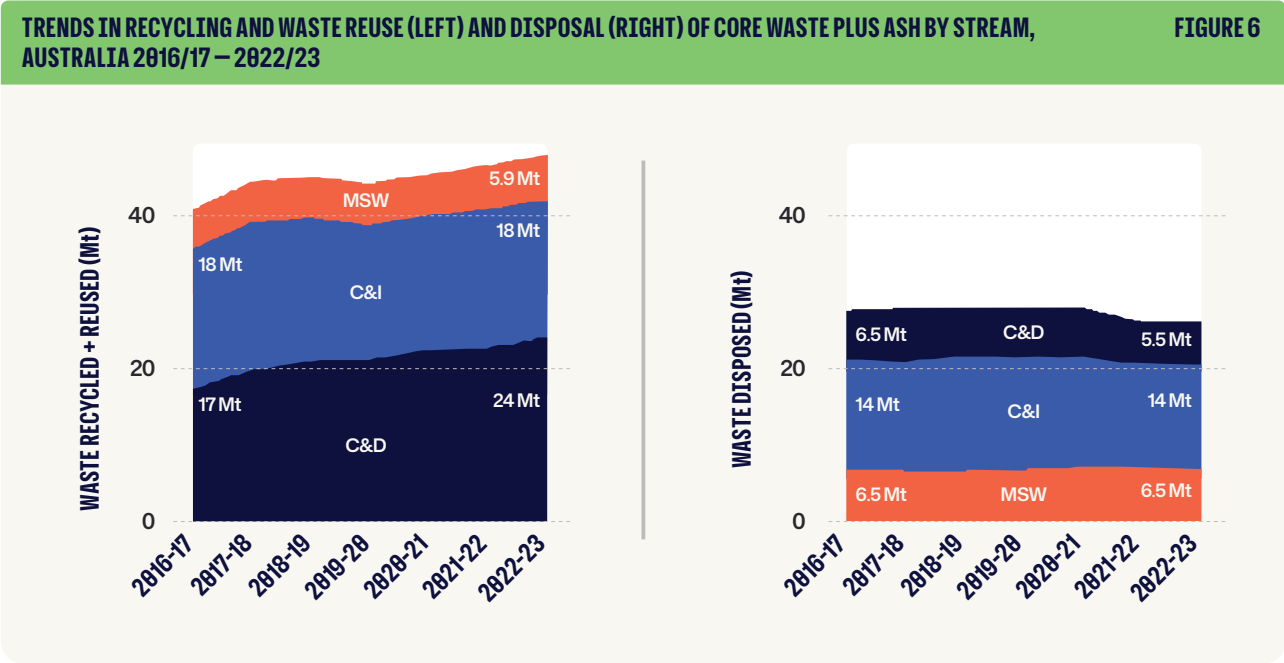


This trend is consistent across Australia, as shown in data from the *National Waste and Resource Recovery Report 2024* (Blue Environment 2024). National trends in recycling and waste reuse and disposal of core waste plus ash are shown by source in Figure 6, with the relative contributions of the C&I, C&D and MSW sectors.

Figure 6 shows that while recycling and reuse (on the left) have increased over time (particularly in the C&D sector), waste disposal (on the right) has generally remained static and shown little decrease. Across Australia, our recycling systems are managing the growth in waste streams arising from recent economic development (potentially the ‘low hanging fruit’), but indicate that any further reductions are harder to achieve.



Source: Blue Environment 2024



Source: Blue Environment 2024

They may be much harder to achieve in Tasmania than some other states. Figure 7 shows recovery rates by jurisdiction in 2022-23, also outlined in the *National Waste and Resource Recovery Report 2024* (Blue Environment 2024); this shows the Tasmanian recovery rate at 56%. It is worth noting that in previous versions of the National Waste Report, the Tasmanian recovery rate was comparable with the ACT: both jurisdictions achieved a 53% recovery rate in 2016-17. However since then, the ACT’s recovery rate has increased to 73%, an improvement of 20% compared to Tasmania’s much lower 3%.

Some of the ACT improvement may be explained by the container deposit scheme, introduced in the ACT in 2018 and which commenced in Tasmania in May 2025. Enhanced waste data collection systems in Tasmania introduced in

conjunction with the increasing waste levy may highlight improvements in future years. Distribution of the waste levy funds may also see expanded recycling infrastructure developed in Tasmania for greater resource recovery, though significant ground remains to be made up.

3.2 SERVICES PROVIDED BY COUNCIL

Council provides a range of waste and recycling kerbside collection services to the Glenorchy community, servicing over 20,000 households:

- Domestic waste is collected from the majority of households (houses and units) via a fortnightly service using 140 L bins. These bins have dark green lids, which is inconsistent with the relevant Australian Standard (AS4123 Mobile Waste Containers, which specifies red lids with black or dark green bodies for waste bins). Some multi-unit dwellings (flats and some units) share a 240 L bin (with red lids) among up to 3 households, and these are collected weekly. Waste collected is disposed to landfill.
- Domestic recyclables are collected fortnightly in a 240 L bin (with yellow lid, which is consistent with AS4123 for comingled recycling bins). Recyclable material collected includes paper and cardboard, plastic containers, glass bottles and jars, aluminium and steel cans. Recovered material is collected by Council's contractor (Veolia) and sorted at a materials recovery facility (MRF) operated by Cleanaway under a joint regional contract with other southern councils.
- Food organics and garden organics (FOGO) are collected fortnightly by Veolia and transported to a composting facility at Interlaken. A 240 L bin (with a green lid, also consistent with AS4123) is most commonly used, though other sizes may be used in some circumstances (e.g. when service is shared among units or other multi-unit dwellings).

Other waste can be transported and deposited directly by the generator at the Jackson Street landfill.

Council also provides other waste-related services:

- regular street sweeping services
- public place recycling and litter bins are provided at over 300 locations across the City
- illegally dumped waste from around 100 incidents/year is collected and disposed at Jackson Street landfill.

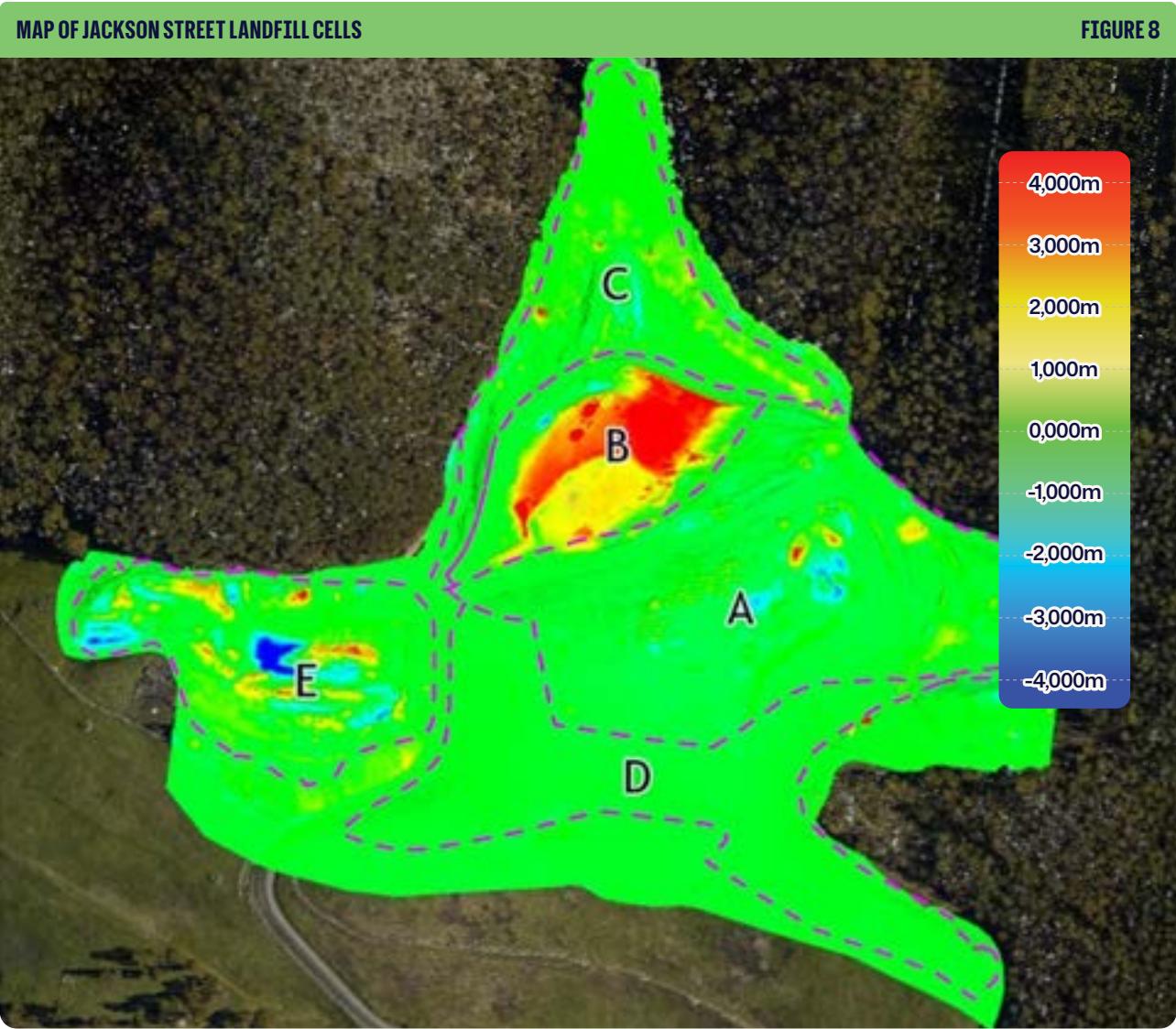
A regional waste audit is being carried out by TasWaste South, and is expected to report soon on the waste types and volumes presented in Glenorchy's kerbside waste bins. An audit of contamination included in Glenorchy's kerbside recycling bins (Veolia 2020) was undertaken in December 2020.

It showed that domestic recyclables had a 17% contamination rate, while FOGO materials had a 6% contamination rate. Both of these are high rates of contamination and undermine the intent and ongoing feasibility of the recycling collection programs.

3.3 COUNCIL INFRASTRUCTURE

The Jackson Street landfill is the major waste facility in the municipality and is owned and operated by Council. A reuse shop (operated by a private business called Recovery Circular Hub) is also located at the site; it salvages various materials for repair and resale.

Landfill operations are regulated by the Environment Protection Authority (EPA). The landfill has operated at the site since 1986 and is licensed to accept up to 80,000 tonnes/ year of waste, including mixed putrescible and controlled/special burial waste (excluding clean fill).



A map of the landfill cells is shown in Figure 8.

There are three cells (Cells A, B and C) which are currently approved by the EPA to be filled. Note Cells B and C are planned extensions of previously filled cells, and the order of filling is planned for Cell B first (the current active cell), followed by Cell C (a newly constructed cell), then Cell A.

Council is considering future development of a further cell (Cell D), however this has not yet been approved. The area marked E on the map is a hardstand area for garden organics.

The most recent landfill survey (Veris July 2024) estimated the remaining landfill airspace at over 1.4 million m³ across all three cells currently available.

JACKSON STREET LANDFILL AIRSPACE UTILISATION (M³)												TABLE 2
Airspace	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Cell A	625,200	625,200	625,200	625,200	625,200	625,200	625,200	625,200	625,200	625,200	625,200	601,000
Cell B	524,600	462,800	400,000	336,000	271,000	204,800	137,400	68,800				
Cell C	263,600	263,600	263,600	263,600	263,600	263,600	263,600	263,600	192,800	121,800	49,500	
Waste to Landfill	24,700	25,100	25,600	26,000	26,500	27,000	27,400	27,900	28,400	28,900	29,500	30,000
Cover Material	37,100	37,700	38,400	39,000	39,700	40,400	41,100	41,900	42,600	43,400	44,200	45,000
Total Airspace Remaining	1,351,700	1,2588,800	1,224,900	1,159,800	1,093,600	1,026,200	957,600	887,900	747,000	674,700	601,000	526,100

Note: All figures are volumetric estimates and rounded.

Based on current usage patterns (and the existing waste compaction rate and daily cover use) as well as projected average waste generation and filling rates, the utilisation of airspace for each of the three cells has been modelled in Table 2.

Table 2 shows that Cell B will be fully utilised in 2032, followed by Cell C in 2035.

Cell A is currently under construction and is expected to remain in use until 2042-43, at which time all existing available airspace will be full.

If development of Cell D proceeds, it is estimated than an additional 1.6 million m3 of airspace would be available, extending the life of the landfill by a further 35-40 years.

The approval, design and construction process (which may take up to 5 years) would need to commence around 2037 to allow for continued landfilling at the site when Cell A closes.

Affiliated infrastructure on the site includes two weighbridges, a site office, equipment

shed, vehicle washdown, leachate management system, landfill gas capture system (which allows the gas to be used to generate electricity and fed to the electricity network) and assorted bins and containers for separation and recycling of recoverable materials. A separate building and associated sheds are leased to the privately operated reuse shop.

Materials currently accepted for recycling at the landfill include:

- domestic recyclables (paper and cardboard, glass bottles and jars, aluminium and steel cans, plastics 1-5)
- metals
- tyres
- bricks, concrete and tiles
- mattresses
- garden organics
- clean fill
- gas bottles
- batteries.

As shown in Figure 4, the majority of waste disposed at the landfill is residential waste. This is in line with Council’s strategy to maximise the life of the landfill and prioritise available airspace for Glenorchy households. This has been largely achieved through financial incentives which encourage C&I waste to be deposited at other facilities.

While most waste deposited at the landfill is generated within Glenorchy, a small amount of waste is received from the adjoining Brighton municipality (which does not have a landfill). The only other landfill in the Hobart area (McRobies Gully landfill, owned and operated by Hobart City Council) is expected to close by 2030, although drop-off and transfer services are expected to continue at the site.

Council also co-owns (with Hobart City Council) a site at Lutana which is on a long-term lease to Southern Waste Solutions, an arm of the Copping Refuse Disposal Site Joint Authority - a local government joint authority which owns the Copping landfill. The Lutana site is used as a commercial waste transfer station, aggregating C&I waste prior to transport to the Copping landfill. Note Glenorchy City Council is not a member of the joint authority, but receives rent from the Lutana lease; some local businesses could also be said to benefit from the central location of the commercial waste transfer station, avoiding transport costs to the Copping landfill approximately 50 kms away.

“...CELL B WILL BE FULLY UTILISED IN 2032, FOLLOWED BY CELL C IN 2035.”



04

The need for change

Future waste and resource recovery in Glenorchy faces many challenges, including local and sectoral issues.

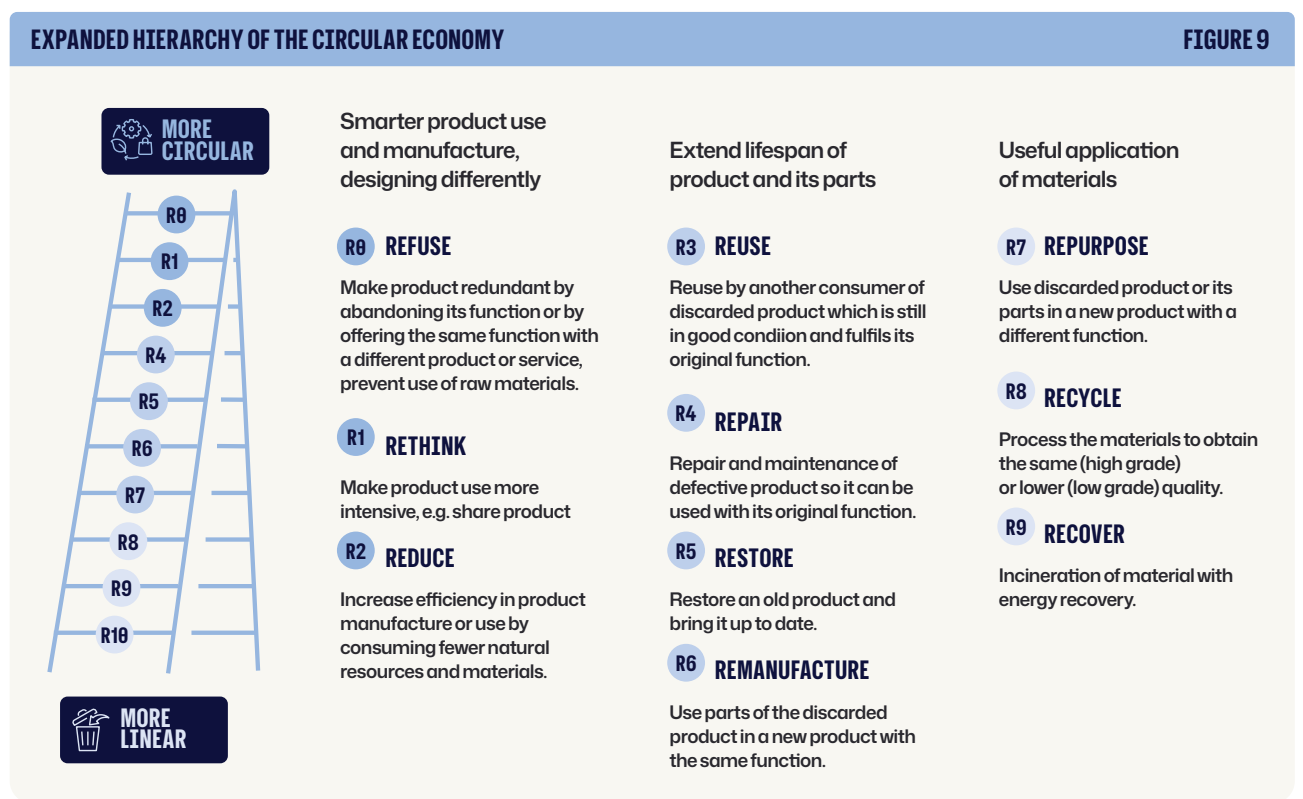
4.1 WASTE AVOIDANCE

Creating a circular economy requires a different approach to the end-of-life management of products.

This provides for an expansion of the waste hierarchy (in Figure 2), where resources are valued, used, reused and remanufactured efficiently, and discarded only when their materials have no further use.

The expanded hierarchy is shown in Figure 9 and calls for many more steps to be taken before a material is considered for energy recovery.

Landfill disposal does not allow for circularity of materials.



Adapted from: PBL Netherlands Environmental Assessment Agency 2019, Sustainability Victoria 2024

With waste generation outstripping population growth, it is clear consumption patterns need to change; as consumers, we need to reduce the quantity of products we purchase and the amount of waste we dispose of. Further regulatory support, education and action is needed around smarter use of the products we buy, extending their lifespan through repair and reuse, and finding alternative uses for their component parts.

Council can play a role in educating the community and facilitating this change.

4.2 REGULATORY INTERVENTION

Product stewardship

Material circularity relies on avoiding waste through good design, efficient production and distribution, sustainable consumption and effective material recovery systems, with each sector playing a role in the circular economy. This includes a strong commitment from industry, with involvement from designers, manufacturers and retailers.

Some products are currently designed with little thought to repair over the product life or recyclability at end of life. This can include lack of access to replacement parts, inability to disassemble the product and use of composite materials that cannot be separated for recycling. This in turn can result in shorter product lifespans and increased waste of both materials and the product’s embodied energy. Legislation in Europe and the US has addressed the ‘right to repair’ through measures such as financial incentives and obligations on manufacturers.

In 2021 the Productivity Commission explored similar options in Australia, but no further progress has yet been made.

To date industry involvement has mostly relied on voluntary product stewardship schemes with industry associations, however these have often struggled to deliver real change due to a

lack of industry coverage (especially international manufacturers, leading to ‘orphan’ products which are not covered by an Australian scheme) or a failure to reach agreed targets (e.g. recovery rates of used packaging materials).

The Australian Government has expressed support for both expansion of product stewardship and mandated schemes where required. The 2025 review of the *Recycling and Waste Reduction Act* is likely to see some changes around product stewardship, and possibly the ‘right to repair’. This could have impacts on the amount and type of end-of-life products that Council may need to manage.

Plastics

The high use of plastics has led to significant use of fossil fuels, environmental pollution and impacts on both animal and human health on a global scale.

In 2022 the United Nations agreed to develop a legally binding agreement on plastic pollution by 2024. While consensus has yet to be reached (and the deadline has been extended to 2025), over 170 nations (including Australia) have expressed commitment to a global plastic pact. If implemented, an international treaty would likely see changes to plastic use, recovery and recycling in Australia.

The Tasmanian Government is proposing to phase out some single-use plastics (refer Section 2.2), including various utensils, foodware, drinkware, bags and produce items, cosmetics, party goods and expanded polystyrene. Different states across Australia cover different plastics in their bans; harmonisation of state approaches (e.g. as part of an international commitment) may see some changes to the material types and timelines for phase-outs or outright bans in Tasmania.

Some types of plastics are more readily recycled than others, with generally robust recycling and remanufacturing systems in place for polyethylene terephthalate (PET), high-density and low-density polyethylene (HDPE and LDPE).

However a voluntary soft plastics collection system implemented by Australia’s major supermarkets collapsed in 2022 and has yet to recover. There are few other options for recycling of soft plastics in Australia (and none in Tasmania), and limited recovery of other plastics such as polypropylene or polyvinyl chloride. The amount of common types of plastics (1-7) currently recycled in Australia is only 20% (APCO 2024) – a recovery rate which has remained relatively static for many years. Significant increases in recovery and improvements to collection systems would be required to meet the existing NEPM target (70% by 2025, which is unlikely to be met), as well as any additional international obligations.

4.3 CARBON EMISSIONS

The Southern Councils Climate Collaboration Carbon and Energy Footprint report (2023) quantified the greenhouse gas emissions arising from waste management in Glenorchy, as shown in Table 3.

GLENORCHY GREENHOUSE GAS EMISSIONS (TONNES CO ₂ -e)				TABLE 3
Year	Landfilled Waste	Composted Organic Waste	Electricity, Lighting & Fuel	Total Emissions
2019-20	23,458.0	84.3	1,054.7	24,597.0
2020-21	15,227.5	239.4	1,071.0	16,537.9
2021-22	9,939.2	244.1	1,026.3	11,209.6

Source: Southern Councils Climate Collaboration 2023

The table shows that most of the greenhouse gas (GHG) emissions resulting from Council operations derives from landfilled waste. Council has a landfill gas capture system in place (which uses the gas to generate electricity) and introduced FOGO kerbside recycling services in 2020 to divert organic waste (which can generate methane) from landfill to composting facilities.

These initiatives can result in significant emission reductions. However Table 3 shows that while emissions more than halved over the 3-year period due to diversion of FOGO, in 2021-22 landfilled waste was still responsible for 89% of Glenorchy’s GHG emissions. The report (Southern Councils Climate Collaboration 2023) therefore recommended that waste be targeted for further reductions in GHG emissions.

It is not known whether GHG emissions since 2022 have continued to reduce, although it is considered more likely that in line with waste disposed to landfill (discussed in Section 3.1), emissions may have remained relatively stable.

It is also not known how well domestic FOGO collection services are performing in diversion of organic wastes from landfill. Based on bin audits from other municipalities, it is likely that significant quantities of organic waste remain in the kerbside waste bin, adding to landfill emissions and offering an opportunity for further diversion to composting. Results from TasWaste South’s regional waste audit currently being undertaken are likely to provide further direction in this area.

4.4 MATERIAL MANAGEMENT

The waste stream is comprised of myriad types of materials, some of which can be problematic to manage or recycle. The incorrect disposal of batteries (particularly lithium-ion batteries) in the waste stream is becoming an increasing problem, with the resulting fires impacting on worker safety, as well as infrastructure, plant and equipment losses. In some cases collection trucks and recycling facilities have been destroyed, leading to significant disruption to recycling systems and major expense to replace or rebuild. The amount and type of batteries in the waste stream are expected to rise in future, increasing the risk to infrastructure, equipment and worker safety.

From July 2024, the use of engineered stone benchtops, panels and slabs was banned in Australia due to health and safety concerns. However while its health impacts have been compared to asbestos, there are no similar regulations yet in effect on the safe disposal of engineered stone. Kitchen renovations will see this waste stream increase over time but with few guidelines on safe handling and disposal yet in place.

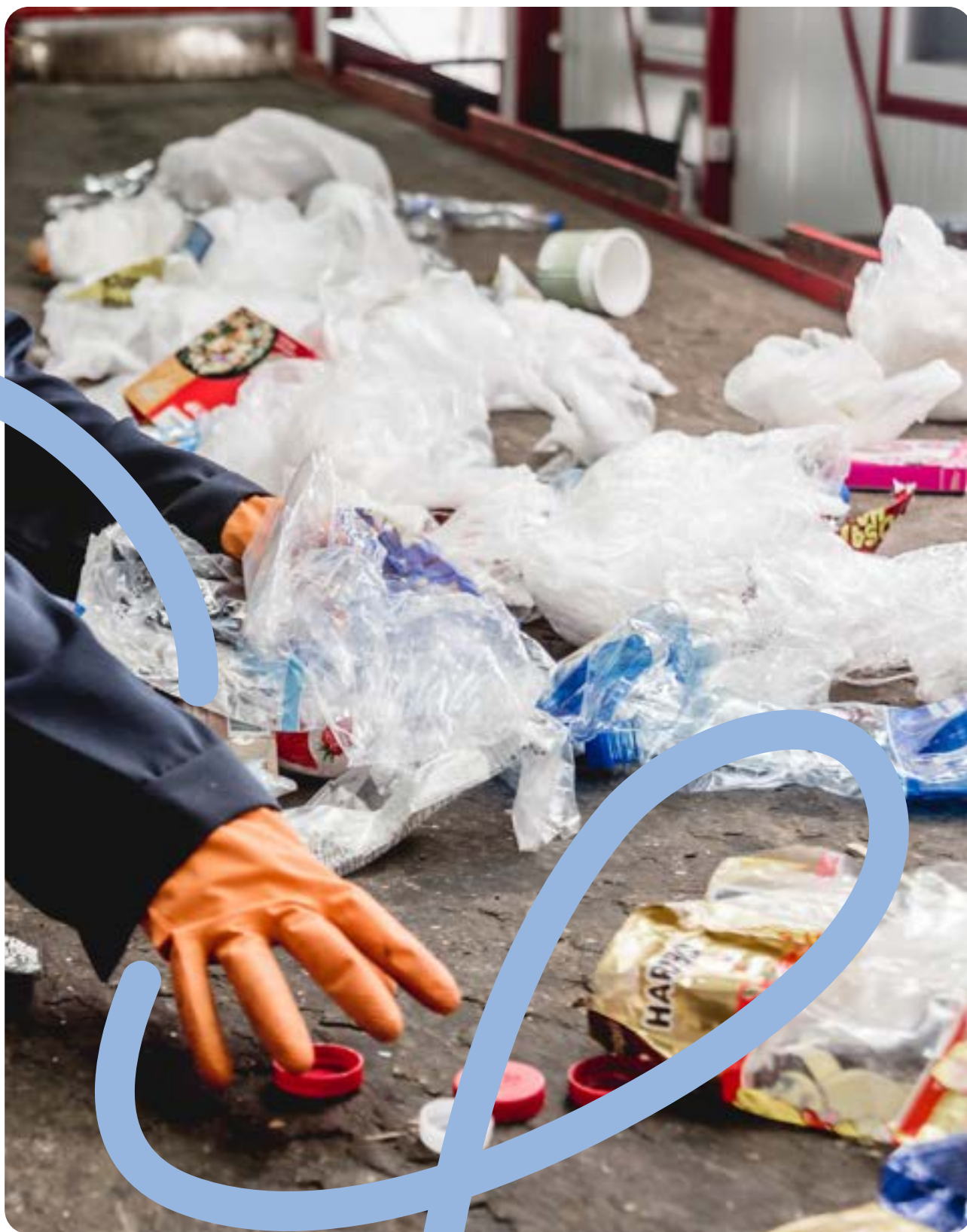
Tasmania's container deposit scheme (Recycle Rewards) commenced in May 2025 and will see significant diversion of beverage containers from litter and the waste stream. There are additional opportunities for further diversion of FOGO (as mentioned above), both in domestic collections and from commercial processors, restaurants, etc. However high contamination rates can undermine recovery systems, resulting in significant volumes of recyclables diverted to landfill. As discussed in Section 3.2, Glenorchy contamination rates are currently high (17% in domestic recyclables and 5% in FOGO collections), higher than many other municipalities and beyond the level that many automated recycling systems can cope with. If further separation of contaminants is required, additional costs will be incurred by Glenorchy ratepayers. In Victoria, councils are required to provide separate collection services for glass in

order to reduce broken glass contamination in paper/cardboard and other comingled recyclables; if a similar requirement for a 4th bin is needed to reduce contamination in Tasmania, costs would further increase in Glenorchy and create more footpath clutter on collection days.

Increasing attention is being given to other contaminants embedded in materials at the point of manufacture, and which cannot be separated during recycling processes. Per- and poly-fluoroalkyl substances (PFAS) are of particular concern. PFAS have been identified as potentially harmful to human health, and are present in a wide range of products including fire-fighting foam, foodware, cosmetics, clothing, carpet, furniture and packaging. PFAS chemicals are also known as 'forever chemicals' and cannot be destroyed via recycling; the only method of destruction is believed to be high temperature incineration, although there is some uncertainty about how successful this is. Environmental regulations in some Australian states are being updated to place limitations on the levels of PFAS permitted in recycled products (particularly from FOGO) and landfill leachate. Until similar limitations are placed on manufactured products and PFAS in the environment is removed, the ongoing recyclability of some materials may be undermined.

Recycling is only fully successful when recycled products are purchased and reused, however the Australian market for products with recycled content is not particularly robust. Some recycled products find it hard to compete with those manufactured from virgin materials; this may be due to a range of reasons (e.g. procurement specifications, cheaper imports, higher recycling collection and processing costs, etc.). Barriers to local markets need to be overcome to improve material circularity in Australia. Council has a role to play in supporting recycled content use through its procurement decisions.





4.5 ALTERNATIVE TECHNOLOGIES

There is increasing interest in Australia in establishing alternative waste treatment technologies, such as energy-from-waste (EfW) and mechanical biological treatment facilities. EfW technologies in particular have been widespread for many years in Europe and Asia, particularly in countries which have landfill space constraints or high demand for heat and electricity. However the Australian experience to date has been mixed. Early facilities in NSW closed due to concerns over dioxin emissions or large costs incurred when commissioning did not prove successful. Numerous other developments were initiated in subsequent years (including by Test Energy in Tasmania), however for varied reasons none came to fruition until the recent development of two combustion facilities in WA. The Kwinana facility (which is expected to receive 460,000 tonnes/year of waste) is in commissioning stage, while construction of the East Rockingham facility (which is expected to receive 300,000 tonnes/year of waste) is nearing completion. Similar facilities are in the development or regulatory approval stages in Victoria and NSW but have yet to commence construction.

While processes differ according to the technology, a common feature is the high cost of development, construction and operation; consequently operators look for long-term waste supply contracts (e.g. over 20 years) and high-volume inputs (e.g. over 250,000 tonnes waste/year) for cost recovery. Meeting these demands is problematic for many local government authorities.

There are also concerns that some technologies can undermine resource recovery and circular economy implementation. This is particularly the case for combustion facilities, where the need for high calorific value waste streams can result in the incineration of plastics. As most plastics are derived from fossil fuels, the net environmental outcome is generally negative.

The social licence of EfW technologies in Australia is also yet to be demonstrated. Due to Perth's reliance on groundwater aquifers, there are limitations on local development of new landfills which have driven interest in EfW facilities in WA. However this is not the case in eastern Australia; indeed, there have been public protests about some proposed EfW facilities. While social acceptance may come, early proponents are likely to experience some community pushback.

A summary of the key treatment technologies, their advantages and disadvantages are provided in Table 4 overleaf.

Due to high construction and operating costs, available waste volumes, waste feedstock and other characteristics, none of them are considered suitable for development in Glenorchy within the term of this strategy. In the longer term it is possible this may change, for example due to changes in government policy, landfill regulations, increased regional waste planning, GHG emission frameworks, the performance of other Australian facilities, etc. Council should keep up to date with industry knowledge and performance of EfW technologies and review its role in local waste management and resource recovery in the longer term.

SUMMARY OF ALTERNATIVE WASTE TREATMENT TECHNOLOGIES

TABLE 4

Technology Type	Advantages	Disadvantages
MECHANICAL BIOLOGICAL TREATMENT Residual waste is processed to extract recyclables before the organic fraction is composted or aerobically stabilised.	• No need to change current kerbside services • Extracts recyclable materials from residual municipal solid waste • Residual organic fraction can be stabilised and potentially converted into some usable soil conditioner • If landfilled, the stabilised organics will have lower environmental risk and will sequester carbon	• High cost compared to landfill and source separation options • Low volume resource recovery due to existing FOGO and recycling kerbside services • Recovered recyclables can be lower grade/value • Track record of facilities suggests that stabilised organics are too contaminated (e.g. with chemicals, glass, plastics) to be marketed or used for anything other than landfill cover • Landfilled residuals will have some environmental risk and will not generate much biogas for energy recovery
ANAEROBIC DIGESTION Organic waste is processed in-vessel in anaerobic conditions by bacterial inoculate to produce biogas energy and potentially an organic fertiliser.	• Proven technology for selected organic waste streams (e.g. animal manures, biosolids) • Lower throughput requirement than other EfW technologies (e.g. < 100,000 tonnes/year) • Biogas energy generation • Potential use of digestate as organic fertiliser if uncontaminated products can be extracted • Australian facilities usually located in industrial settings (e.g. on farm) and social licence accepted	• High cost compared to landfill and source separation options • Suited to homogenous waste streams with high moisture content • Maintaining optimal conditions for bacterial growth (e.g. pH, temperature, moisture content, lack of contamination) can be problematic for non-homogenous waste streams • Up to a third of energy generated is needed to power digester • Municipal waste sources likely to be too contaminated for digestate reuse
INCINERATION Materials are combusted to heat boilers and drive steam turbines. Grated floor and fluidised bed technologies are typically used to gasify residuals so that the volatiles are combusted separately from the solid waste, but combustion occurs within the same chamber.	• Proven technology with many international examples • Local facility in WA • Potential for recovery of heat and power • Potential for additional recovery of metals via incorporation of magnets in the process • Can combust up to 90% of waste stream	• Very high capital and operating costs • Large throughput (>250,000 tonnes/year) required to reach economies of scale • Potential toxins in air emissions and fly/bottom ash • May need to use natural gas to maintain combustion temperatures and avoid formation of compounds such as dioxins and furans • Unlikely all potentially recyclable materials can be separated; plastics likely to be incinerated • If buyer of heat energy not secured, operational breakeven point may increase, leading to higher costs • Without heat recovery, the greenhouse gas emissions per unit of recovered energy can be high • Non-combustible slag may require landfill disposal (subject to contaminant levels and alternative uses)

SUMMARY OF ALTERNATIVE WASTE TREATMENT TECHNOLOGIES

TABLE 3

Technology Type	Advantages	Disadvantages
GASIFICATION Materials are heated in a low-oxygen environment to produce a syngas (comprising hydrogen, methane and other combustible volatiles) that can be used to heat boilers for steam turbines, or used in gas turbines, or harvested and cleaned as a gas fuel	- Higher energy yields than incineration - Combined heat and power energy recovery is possible - More efficient conversion of waste to energy resulting in lower greenhouse gas emissions per unit of energy than incineration	- Very high capital and operating costs - Large throughput (>250,000 tonnes/year) required to reach economies of scale - Less proven technology commercially and technically for MSW - Some facilities have not met performance and emissions standards due to variability in the mixed putrescible waste stream - Local failure of Brightstar gasification facility at Wollongong, NSW
PYROLYSIS Materials are heated in an oxygen-free environment to produce a liquid oil	- Higher value output than incineration - Proven technology with international facilities - Combined heat and power energy recovery is possible - Can be used to produce char products - More efficient conversion of waste to energy resulting in lower greenhouse gas emissions per unit of energy than incineration	- Very high capital and operating costs - Large throughput (>250,000 tonnes/year) required to reach economies of scale - Less proven technology commercially and technically for MSW - International facilities used mainly for processing of tyres and plastics - Number of Australian facilities proposed but did not proceed to development
PLASMA ARC Materials are thermally degraded using electronic plasma arc technology to produce syngas that can be used in synthesis of organic compounds or fuels	- Can be used to treat large variety of waste streams, especially toxic compounds, high level contaminated soils and persistent organic pollutants - Combined heat and power energy recovery is possible - Inert residue is a glass/slag with potential for use in civil engineering works - More efficient conversion of waste to energy resulting in lower greenhouse gas emissions per unit of energy than incineration	- Higher capital and operating costs than other technologies - More complex technology than others - Limited number of international facilities; used mainly for destruction of hazardous waste, chemical weapons and obsolete military ordinance - Greenhouse intensive if fossil-fuel derived electricity is used - Facilities can be net users of energy but syngas products avoid other energy use in production of first use products

4.6 WASTE MANAGEMENT COSTS

There are a number of factors that are expected to see the costs of waste management rise in the future. Operational landfill costs are likely to increase in line with enhanced regulatory requirements for landfill engineering, design, management and monitoring.

Legislated waste levies will rise to increase the financial incentives to reuse and recycle, and reduce waste deposited to landfill. Increased labour and processing costs are likely to contribute to cost increases for the provision of kerbside collection services. While Council is committed to the cost-efficient delivery of services, these and many other cost increases are beyond Council's control.

Waste costs are reflected in annual waste management charges, and equitably distributed across ratepayers on a 'user pays' basis. The 'user pays' ethos connects individual household waste behaviours with financial outcomes, providing incentives to reduce and recycle rather than dispose of waste to landfill.

In the past some waste services were provided without cost to selected individuals, e.g. those householders who accessed the landfill on free waste drop-off events. While Council still incurred landfill operating and labour costs for the 'free' events, around 3% of residents took advantage of the events to dispose of their waste. This meant that all ratepayers were subsidising the actions of a small minority of the population, and the practice ceased due to equity concerns.

Pre-approved clean-ups of Council owned or managed land will continue without charge given the wider benefit to the community. However broader free waste disposal services conflict with waste minimisation efforts and the user pays principle, and are not expected to be provided in future.



Strategic Actions

Glenorchy City Council is one of many stakeholders in the waste and resource recovery sector.

There are some things Council can control and others it can influence, with actions falling in three main areas:

1. DELIVERY

Delivery of services, infrastructure development, leading by example by improving own operations

2. INFLUENCE

Advocating for change, seeking action from other levels of government or other organisations, providing information and advice, motivating community action

3. GOVERN

Developing guidelines or local laws.

Opportunities for Council to act to improve waste management and resource recovery in Glenorchy using each of these methods are outlined below.

5.1 COUNCIL LEADERSHIP

Council has shown leadership in its procurement practices, adopting a code for tenders and contracts which allows Council to consider the environmental impacts and benefits of purchasing decisions.

There are opportunities to expand the environmental criteria for decision-making to incorporate circular economy principles; this could include prioritising products which have recycled content, particularly those products which incorporate raw materials from local recycling initiatives.

This would help support new markets for recycled materials, as well as the sustainability of the local recycling industry. The impact on Council resources involved in procurement decisions could be minimised by supporting initiatives to build a regional database of relevant product information (e.g. by TasWaste South for use by all southern councils), as well as accessing information on relevant products from other reputable sources (e.g. Sustainability Victoria).

Existing kerbside waste services have evolved to meet household waste and recycling needs; however the increasing density of Australian cities through development of multi-unit dwellings (MUDs) provides new challenges to the current system. Large MUDs can create difficulties for waste storage and collection, while recycling systems were often not built into older buildings and can be difficult to retrofit. There is potential for Council to work with MUD developers to ensure requirements to manage FOGO (and other recycling streams which may be recovered in future) are incorporated into all new developments. This could be through facilitating development of regional guidelines to achieve higher recovery rates and lower contamination rates in new developments (e.g. development of best practice guidelines by TasWaste South).

Council has made a concerted effort to reduce waste from Council’s own operations, offices and affiliated tenancies (e.g. Moonah Arts centre, Tolosa Park huts, community centres, memorial pool, child care centres, sporting facilities, etc.).

However there may be opportunities to further expand resource recovery and recycling from these venues; this extends to community events which are held in Council venues, as well as other public events which are sponsored or supported by Council.

Council could establish a policy which encourages venues and events to:

- divert food waste for collection by Council’s FOGO contractor
- cease using single-use plastics included in the proposed ban, as well as other single-use plastics which are not included in the proposed ban (e.g. balloons)
- reduce other environmental impacts (e.g. encouraging use of tap water instead of bottled water, use of renewable energy, etc.)
- use products made with recycled content at local events
- reinforce community waste education and circular economy principles (e.g. Council stall, signage, recycling bins).

Illegal dumping is an ongoing issue in Tasmania, mostly managed at state and regional level. Council should continue to work with TasWaste South and the EPA on regional and statewide litter and illegal dumping campaigns.

Council could also utilise its membership of organisations such as TasWaste South and the Local Government Association of Tasmania, as well as its role in community networks, to advocate for change on a range of issues relevant at both a state and national level.

This could include:

- advocating for Tasmanian planning law amendments to mandate the requirement for waste minimisation and resource recovery plans for all proposed developments (including MUDs) as a condition of planning approval
- advocating for stronger extended producer responsibility, including better design of products for recyclability, reduction of excessive/unrecyclable packaging, government-mandated product stewardship schemes, and manufacturer take-back schemes for end-of-life products
- advocating for increased investment from waste levy funds for recovery and recycling initiatives to support a resilient local recycling sector
- encouraging innovation, jobs and social enterprise through local pilot projects focusing on product repair, reuse and remanufacture.

5.2 COMMUNITY EDUCATION

The education and engagement of the community to improve resource recovery and waste management is a vital element of implementing a circular economy. Education on statewide themes is currently provided through Rethink Waste Tasmania (<https://rethinkwaste.com.au>), an online source of waste information and resources managed by the three regional waste groups in Tasmania (including TasWaste South, of which Council is a member). Regional waste education is also the responsibility of TasWaste South, which is proposing to develop a regional waste education centre; this would allow increased learning through practical sessions, such as school visits, community tours and other initiatives. Further regional education initiatives will be developed by TasWaste South in future.

Council also plays a role in waste education at the local level. Currently online information is provided through the following sources:

- the Jackson Street landfill website (jacksonstlandfill.com.au) which provides information on the landfill’s opening hours, disposal fees, materials accepted, etc.
- the Waste starts with U site (wastestartswithu.com.au) which provides information on Council’s collection services, recycling tips, videos and fact sheets
- an app called Recycle Coach, which provides information on local recycling options.

Ongoing maintenance of these different sites has proven a challenge, with some information updates slow to be implemented. It would be more practical to amalgamate local information in one location, e.g. a single website combining all information on the landfill, waste services and recycling initiatives. This would allow for easier maintenance, as well as providing a single source for Glenorchy residents seeking local waste information. Benchmarking Glenorchy’s performance against other councils in southern Tasmania would also give residents context for their achievements, as well as provide

incentive for further progress. Such a website would also provide an opportunity for further information to be found through links to Rethink Waste Tasmania and additional regional, state and other relevant sources.

Typical education needs for the circular economy include information and resources which address:

- options to change purchasing behaviours through the ‘refuse, rethink, reduce’ hierarchy (shown in Figure 9)
- avenues for repair and reuse of items (e.g. facilitating repair cafes, publicising charity donation schemes, etc.)
- ongoing reinforcement of materials accepted/not accepted in the recycling bin and the FOGO bin
- encouraging participation in community events such as Clean Up Australia Day, National Recycling Week, Garage Trail, etc.
- promoting alternatives to single-use plastics (e.g. in kitchen caddies and other food-related uses)
- promoting local ‘waste-wise’ initiatives and businesses which reduce Glenorchy’s environmental footprint
- periodic programs targeting problem areas (e.g. recycling at MUDs, disposal of cigarette butts, litter and illegal dumping, recycling contamination)
- correct use of public place waste/recycling bins to reduce high contaminant loads.

Many of these needs can be met at a regional level through future TasWaste South education programs, however there will be a continuing role for Council to provide localised information on Glenorchy initiatives and services. While ongoing resources may be needed to maintain local waste education, success can lead to improved waste behaviours and reduced contamination rates, as well as reduced waste costs and environmental impacts.

There is also potential to expand waste education programs to local businesses. Previous experience shows that the business sector is driven by peer-to-peer learnings, with waste-wise business groups particularly successful in many locations around Australia. These groups have provided opportunities to learn more about ways to reduce waste management costs, make businesses more resource-efficient, reduce their environmental footprint, and sometimes offer a business-to-business exchange of ‘waste’ materials (where one business’s waste is another’s raw material) – all contributing to a more successful, sustainable business community. Council could consider supporting the development of a business waste-wise group at a regional level with the assistance of TasWaste South.

Education programs are most successful when including a feedback mechanism, such as an online feedback form and/or periodic community survey. This would help identify areas where additional information or further attention is needed, as well as monitor the performance of education programs and the different delivery methods used. Council should encourage TasWaste South to consider this at a regional level.

5.3 INFRASTRUCTURE AND SERVICES

While expensive EfW facilities are being developed in other states, they are feasible only at scale and therefore unlikely to be part of Tasmania’s waste management system for the foreseeable future. This makes the limited landfill airspace available at the Jackson Street site a valuable community asset which should be optimised, and used only for waste which cannot be otherwise diverted. This is in line with Council’s commitment to keep the Jackson Street landfill open and operational for as long as possible.

It is also important to continue to divert organic waste from the landfill and capture ongoing methane gas generated in order to reduce the

site’s GHG emissions. Given the site’s large footprint, there may be additional opportunities for generating renewable energy, e.g. through the deployment of solar panels or micro wind turbines. The landfill is located close to an electricity sub-station, improving the potential for feeding electricity to the grid. However consideration would need to be given to a wide range of factors in determining the feasibility of this; Council could explore this further as part of future planning for the site. Future explorations could also consider options for further reducing site costs, e.g. evaporation of landfill leachate to reduce trade waste costs.

Council is currently moving all waste management operations to the Jackson Street landfill site, and is planning to expand the current recycling hub to divert more material from landfill disposal. Council’s current plans focus on diverting around 16,000 tonnes/year of construction and organic waste from the landfill. This would involve developing a hardstand area with covering roof, encompassing sorting bays for concrete, organics, metals, plastics, glass, and paper and cardboard. The sorting bays would have concrete barriers to allow for easy disposal (and transfer to the landfill’s tipping face) of both domestic and commercial waste. Allowing further separation of organic waste from landfill disposal would also decrease the amount of methane (a potent greenhouse gas) generated at the landfill. Construction of the extended recycling hub is planned to commence in 2025-26 subject to funding considerations.

There is potential for further recovery of materials in future, with a particular focus on the landfill’s role in providing clean raw materials for repurposing or remanufacturing in line with circular economy principles. This is particularly the case for products which are increasing in composition of the waste stream, such as e-waste, solar panels, batteries from electric vehicles, etc. Many of these products contain rare earths and valuable minerals which play an increasingly important role in ‘high tech’ products, and demand for these recovered materials is likely to grow.

Council could therefore consider future expansion of the Jackson Street landfill recycling hub to develop a resource recovery centre (RRC), offering opportunities to recycle a wide range of other materials. Directing all residential users through the hub would allow for further separation of recyclable materials from the residual waste stream. This would allow the site to fulfil its potential as an important facility in existing and future product stewardship schemes, accepting materials including mattresses and bedding, paint, e-waste, clothing, solar panels, batteries and other items as part of product stewardship take-back programs.

The RRC could also encompass a transfer station, allowing for deposition of waste by domestic users; landfill staff would then transfer the waste to the landfill’s active cells. This is in line with landfill best practice, which outlines the need to reduce the risk of accidents arising from small vehicle and public access interaction with large machinery at the landfill tip face. This two-step drop-off and transfer process also provides an opportunity for increased supervision of user activities and additional separation of recoverable resources before transfer. While small vehicles would no longer access the tip face, large trucks and dedicated C&I waste loads would continue to deposit waste at the tip face. There are a number of different transfer systems which could be used (e.g. deposition in skips, direct to trucks/pits/compactors, etc.); however there are site constraints (e.g. filled land, access, site contours) and other issues which need to be considered in determining the most feasible and cost-effective system to be used. This would need to be investigated further by Council before deciding on the most suitable transfer technology to use.

An example of an RRC using skips within covered, concrete sorting bays for both recycling and waste transfer is shown in Figure 10 for information purposes only; any future Glenorchy facility would likely be configured differently.



Source: Mitchell Shire Council (Seymour RRC)

With the role of reuse, repair and refurbishment increasing as part of a circular economy, as well as increased recovery arising from development of a RRC and transfer station at the Jackson Street landfill, a large area is likely to be needed to manage items diverted for reuse. Council should assess the need for a dedicated reuse area at the landfill. This may have implications on the site area available for any additional infrastructure development at the Jackson Street site (e.g. future recycling facilities).

The Jackson Street facility could also play an important role in the development of a local recycling precinct. This would see recycling facilities developed by private organisations either at the Jackson Street landfill or on land within a short distance of the landfill for ease of access. The combination of a source of clean raw materials, nearby commercial/industrial land, labour workforce and access to markets may be unique in southern Tasmania, providing incentive for the private development of recycling businesses which contribute to the local economy and employment outlook. The most recent research for the Commonwealth Government in 2009 (Access Economics 2009) indicated that for each 10,000 tonnes of waste, 2.8 jobs were created by landfill disposal while 9.2 jobs were created by recycling. Given the increase in recycling since 2009, the ratio of recycling jobs is likely to be much higher, indicating the potential for growth in the Glenorchy economy. To allow for this potential precinct, Council would need to ensure that relevant planning provisions do not place any barriers to its future development and that Council's vision and support was communicated to potential proponents.

Council should also ensure other infrastructure and equipment is suitable for future use.

As public place waste and recycling bins age, Council could consider the feasibility of replacing them with solar compacting bins which have inbuilt sensors to monitor their filling rate. This would help to minimise waste truck movements and costs (and the use of fossil fuels), as well as reducing

potential litter and increasing public amenity; these may be more suited to some locations (e.g. rural areas) than others. There may also be potential for expansion of the public place recycling network. Any future locations need to be considered in the light of likely pedestrian usage while minimising the potential for contamination (e.g. household waste dropped off by passing traffic).

All kerbside waste and recycling bins should comply with Australian Standards. This ensures that bins readily network with collection systems and equipment, as well as provide consistent messages across Australia via dedicated colours for recycling of relevant material types. While Glenorchy's recycling bins comply with the Australian Standard, the waste bins do not. As waste bins are replaced at end-of-life (either singly or via contract renewal), Council should ensure that new red lids are provided to meet Australian Standard AS4123.

Council FOGO and comingled kerbside recycling services currently experience high contamination rates, negatively impacting on the value of recovered materials, waste disposal costs and the future viability of the services. Ongoing attention should be given to community education, regular audits and enforcement of service provisions to reduce these contamination rates. When the current regional MRF receival contract is renewed, Council should consider amendments to allow closer monitoring of contaminant types received from Glenorchy collections and the collection areas of highest offending.

Service standards in some other states have banned the use of liners in kitchen caddies, as the misuse of plastic liners (many mis-labelled by manufacturers as 'biodegradable' or 'compostable') has contributed to the high rate of contamination in FOGO waste streams. Ongoing reporting by the current FOGO contractor on the type of contamination present in the FOGO material would provide direction to Council on if and when a similar move is needed in Glenorchy.

Council should also employ community education methods to maximise diversion of food and garden organics into the FOGO collection service, and monitor this through regular audits of the waste bin.

With future improvements to the Tasmanian recycling sector likely, the separation and recovery of further materials from the waste stream will increase; it may be feasible to collect some of these at kerbside in future. For example, currently in areas of NSW with soft plastics recycling facilities, soft plastics are aggregated in a single plastic bag which is collected each week in the domestic recycling bin. Once received at the MRF, the plastic bags are sorted into a separate material stream and sent to the soft plastics recycling facility. This type of collection system may prove to be a model for Glenorchy once soft plastics recycling facilities are established in Tasmania. Any new collection systems should be investigated and trialled before introduction. Where it is not feasible or safe to provide collection services, Council should ensure alternative drop-off facilities are available, particularly for materials likely to significantly increase in volume in the future (e.g. e-waste, batteries, engineered stone benchtops).

There are also opportunities to increase diversion and recovery from the commercial and business sector. These include:

- Council could explore options for centralised collection systems for selected commercial waste streams where feasible. This could be based on examples in other Australian cities such as:
 - a. Boroondara City Council provides bins for cardboard, FOGO and other recyclables in a secure compound at a council carpark adjacent to a local market and shopping strip. Local traders have keyed access and materials are collected by council's contractors. Waste management charges apply to participating businesses.

b. Melbourne City Council provides similar keyed access compounds at various locations targeting specific business aggregations. This includes in-vessel organics processing in restaurant precincts and cardboard compactors in other areas. Waste management charges apply to participating businesses.

- Developing waste-wise business groups (discussed in Section 5.2).
- Establishing infrastructure at Jackson Street landfill for diversion of additional materials (discussed above)
- Encouraging FOGO diversion from businesses with high rates of food waste (e.g. restaurants, food processors). This may be best achieved by working with TasWaste South to lobby for statewide programs.

Council has used pricing signals to good effect in the past in reducing the amount of commercial waste received at the Jackson Street landfill; the commercial waste facility operated by Southern Waste Solutions at Lutana is now more competitive and receives most C&I waste in the municipality. Continuing attention should be given to coordinating Council's pricing policy with future waste sources and gate fees at competing facilities. This is particularly the case with C&I waste, which has been shown in many studies to be very price sensitive. Any short lapse in attention could see small price changes at competing facilities drive a rapid increase in C&I waste at Jackson Street landfill or a reduction in the amount of C&I recycling.

Ongoing consideration of gate fees charged at Jackson Street landfill will assist Council to implement other strategic initiatives; this should be considered on an annual basis when setting site disposal fees. It is noted that some other sites are charging to accept certain recovered materials.

Council could also consider this as part of its annual pricing review, although it may wish to differentiate between material types, such as those which do or do not:

- have well developed recycling systems and remanufacturing markets in place
- form part of a product stewardship scheme incorporating industry reimbursement of collection costs
- require longer holding periods on site (to accumulate necessary volumes) or specific management/handling measures
- involve higher risk to the community or site workers and infrastructure
- generate revenue for Council.

These considerations would change over time for different materials, and would need to be balanced against Council's role in encouraging the community to increase recovery and recycling as part of a circular economy.

Council provides a comprehensive suite of waste disposal services to Glenorchy residents. The only additional service offered in some interstate cities is a kerbside-based hard waste collection service.

However interstate experience shows significant issues associated with hard waste collections, including:

- the requirement for manual handling of all hard waste increases work health and safety risks, as well as interruptions to flow in high traffic areas
- public scavenging can increase risk of accidents and traffic issues
- due to higher use of labour, collection costs are also much higher than other automated waste collection services
- often requires multiple collections using different trucks (e.g. separate e-waste, furniture, etc. trucks), leading to increased GHG emissions, traffic and cost impacts

- wastes left out for collection can include inappropriate and unacceptable wastes (e.g. hazardous chemicals, heavy materials unable to be lifted manually)
- can lead to higher illegal dumping incidence as some residents become confused about timing of collection and deposit waste throughout the year (this is common in areas with high concentrations of MUDs)
- additional Council resources and costs needed to organise and manage service – these would be passed on to all ratepayers, regardless of whether they use the service or not
- can lead to odour, litter and visual amenity impacts.

A hard waste collection service is therefore not considered suitable for introduction in Glenorchy.

5.4 MONITORING PERFORMANCE

Expanding data collection, analysis and reporting can enhance Council's understanding of material flows, identify performance gaps, and inform future waste and resource recovery strategies and actions.

Potential areas for improvement include:

- regular analysis of the waste stream, for example through participation in regional waste and recycling bin audits
- periodic landfill waste audits (e.g. 5-8 years), particularly focused on the C&I and C&D waste streams which are less well understood
- requiring regular reports on FOGO and comingled recycling contamination levels from Council's service providers
- recording information on usage of public place waste and recycling bins (including quantity presented, contamination level, collection frequencies, etc.)
- providing waste diversion data in easy-to-access online format (e.g. via dedicated Council waste website) to allow the community to easily monitor its own performance.

Further information on community views of waste and recycling services, costs and performance would also assist Council in directing resources towards community priorities. Council currently undertakes an annual survey of all council services; consideration could be given to expanding this survey to provide more information specific to waste and recycling.

Council currently monitors the annual performance of its waste management initiatives through a range of performance indicators, as well as undertaking interim reviews of strategic actions to determine if program changes need to be made or unexpected issues arise. Results should continue to be monitored on an annual basis, with a mid-term review of the strategy in its entirety in 2027-28.

5.5 ACTION PLAN

A summary of strategic actions discussed above is provided in the action plan below. The action plan will be implemented over the 5-year life of the strategy.

ACTION PLAN			TABLE 5
Council Leadership			
Action		Targets and Indicators	
1.1	Continue to utilise Council procurement code in decision-making for tenders and contracts	Increase in recycled content products purchased	
1.2	Explore options for regional database on recycled content products for procurement	Initiative considered/supported by TasWaste South	
1.3	Explore options for development of regional best practice guidelines for recycling in new MUDs	Development of regional guidelines for MUD recycling in conjunction with TasWaste South	
1.4	Develop a policy which encourages venues and events to reduce waste, increase resource recovery and participate in circular economy	Policy developed and implemented % of venues and events which: - divert food waste to FOGO service - do not use single use plastics - use products with recycled content - promote waste education and circular economy principles - work to reduce other environmental impacts	
1.5	Continue to work with the EPA and TasWaste South on measures to reduce littering and illegal dumping	Incidents of littering and illegal dumping decrease	
1.6	Advocate for relevant policy shifts and/or supporting regulation for: - appropriate changes to Tasmanian planning laws - stronger responses to extended producer responsibility - increased investment in recovery and recycling initiatives from the waste levy - local projects focusing on product repair, reuse and remanufacture	Issues raised and given ongoing support through TasWaste South, LGAT and other relevant organisations	
1.7	Maintain equitable ‘user pays’ approach to waste management costs	No free waste disposal	
1.8	Maintain knowledge of waste management and resource recovery issues in Australia (including performance of EfW facilities)	Relevant training and knowledge base of Council officers	

ACTION PLAN			TABLE 5
Community Education			
Action		Targets and Indicators	
2.1	Support regional education planning and implementation by TasWaste South	Regional education plan implemented by TasWaste South	
2.2	Support TasWaste South development of a regional waste education centre	Regional waste education centre developed and operational v	
2.3	Amalgamate existing Council waste websites into single source of information	Single waste website established and information regularly maintained	
2.4	Continue to support information sharing through Rethink Waste Tasmania and TasWaste South	Support provided Links provided on Council’s waste website	
2.5	Encourage TasWaste South to develop a regional waste-wise business group for peer-to-peer learning	Options explored at regional level Waste-wise business group established	
2.6	Ensure process is established for community feedback on regional waste education initiatives	Feedback mechanisms established by TasWaste South	
Infrastructure & Services			
Action		Targets and Indicators	
3.1	Continue operations at Jackson Street landfill as long as possible	Council commitment maintained Airspace availability optimised	
3.2	Continue to reduce GHG emissions by diverting food waste from landfill and capturing landfill gas for energy generation	Increase in FOGO recycling Ongoing arrangements for landfill gas capture and energy generation Continue to monitor and report on Glenorchy’s GHG emissions	
3.3	Develop plan for future operations and development at Jackson Street landfill (including consideration of infrastructure upgrades such as use of solar panels and micro wind turbines to generate renewable energy, landfill leachate evaporation system)	Landfill plan developed which considers feasibility of additional activities and upgrades on site	
3.4	Recycling hub developed at Jackson Street landfill	Recycling hub constructed and open	
3.5	Consider development of expanded resource recovery centre (RRC) and transfer station at Jackson Street landfill	Development options considered, feasibility assessed and plan developed	

ACTION PLAN			TABLE 5
Infrastructure & Services			
3.6	Assess future need for reuse area at Jackson Street landfill	Needs analysis undertaken	
3.7	Explore options for development of local recycling precinct in Glenorchy	Options considered and feasibility assessed If necessary, planning provisions implemented and Council vision updated	
3.8	As kerbside bins reach end of life, ensure replacements comply with Australian Standards	Kerbside waste bins have red lids	
3.9	Consider replacing public litter and recycling bins at end of life with solar compacting bins at specific locations	Consider feasibility at end of life of existing bins	
3.10	Assess potential for expansion of public place recycling network	Assessment completed Public recycling bins installed in any locations identified as suitable	
3.11	Address high contamination rates in FOGO and recycling collections	Regular bin audits conducted Information obtained on contaminant types, amounts, locations, etc Conduct targeted campaigns to reduce contamination of bins	
3.12	When Tasmanian recycling facilities are established for additional materials, explore options and feasibility of collection or drop-off systems for new materials	Monitor recycling sector to identify opportunities as they arise Options explored and feasibility assessed	
3.13	Consider regional options for increasing FOGO diversion from the commercial sector (including statewide lobbying)	Options explored with TasWaste South	
3.14	Explore options for centralised collection of selected commercial waste streams	Options considered and feasibility assessed	
3.15	As part of annual landfill pricing review, consider - adequacy of price differential for disposal of separated materials and C&I waste - assess need to charge for selected recovered materials	Impacts assessed Pricing policy changed as necessary Policy reviewed annually	

ACTION PLAN			TABLE 5
Monitoring Performance			
Action		Targets and Indicators	
4.1	Support TasWaste South to undertake regular audits of regional waste and recycling bins	Regional audits undertaken on regular basis	
4.2	Undertake periodic landfill audits, with particular focus on C&I and C&D waste streams	Landfill audit undertaken on periodic basis	
4.3	Regular reporting of FOGO recycling contamination levels, materials, location, etc	Annual reports received from FOGO service provider	
4.4	Monitor and record data on public place waste and recycling services	Data reported annually	
4.5	Publish relevant performance data on Council waste website	Data published each year	
4.6	Expand annual Council community satisfaction survey to include more detailed feedback on waste services	Survey amended Enhanced community feedback on waste services received	
4.7	Annual performance monitored and reported to Council	Annual report provided to Council	
4.8	Undertake mid-term review of strategy	Strategy reviewed in 2027-28 and updated where relevant	

NOTES

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