

Consultation Regulatory Impact Statement: Circular Economy Regulation 2023

CONSULTATION DRAFT – August 2023

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1. Executive summary

The ACT community is increasingly committed to addressing climate change, biodiversity loss, pollution and unsustainable consumption of resources. Local awareness of the environmental impacts of our economic system is high and many members of the ACT community are adopting sustainable behaviours.

As we develop as a city, there is a role for government to support the shift to sustainability through clear expectations and rules around recycling and management of waste.

The ACT Government released the Circular Economy Strategy 2022-2030 on 28 August 2023 and on 30 August 2023 introduced the *Circular Economy Bill* to the Legislative Assembly. These seek to embed circular economy principles of designing out waste and pollution, keeping materials in use and regenerating natural systems.

A key focus area is the reduction of materials being sent to landfill which could be repurposed into other products or broken down in a more environmentally friendly manner. Food waste in particular produces methane, a harmful greenhouse gas, as it breaks down. This can be addressed by limiting the amount of food that is wasted, and composting the remainder as this process reduces the release of methane and creates a valuable product that can be returned to the soil.

The ACT Government has household recycling and introduced a food organic and garden organics (FOGO) collection pilot program in the Belconnen region to reduce waste going to landfill and increase resource recovery. The ACT Government has committed to expand this along with other states and territories under the National Waste Policy Action Plan. However, there are currently few requirements for recyclable and food waste that is produced by businesses in the ACT.

This reform aims to minimise the generation of waste, particularly waste which goes to landfill, to maximise the recovery and re-use of resources, and to reduce the harm of plastic and other waste on the environment and public health. The draft Regulation seeks to pursue these by embedding circular economy principles in the management of commercial co-mingled recycling and food waste.

The draft Regulation also recreates the restrictions of single-use and non-compostable degradable plastic products which are prohibited under the *Plastic Reduction Act 2021* and its regulations. As these restrictions are continuing, this statement focuses on the new requirements.

Mandatory comingled recycling and food waste separation and collection for businesses would ensure businesses are aware of the waste they produce and are managing it responsibly. Food waste reductions plans would support businesses to address food waste by identifying the waste they produce and the measures they could use to reduce this. This would help food to be retained in the business or diverted to more beneficial uses, such as supporting community food pantries.

The viability and suitability of three different options for the progression of the Regulation have been considered:

1. do not progress a Regulation,
2. progress the Regulation as drafted, and
3. progress the draft Regulation with amendments.

The impacts of the proposed reform will, on balance, be positive for the environment, the community, government and businesses. The impact analysis supports the objectives of the reform and concludes that the benefits associated with the reform outweigh the costs imposed.

There will be some economic impacts from the implementation of the Regulation including costs to ACT Government of implementing the reform and short-term operational costs to business to adapt to the changes. There will also be substantial benefits including long-term cost savings to businesses, opportunities for the waste management industry, increased food available to food rescue organisations, prolonged lifespan of the ACT landfill and, most significantly, reduced environmental impacts from the production of greenhouse gases as food breaks down in landfill.

The cost-benefit analysis of food waste management demonstrated that whilst broad reform delivers the greatest benefit to cost ratio, all options examined delivered more benefits than costs. The chosen approach is to apply targeted reform to food businesses. This will reduce regulatory burden on businesses and implementation costs whilst targeting the reform where it will be most effective.

The recommended option is to progress the draft Regulation. However, it is noted that changes may be identified in consultation. Where this occurs, it is recommended to progress an amended regulation which enables more appropriate implementation of the proposed reform in response to stakeholder feedback.

2. Need for a regulatory impact statement

Section 34 of the Legislation Act 2001 provides that if a proposed subordinate law or disallowable instrument is likely to impose appreciable costs on the community, or a part of the community, then, before the proposed law is made, the Minister administering the authorising law must arrange for a Regulatory Impact Statement (RIS) to be prepared for the proposed law or disallowable instrument.

This RIS examines the regulatory impacts of the draft Circular Economy Regulation 2023 proposed to be made under powers in the Circular Economy Bill 2023.

3. Feedback on RIS and draft regulation

Consultation will focus on impacted stakeholders who will be contacted to share views on this RIS and the draft regulation. Such stakeholders may be invited to targeted engagement including workshops, surveys and interviews.

Public comment is invited on this RIS and the draft regulation via YourSay during this period.

The RIS and draft regulation will be available via YourSay during this consultation period. Any timeframes and updates will be shared on this same platform.

Feedback received from impacted stakeholders will inform the final regulation and help the ACT Government to design implementation.

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4. Introduction

4.1 Background – the circular economy

In the last fifty years, global use of materials has nearly quadrupled, outpacing population growth. The current ‘take-make-dispose’ linear economic approach sees valuable materials end up in landfill while we continue to draw on precious natural resources to make new products.

Circular economy refers to a cyclical system that minimises resource inputs, waste, emissions and energy. It aims to stop waste being produced and replace the dominant economic system with one that is resource efficient and regenerative by keeping resources in use at their highest possible value.

There are three key principles of a circular economy:

- **Designing out waste and pollution**
Designing products and business models purposefully to avoid waste creation through considering materials’ durability, repairability, reuse and recycling.
- **Keeping products and materials in use**
Keeping materials circulating in the economy at their highest value for as long as possible, reducing the need to extract raw materials and create new products.
- **Avoiding negative impacts to the environment and regenerating natural systems**
Employing a circular economic model where society is sustainably supported by renewable, reusable, non-toxic resources and natural processes are regenerated.

The benefits of a circular economy are not just improving the natural environment, wellbeing and transitioning to net zero: it offers opportunities for innovation, economic growth and job creation.

The ACT Government’s Parliamentary and Governing Agreement of the 10th Legislative Assembly (PAGA) includes a commitment to:

‘create circular economy legislation to, amongst other things, phase out single use plastics and require businesses to have a separate collection for co-mingled recycling and organic waste collection and a food waste reduction plan from 2023’.ⁱ

In response to the global rise in single-use plastic consumption and resulting increases to litter, landfill waste and plastic pollution, the ACT Government established the *Plastic Reduction Act 2021*. The Act prohibits single-use plastic items via regulations. The first tranche of bans came into force in 2021, followed by tranches in 2022 and 2023 banning the sale, supply or distribution of specific items. These measures reduce the use of single-use plastics instead encouraging the use of materials that can be reused, repurposed and recycled in line with circular economy principles.

4.2 The ACT’s Circular Economy Strategy

On 28 August 2023 the ACT Government released the Circular Economy Strategy and Action Plan 2023-2030 (the Strategy)ⁱⁱ to guide the ACT’s next steps towards a circular city.

This release followed a six-week community consultation undertaken between October and December 2022, where feedback was sought on the draft ACT Circular Economy Strategy 2022-25 to inform the development of the final Strategy and Action Plan.

Our vision is for Canberra to become a circular city, that supports sustainability and allows our community and environment to thrive... [This Strategy] sets the high-level ambition with actions to drive the initial steps towards a more circular economy.

Key actions of Strategy are to:

- Introduce circular economy legislation to require businesses to have food waste reduction plans and separate waste streams, including food organics.
- Create circular economy legislation for businesses to have separate collections for co-mingled recycling.

4.3 Consultation statement

Consultation on the Plastic Reduction Act 2021

In 2019 the ACT Government undertook a 15-week consultation on the *Phasing out single-use plastic* discussion paper. This aimed to ensure meaningful engagement across industry, business and the community about problematic single-use plastic waste and pollution. Feedback was sought via online surveysⁱⁱⁱ, written submissions, information sessions, pop-up stalls and targeted consultation.^{iv} This included public release of a draft Bill to inform the Bill's development and its implementation.

Key findings of consultation

Results revealed very high levels of support amongst industry, business and the community for action to phase out single-use plastic products in the ACT. This included the phase out of specific single-use plastic items and plastic-free events. A regulatory approach to this phase out was supported by the community and business groups, along with support for intermediate or voluntary reductions.

The consultation identified the importance of single-use plastic straws remaining available for people living with disabilities, and other conditions as current alternatives are considered to be unusable, high risk and dangerous for some people in these groups. Based on this feedback and additional consultation with disability advocacy groups, the Government included exemptions in the 2022 regulation to ensure that single-use plastic straws remained available for the people who need them.

2022 consultation on the draft Circular Economy Strategy

The ACT Government consulted on the draft Circular Economy Strategy in 2022. The draft Strategy covered circular economy principles and five key themes along which to advance circulatory in the ACT through to 2025, including food and organics and emerging and problematic waste streams.

The ACT Government ran a six-week public consultation between October and December 2022. This included a survey on the YourSay website, social media and publications in the *Canberra Business Update* e-newsletter. 160 survey responses were received, including 17 from local businesses across Canberra. 35 written submissions were provided by community, industry and business groups.

Following this period, industry workshops informed development of the final Strategy and its Action Plan in early 2023. The Strategy's proposed timeline was extended to 2030 to reflect the Strategy's short- to long-term actions and to align with the National Waste Policy Action Plan 2030 targets.

Key findings of consultation

Responses received indicated a general willingness amongst the community to participate in a circular economy. Key insights from the consultation relevant to the Regulation were:

- The ACT community and businesses actively participate in activities consistent with a circular economy. They want further opportunities to reduce waste and live sustainably but need support from Government, including appropriate legislation.
- There is a role for government in creating education campaigns and supporting businesses to reduce financial and logistical barriers to participation in circular economy initiatives.

Food and organics

- Community and industry highlighted a need to focus on waste reduction practices, rather than only addressing end-of-life waste streams.
- The community strongly supports mandating food waste reduction targets for supermarkets, food producers and other ACT businesses.
- Reliance on volunteers and community groups to reduce food waste is a key challenge. Collaboration is needed for businesses to provide appropriate food to food rescue groups.
- Confusion around nation-wide packaging terms such as 'Use By' and 'Best Before' impacts the volume of food waste.
- The community strongly supports the wider roll out of the ACT Government's Food Organics and Garden Organics (FOGO) scheme. Concerns remain about demand for the end product (i.e. compost) and whether the scheme is the best composting model for the ACT.

Further detail on feedback received is available in the Listening Report.^v

Targeted engagement

In developing the Cost Benefit Analysis for this RIS, an independent consultant engaged with waste service providers to understand the likely impacts of introducing the proposed reform. This research gathered information on the current levels of collecting and processing commercial co-mingled recycling and commercial food waste in the ACT. This provided insight into the current practices of local businesses and enabled modelling of the potential impacts of the proposed new requirements on businesses, food rescue organisations, the community and the environment.

This preliminary work provided the information for this consultation RIS. This work is intended to help people understand the potential impacts. The ACT Government encourages readers to consider and challenge this information so that a complete picture of the impacts can be gained.

In addition to inviting public comments, the ACT Government intends to run targeted workshops with affected businesses prior to finalising the draft Regulation. The feedback received will guide the preparation of the final Regulation, a decision RIS and an implementation plan.

This consultation does not cover plastic reduction as no new requirements are proposed. The Bill and draft Regulation remake existing provisions banning particular plastic products that are currently in the *Plastic Reduction Act 2021* and its regulations. The Bill sets notice and consultation requirements before regulations may be extended to other plastic or problematic non-plastic products in future.

4.4 Objectives of Government action

The ACT Government has committed to transitioning to a circular economy. A key step in the transition is the introduction of reforms that can reduce the amount of food waste and recyclables going to landfill and recovering it at its highest market value.

The proposed reforms implement the ACT Government's commitment to item 21 of the PAGA to create circular economy legislation to, amongst other things, phase out single use plastics and require businesses to have a separate collection for co-mingled recycling and organic waste collection and a food waste reduction plan from 2023.

The objectives of the proposed reforms project are to:

- reduce the generation of food waste from businesses;
- increase the quantity of co-mingled recycling recovered from businesses;
- increase the volume of organic material recovered from businesses to create a clean saleable product, such as compost, fertiliser or animal feed;
- reduce contamination and increase the quality of materials collected for comingled recycling and food waste recycling;
- reduce the generation and associated social, economic and environmental impact of commercial food and organic waste in the ACT; and
- address public feedback that indicates action on food and organic waste and other waste streams guided by circular economy principles is a priority.

These objectives align with the Circular Economy Strategy and support the delivery of ACT Government commitments and targets, including those outlined in the ACT's Waste Management Strategy^{vi}, ACT Climate Change Strategy^{vii} and the National Waste Policy Action Plan^{viii}.

4.5 Transitional arrangements

The reform does not have retrospective effect. It will repeal and absorb the *Plastic Reduction Act 2021*. The Regulation and a number of instruments made under the Plastic Reduction Act will be remade. Transitional provisions will apply to disapply consultation provisions in the legislation in relation to these instruments as the necessary consultation had already been undertaken.

4.6 Mutual recognition

Mutual recognition of goods aims to remove regulatory barriers to the free movement of goods. The *Mutual Recognition Act 1992* (Cth) applies the mutual recognition principle between Australian states and territories and the *Trans-Tasman Mutual Recognition Act 1997* (Cth) applies the mutual recognition principle between Australian jurisdictions and New Zealand. The mutual recognition

principle for goods is that goods produced or imported into one jurisdiction, and that may lawfully be sold in that jurisdiction, may be sold in other jurisdictions without the necessity to comply with certain types of requirements.

The proposed reforms would have a mutual recognition impact if they sought to ban or impose requirements on the sale of goods that can be sold in other jurisdictions. However, the options considered in this RIS do not do this. Requirements to have food waste reductions plans, to separate comingles recycling, and to separate food organics are requirements for businesses in the ACT to undertake particular actions; they are not restrictions or requirements on goods that can be sold. There are therefore no mutual recognition implications of the proposed reforms.

4.7 Overview of the Circular Economy Bill 2023

The Circular Economy Bill 2023 (the Bill) progresses a number of items identified in the final Circular Economy Strategy and its Action Plan. Notably the Bill proposes to bring plastic reduction together with other actions that align with circular economy principles and introduces a framework to regulate management of commercial food and organics, and emerging and problematic waste streams as they are identified.

The Bill and its draft Circular Economy Regulation 2023 (the Regulation) create a framework to meet this commitment and allow further circular economy initiatives to be legislated in future. The Bill will repeal and replace the *Plastic Reduction Act* bringing the waste reduction requirements for various waste streams under a single piece of legislation. The Bill proposes to:

- Carry over provisions and prohibited plastic products from the *Plastic Reduction Act 2021* and its Regulation;
- Introduce a requirement for specified business to develop food waste reduction plans;
- Allow the Minister to require separate collection of waste streams such as commercial co-mingled recycling and food and organics waste;
- Expands the power for the Minister to ban products to include non-plastic products.

4.8 Overview of the draft regulation

The draft Regulation is the subject of this RIS. The Regulation introduces requirements for:

- all businesses to separate co-mingled recycling;
- relevant businesses to separate food waste; and
- relevant businesses to have a food waste reduction plan.

A 'relevant business' is defined in Regulation where it can be changed over time. This will initially apply to set types of food business but can be adjusted if needed to achieve the desired outcomes.

The draft Regulation also outlines the prohibited products under the Bill. This includes prescribed single-use plastic products and prescribed non-compostable degradable plastic products.

All of the listed prohibited products are currently prohibited under the *Plastic Reduction Act 2021* and its regulations. For this reason, the elements of the Bill and draft Regulation relating to

prohibited products are not subject to consultation at this time. Existing requirements for regulating new plastic products, including notice and consultation requirements, have been recreated in the Bill and will apply before the Minister may add any additional product restrictions.

5. Identifying the problem

5.1 Co-mingled recycling

What is commercial co-mingled recycling?

Australia generates approximately 76 million tonnes of waste per year (based on data from 2018-2019).^{ix} Around half of this waste is sent for recycling in some form, while the remainder is sent to landfill. Manufacturing and construction businesses generating the most waste across the economy.

There are a broad range of common waste materials that can be recycled either through kerbside recycling collection or direct transport to a materials recovery facility including:

- Aluminium cans and scrap metal
- Copper
- Packaging steel
- Asphalt
- Brick and concrete
- Plasterboard
- Cardboard and paper
- Timber pallets and packaging
- FOGO
- Glass
- Plastics (PET, HDPE, PVC and mixed plastics)
- Rubber tyres, and
- E-waste.

Comingled recycling single stream recycling of paper, glass, metal and cardboard rather than separated streams. Paper, plastics and metal are the top three recyclable waste streams in the ACT.^x

In 2010 it was estimated that approximately 53% of businesses in the ACT recycle, which is significantly lower than the portion of households (~80%).^{xi} More recent estimates indicate that the portion of businesses that use comingled recycling services has increased to around 67-75%.

What are the reasons for requiring separate co-mingled recycling collections for businesses?

A reduction in the proportion of recyclable material in landfill reduces the rate at which landfill sites are exhausted. The net benefit of recycling materials varies based on the type of material and the environmental indicator considered.^{xii}

A review^{xiii} of the construction industry in 2008-9 found that in the ACT:

- illegal dumping of waste was a major deterrent to increasing recycling activities;
- re-processing facilities could meet an increase in demand and supply for processes materials;
- key end markets require further development; and
- cost is not a major incentive to increase recycling and education is perceived as being the critical component to increasing recycling within the sector.

The 2022 *ACT NoWaste Report: Audit of MRF inputs and Outputs*^{xiv} for sample landfill and waste transfer sites found that 73% of waste received was from commercial and industrial activities, 25%

was municipal solid waste and 2% was from construction and demolition. By weight, only 5.3% of the incoming waste was recovered for recycling during the sampling period.

The main categories of incoming waste (by volume) were:^{xv}

- Garbage bags of rubbish (29%)
- Wood and wood products (21%)
- Textiles (14%)
- Recyclables such as plastic, glass and metal containers, large electrical items and paper/cardboard (10%)
- Non-recyclable plastic, metal and glass (8%)
- Other (7%)
- Building materials (3%)
- Organic (2.5%)
- Polystyrene foam (2%)
- Other organic (1.5%)
- Special (1.5%).

The 2022 *ACT NoWaste Report: Audit of domestic kerbside waste bins*^{xvi} found that the average ACT household generates 10.3 kg of waste per household per week, comprising 7.7 kg of general waste and 2.6 kg of commingled recycling. This equates to an estimated 91,552 tonnes per year comprising 64,462 tonnes per year of general waste and 27,056 tonnes per year of comingled recycling.

Beyond the ACT, the Australian Government's National Waste Policy Action Plan is driving a waste industry modernisation initiative and establishes goals to, amongst other things:

- reduce waste by 10% per person by 2030;
- recover 80% of all waste by 2030; and
- increase the use of recycled content by government and industry.

Under this national plan, and in response to the Chinese government decision to limit the import of waste, the Australian Government made the decision to regulate the export of several waste streams. Regulation of tyres, plastic and glass began in 2021, while paper and cardboard will be regulated from 1 July 2024. This requires a greater proportion of waste management to occur within Australia to ensure that exported waste meets the criteria of accepting countries.

Drivers and constraints to recycling as a business

Environmental concern around the impact of waste on the environment is typically one of the biggest drivers of recycling across business. Staff wanting to 'do the right thing' is shown to be one of the leading reasons for the use of recycling in construction and industrial businesses.^{xvii}

In general, businesses in the ACT have a high level of concern around waste management with 49% of businesses indicating that they are very or extremely concerned about waste management. These businesses are often hospitality venues, retail, light industrial and small construction firms.^{xviii}

Environmental concerns have also been the main driver for plastic recycling across industry, with public interest in reducing environmental footprints identified as an important social factor in the recycling of plastic materials.^{xix} There is also a growing market for recycled products which is driving an interest in recycling in business.

People like to know where recycling goes. Studies have found that people are more likely to recycle when they know what the end product looks like. The knowledge of this transformation process and the potential value from that often inspire people to continue recycling even when it is challenging.^{xx}

Similarly, the degree to which businesses understand how their waste is dealt with in the waste management sector has a direct relationship to the recycling behaviour.^{xxi} However, uncertainty for consumers around what can be recycled leads to poor recycling outcomes in terms of the quality and the portion of recyclable material that is processed correctly.

Effective waste management is a concern for all businesses; however, the cost and impact of waste management differs depending on the business, the type and volume of waste produced and the disposal options available.^{xxii} General findings around the drivers of recycling behaviour indicate that a lack of services, or the inconvenience of recycling, are some of the challenges that reduce the uptake of recycling behaviour. Common barriers to recycling in the ACT have been identified as:

- cost of services;
- service availability;
- capacity to recycle (i.e., staff are already doing the best they can);
- infrastructure requirements;
- amount of waste produced (i.e., waste volumes are too small to worry about recycling); and
- opportunity cost of staff time.^{xxiii}

While many businesses already opt in to recycling from a socially and environmentally conscious standpoint, the implementation of recycling still represents a cost to business. Businesses are incentivised to minimise costs unless there is a perceived benefit in the expense. The cost of waste management of businesses varies depending on factors such as tenancy arrangements. Some businesses will pay for waste management directly, while others will pay through their tenancy arrangements (e.g., landlord or property manager).

In general, office-based businesses and retail shops are more likely to pay for waste management through tenancy arrangements rather than direct sourcing, while large businesses, pubs and clubs are likely to pay directly for services.^{xxiv} It is estimated that more than half of businesses in the ACT do not know the cost of disposing their waste. Reported costs of recycling vary between \$0-5,000 per business.^{xxv} The opportunity cost of staff time is a concern for over 20% of businesses in the ACT.

An audit in Victoria^{xxvi} found that sending waste to landfill remains a low-cost option for businesses, particularly in the commercial and industrial space. As a result, many businesses choose to send recyclable materials to landfill rather than establish separate collection processes.

Service availability was also identified as a major constraint to increasing the proportion of business recycling in the ACT.^{xxvii} However, this was typically seen as an issue where there was not a service available to recycle a particular class of waste. This includes food waste, treated wood, polystyrene, clean fill, plastic wrap, insulation, construction materials, confidential material and e-waste.

Why is Government action required?

While some businesses have voluntarily decided to recycle, a number of businesses in the ACT are still sending recyclable material to landfill. As such, ACT Government action on recycling is needed due to a failure of the market to self-correct.

Open and unrestricted competition in markets is generally regarded as the most efficient mechanism for allocating resources; however, the nature of some goods and services prevents markets from attaining optimal economic and social outcomes for the community.^{xxviii} This market failure can occur amidst various factors; in the case of recycling sent to landfill, market failure arises in the presence of negative externalities. Externalities arise where an activity, service or good confers spill-over benefits or imposes spill-over costs on third parties.

Businesses that send recyclable waste to landfill are not affected by the spill-over environmental and social costs which are borne government, individuals and the community. As such, there is little incentive for businesses to actively recycle items to decrease the negative externality. Compounding this, there is currently a cost (in time and infrastructure) for businesses to divert waste from landfill.

Explicit government regulatory action^{xxix} provides certainty to business and the community, while providing the most effective way to lessen the environmental and social costs of waste minimisation and reuse of recyclable material. This would involve costs to government, including for education and enforcement. However, these costs are expected to be at least partially offset by reducing the pressure on waste management and resource recovery systems and reduced environmental impacts.

In addition, imported waste into Australia was valued at \$140 million during the 2020-21 financial year. The value of waste commodities varies by product from approximately \$155/tonne for glass to \$771/tonne for paper and cardboard.^{xxx} Recyclable materials entering landfill are a potentially valuable resource that could be better used and valued as an end product. Diverting recyclables from landfill also reduces pressure on the ACT's landfill infrastructure and will prolong its operating life.

What co-mingled recycling requirements are being considered for this reform?

This reform proposes creating a power for the Executive to be able to require certain businesses to have separate collection of specified waste streams by Regulation.^{xxxi} In exercising the power to make a Regulation, the Executive must consider:

- the financial and operational impact of the proposed waste reduction requirement or waste processing requirement on the people and businesses to whom the requirement applies; and
- written submissions received from consultation.

The draft Regulation proposes to prescribe food waste and co-mingled recycling as waste streams. It is proposed for comingled recycling arrangements be in place for all businesses from 1 July 2024.

RIS Limitations

A quantitative cost benefit analysis of the co-mingled recycling reform has not been undertaken at this time (See Appendix A) due to the availability of data and indications that this reform may not have substantial costs.

According to consultation undertaken by an external consultant engaged to undertake analysis as part of this RIS, waste collection and processing companies indicate that co-mingled recycling collection is currently in place for the majority of ACT businesses. It is estimated that around two thirds to three quarters (67% - 75%) of businesses already have recycling collection. Waste contractors advise that including co-mingled recycling collection is generally cheaper than sending all waste to landfill. Finally, waste contractors commented that there is sufficient capacity for both trucks and Materials Recovery Facility (where co-mingled recycling is sorted). For this reason, it appears that the cost of requiring all businesses to have co-mingled waste collection is quite small.

There is limited data on what businesses do and do not have recycling collection – making the analysis of alternative scopes of business for inclusion impractical. Additionally, while there are estimates of the quantity of recyclable material that is sent to landfill from commercial and industrial facilities, it is not clear what portion of this is wrongly disposed from a facility that has recycling available.

To undertake a cost benefit analysis for this reform, further data would be required to estimate:

- The number of businesses that do not currently have co-mingled recycling collection, but would now be required to under this option; and
- The quantity of co-mingled recyclate that would be collected.

If there is concern that the proposed reform would impose unreasonable costs on specific industry groups or business types and not demonstrate commensurate benefits, then this Consultation RIS is intended to provide an opportunity for stakeholders to provide data to support this proposition.

5.2 Food waste reduction and food and garden organics waste management

What are food organics and garden organics?

FOGO is considered to be any food waste and garden waste, and can also include paper towel and compostable plates and bags, however items permitted to go into FOGO schemes varies.^{i,ii,iii}

Food waste reduction plans are strategies or implementation plans that may or may not include governance, monitoring and evaluation, and coordination of priority areas of work.

The 2019 - 20 Budget provided dedicated funding for planning on a FOGO collection service. The ACT Climate Change Strategy 2019 - 2025^{xxxiii} has dedicated FOGO actions including:

- a food waste reduction campaign from 2020,
- a household FOGO collection service from 2023, and
- a scheme for large producers of organic waste, such as hospitality and food retail businesses, to have separate FOGO collection by 2023.

What is the problem with food and organic waste?

Food waste management is a global challenge. It is estimated that up to 17% of all food produced globally is wasted along the supply chain from farm to plate. Aside from the humanitarian issues this presents, food waste:

- challenges the efficiency of waste management systems;

- results in pollution and contamination;
- impacts on biodiversity; and
- contributes to climate change.

Australia generated 75.8 million tonnes of solid waste in 2018-19 of which 7.6 million tonnes is food waste. Based on population growth, the 2030 baseline is potentially at 9.2 million tonnes of food waste. The average amount of food waste per capita is estimated to be around 298 kg per year.^{xxxiii} The key sources of food waste for 2018-2019 are outlined in Table 1.^{xxxiv}

In major food businesses, food ends up in the waste stream as a result of factors such as:

- Spoilage;
- Loss during transport;
- Over-production; and
- Plate and preparation waste.^{xxxv}

Table 1: Sector estimates of food waste production based on the National Food Waste Strategy Feasibility Study^{xxxvi}

Sector	Millions of tonnes / per year	% of the total food waste
Primary production (including farming, harvesting, and processing)	1.683	22%
Manufacturing (including processing, packaging, and distribution)	1.534	20%
Wholesale and retail (including storage, transportation, and retailing)	0.527	7%
Food service (including preparation, cooking, and serving in restaurants, cafes, catering, and other food outlets)	1.217	16%
Households (including shopping, storage, cooking, and disposal)	2.464	32%
Other	0.251	3%
Total	7.676	100%

Food waste is estimated to cost the Australian economy up to \$20 billion each year. In the ACT, food waste comes from several key sources including the food service industry (cafes and restaurants), institutions such as schools and aged care and households. Estimated flows of food waste are provided in Tables 2 and 3. In comparison with other jurisdictions in Australia, the ACT does not have a high-volume food waste stream associated with primary production or manufacturing.^{xxxvii}

In the ACT, households have been estimated to account for approximately 60% of the food waste produced, the majority of which enters landfill. The processing of organic waste is a key area for the circular economy in the ACT and was included as a key part of the ACT Circular Economy Strategy.

The ACT Government is actively addressing food waste in the home through FOGO trials and building a new composting facility in partnership with the Commonwealth Government which aims to process around 50,000 tonnes of food and organic waste per year into compost for use in the region.

Table 2: Numbers and sizes of food business in the ACT^{xxxviii}

Grouping of ACT classifications	Example	Number of businesses	ABS size distribution (employees)				
			0	1-4	5-19	20-199	200+
Institutions	Schools, hospital canteen, Aged Care Residential Services	220	39%	13%	13%	22%	13%
Specialty retailing	Other Specialised Food Retailing	720	37%	43%	15%	5%	0%
Restaurant / Café	Cafes and Restaurants	1203	13%	39%	39%	9%	1%
Child Care	Child Care Services	240	44%	11%	14%	27%	3%
Pub/club/tavern /hotel	Pubs, Taverns and Bars	127	28%	21%	27%	24%	0%
Manufacturer	Bakery, Product Manufacturing	55	20%	38%	24%	18%	0%
Fast Food	Takeaway Food Services	592	19%	42%	30%	9%	0%
Supermarket	Supermarket and Grocery Stores	160	19%	40%	22%	17%	2%
Wholesale	Other Grocery Wholesaling	25	51%	26%	19%	6%	0%
TOTAL		3,342					

Table 3: Estimated current food waste generated and waste to landfill for each business grouping^{xxxix}

Grouping of ACT classifications	ACT Numbers of businesses	Food waste generated for each large business (Tonnes)	Total waste generated (Tonnes)	Estimate of food waste diverted		Food waste to landfill
				%	Tonnes	Tonnes
Institutions	220	16	1,683	20%	337	1,347
Specialty food stores	720	8	1,281	10%	128	1,153
Restaurant / Café	1203	10.7	4,829	40%	1,932	2,898
Child Care	240	4	426	2%	9	417
Pub/club/tavern /hotel	127	5.37	303	5%	15	288
Manufacturer	55	500	10,443	90%	9,399	1,044
Fast Food	592	6.67	1,303	20%	261	1,042
Supermarket	160	66.67	4,033	70%	2,823	1,210
Wholesale	25	12	77	50%	38	38
Total	3,342		24,378		14,941	9,437

Why is Government action required?

Food waste occurs across all sectors of the economy. The ACT Government is committed to tackling food waste and has implemented a FOGO pilot for households. While the household pilot will address the largest source of food waste in the ACT, the 40% of the food waste stream which comes from businesses remains unmanaged. Action is required to address this significant waste stream.

The key reasons for targeting food waste from business are:

- Consultation on the Circular Economy Strategy asked for focus on waste reduction practices.
- Reducing the proportion of food in waste streams has environmental benefits associated with reduced greenhouse gas emissions and reduced environmental contamination.
- Averting food waste has social and economic benefits for government, industry and the community including reduced costs to business from wasted product, reduced amounts of putrescible waste requiring landfill management, and diversion of food to charitable organisations.
- Preventing avoidable food waste has been estimated to result in direct benefits of up to \$26 million over the next 20 years.
- The community has expressed strong support for mandating food waste reduction targets for supermarkets and some other businesses.
- There has been a failure of the market to self-correct due to negative externalities. Of the nine business groups identified in the ACT, two thirds divert less than 50% of their food waste from landfill, with a third diverting 10% or less (Table 3). These groups represent 75% of the food waste in the ACT entering landfill. These figures illustrate that while some businesses divert food waste, additional incentive is required to achieve reduction targets.

5.3 Food waste reduction plans

Food waste reduction plans (FWRPs) have been identified as the preferred mechanism to address food waste in the ACT and are included in the ACT Circular Economy Strategy. The objective of a food waste reduction plan is to ensure that businesses and industry prioritise food waste avoidance or recovery at its highest market value to be returned to the natural environment.

FWRPs have been implemented in NSW as a voluntary measure to address food waste in businesses with the primary focus on hospitality and producers, such as bakeries. The NSW model aims to encourage businesses to assess their food waste and seek efficiencies to reduce the volume of waste.

A food waste reduction plan would typically include the following elements:

- a policy approach;
- a goal or target;
- monitoring and reporting processes; and
- an action plan to guide implementation to achieving the goal.

In households, waste reduction plans that help facilitate measures such as planning meals and shopping lists, organising the fridge and pantry, using leftovers and freezing food, and checking the date labels, can reduce annual food waste by about 50% (from 298kg to 149kg per person).^{xi}

In businesses, food waste reduction plans focus on implementing measures to reduce spoilage, loss during transport, over-production and plate and preparation waste. Such measures can include:

- monitoring the amount and type of food waste;
- optimizing inventory management and ordering quantity;
- reviewing menu and portion size;
- extending shelf life; and
- donating or reusing surplus food.

Through the implementation of these measures, it has been shown that businesses can reduce food waste by up to 60% generating direct and indirect benefits.^{xli}

In the United Kingdom (UK) during the first 10 years of the Voluntary Courtauld Commitment Program run by the Waste and Resources Action Programme (WRAP) avoidable food waste was reduced by between 17% and 28%, saving consumers and food businesses \$12 billion and reducing greenhouse gas emissions by 11 million tonnes of carbon dioxide equivalent.^{xlii,xliii}

Table 4 below estimates potential food waste reductions that could be achieved in the ACT through implementing a FWRP. The scenarios are based on reductions from similar measures in the UK. The food waste data is from an independent consultant's analysis of food waste figures provided by a local waste processing company (Table 3). The estimates in Table 4 are for illustrative purposes only.

Indirect benefits of food waste reduction plans in the ACT are difficult to cost without an in-depth cost benefit analysis across sectors and supply chains. However, the National Food Waste Strategy Feasibility Study includes broad case studies of potential societal benefits to implementing FWRPs.^{xliv}

The implementation of interventions can have significant impacts across the economy, both directly for stakeholders and for the community who benefit from reduced environmental impacts of food waste. This 'ripple effect' produces complex costs and benefits that affect multiple groups such as:

- Conservation of natural resources, such as land, water, and energy, that are used to produce food. It can also help to reduce greenhouse gas emissions, as food waste in landfills produces methane, a potent greenhouse gas.
- Savings for farmers, businesses, and consumers by improving efficiency. It can create new opportunities for value-added products from food waste, such as compost, biogas and animal feed. Food waste costs the Australian economy around \$36.6 billion each year.
- Improved food security and nutrition by making more food accessible, including through the food rescue sector which redistributes surplus food to people in need. One in five Australians do not have adequate access to food, while 7.6 million tonnes of food are wasted per year across Australia.

Table 4: Scenarios of food waste reduction for the ACT using food waste reduction outcomes from other examples.

Business Group	Current situation				Scenario 1 - 17% reduction			Scenario 2 - 28% reduction		
	Total food waste generated (tonnes)	Estimate of food waste currently diverted (tonnes)	Food waste to landfill (tonnes)		17% reduction in volume (tonnes)		Residual estimated waste to landfill (tonnes)	28% reduction in volume (tonnes)		Residual estimated waste to landfill (tonnes)
Institutions	1,683	20%	336.6	1,346.4	37%	622.7	1,060.3	48%	807.8	875.2
Specialty retailing	1,281	10%	128.1	1,152.9	27%	345.9	935.1	38%	486.8	794.2
Restaurant / Café	4,829	40%	1,931.6	2,897.4	57%	2,752.5	2,076.5	68%	3,283.7	1,545.3
Child Care	426	2%	8.52	417.5	19%	80.9	345.1	30%	127.8	298.2
Pub/club/tavern /hotel	303	5%	15.15	287.9	22%	66.7	236.3	33%	100.0	203.0
Manufacturer	10,443	90%	9,398.7	1,044.3	95%*	9,920.9	522.2	95%*	9,920.9	522.2
Fast Food	1,303	20%	260.6	1,042.4	37%	482.1	820.9	48%	625.4	677.6
Supermarket	4,033	70%	2823.1	1,209.9	87%	3,508.7	524.3	95%	3,831.4	201.7
Wholesale	77	50%	38.5	38.5	67%	51.6	25.4	78%	60.1	16.9
TOTAL	24,378	61%	14,941	9,437	73%	17,832	6,546	79%	19,244	5,134

*For the purposes of the analysis, a maximum of 95% food waste averted was assigned due to the likelihood that some portion of food waste will be unable to be diverted from landfill.

Constraints/assumptions

It is not possible to accurately quantify changes in food waste over time as audits are sporadic, and assessment of food waste produced and diverted from landfill is based on national assumptions and sampling across a mix of households and industries in each state. ACT programs designed around reducing food waste may also influence estimates of food waste that may be reported:

- The Love Food Hate Waste program provides tips and tools for households and businesses to avoid and reduce food waste.
- The OzHarvest organisation rescues surplus food from commercial outlets and delivers it to charities that feed people in need.
- The ShareWaste platform connects people who have food waste with people who have compost bins or worm farms.
- The FOGO pilot project collects food scraps from around 5,000 households in the Belconnen region for processing into compost (assumed reduction in 1,490 tons at 298 kg/household)).
- Canberra Organic Growers Society (COGS) Community Gardens collect food waste for composting and mulch.

What food waste and organic waste requirements are being considered for this reform?

This reform proposes introducing requirements via regulation for relevant businesses to have a food waste reduction plan and to separate food and organic waste.^{xlv} Before making a regulation, the Minister would be required to give public notice, invite and consider submissions, and consider the impact of the proposed requirement and the availability of waste processing capabilities.

An options analysis within this RIS considered the most appropriate businesses for this requirement, in line with the policy objectives and the ACT business landscape. It was determined that the reform should initially apply to cafés, restaurants, clubs, pubs and bars, takeaway food outlets and vendors, and supermarkets.

It is expected that relevant businesses would be required to have a food waste reduction plan in place by 1 July 2024 and food waste collection arrangements from 1 December 2025 at the earliest.

ACT Government does not intend to set an exact form that a food waste reduction plan must take. Rather, guidance and templates would be provided to businesses. Plans would be accepted if they:

- Demonstrate how the businesses prioritises the elimination of food waste, including through ordering, storage and preparation of food;
- Identify parts of the business operation where food waste may be created and identify the volume of waste;
- Identify actions to prevent and reduce food waste, including donation of food to rescue organisations; and
- Consider how inedible food could be reused.

There would be an offence provision for failure to supply a food waste reduction plan when requested by an authorised officer within 2 business days.

6. Options analysis for food waste reduction plans

A one-size-fits-all approach to the application of food waste reduction plans is unlikely to be a successful approach to ensuring that food waste is reduced in the most practical manner across the variety of businesses in the ACT. The effectiveness of the plans is likely to vary across sectors and be driven by the available measures to reduce food waste in the target business.

To meet the ACT Government's commitment to require relevant businesses to have a food waste reduction plan from 2023, a number of implementation alternatives were considered:

Option A: Apply mandatory food waste reduction plans to all relevant businesses.

Option B: Support businesses to voluntarily develop and adopt a food waste reduction plan.

Option C: Adopt sector level food waste reduction strategies.

Option D: Implement a combined approach of strategies and mandatory/voluntary waste reduction plans (based on the size and nature of the business).

Option E: Food waste reduction plans for a geographical food service precinct (as a pilot).

Option A – Mandatory food waste reduction plans

Option A is the mandatory application of food waste reduction plans across all businesses which generate food waste. The benefits and constraints of this option are outlined in Table 5.

The ACT Government would develop a 'model food waste reduction plan' which outlines actions that businesses should adopt to reduce food waste. Businesses would be able to amend the model to suit their specific circumstances. The model FWRP would include sections which outline:

- the importance of reducing food waste
- identification of key food waste streams from the business
- recommended mitigation and reduction activities for reducing food waste, and
- recommended review periods and optional reporting.

Table 5: Option A cost benefit analysis

Option A – Mandatory food waste reduction plans	
Benefits	Considerations
Clear requirement for all businesses	Embeds food waste management in relevant industries as an expectation.
Strong signalling to industry	Sets clear expectations that commercial food waste needs to be managed. Encourages industry to find innovative ways to reduce food waste.
Collection of data on waste streams	Mandatory reporting requirements for businesses would support the collection of accurate waste stream information.
Ability to take compliance action	A regulatory approach allows for compliance and enforcement activities to be implemented to support relevant businesses to comply.

Option A – Mandatory food waste reduction plans	
Government could set standards	The model FWRP would set standard expectations and food waste reduction measures which can be adapted by businesses.
Business benefits	Implementing a FWRP is likely to reduce operating costs for most businesses. The NSW EPA estimates that food waste costs business \$7/kg.
Reduce landfill burden	Most likely to significantly reduce the putrescible food waste going to landfill. This may reduce operating costs and extend the life of the landfill.
Constraints	Considerations
Requires regulatory reform	Regulatory reform would be needed, including a Regulatory Impact Statement and consideration of human rights.
Monitoring and reporting costs	Ongoing government staffing would be needed to monitor FWRPs, ensure they are fit for purpose and conduct reporting.
Compliance and enforcement costs	Ongoing government resources would be needed to ensure effective implementation. Given the scale of businesses, costs may be significant.
Costs business to implement FWRP	Costs to business to establish a plan, monitor and report on food waste, install infrastructure to capture, store and sort food waste and train staff.
Illegal dumping	Potential increase in illegal dumping to avoid costs to business. Dumped food waste could cause environmental impacts relating to pests, diseases, weeds and contamination of waterways, and require government action.
Requires systems to support reporting	The government would need a system to track businesses' FWRP reports. This could measure the effectiveness of the reform via waste reductions, identify sectors which are not succeeding, and track compliance.
Requires industry education campaign	Government investment would be needed in industry education campaigns on food waste, the purpose of FWRPs and how to implement them.

Option B – Voluntary food waste reduction plans

Option B is the development of a food waste reduction toolkit and education program to support businesses in the ACT to voluntarily implement a food waste reduction plan. The toolkit and education campaign would be rolled out to target small to medium enterprises, particularly cafes and restaurants. The benefits and constraints of this option are outlined in Table 6.

The ACT Government would support businesses to implement the toolkit and provide advice where required. The toolkit may require sector specific information to ensure that it is fit for purpose.

Table 6: Option B cost benefit analysis

Option B – Voluntary food waste reduction plans	
Benefits	Considerations
Low cost for government	Fewer government resources would be needed for a toolkit and educational campaign. This would cost less than an educational campaign to support Option A as it applies less oversight and to fewer businesses.
Industry-led approach	The businesses opt in to save costs and meet social or environmental aspirations.
No regulatory reform required	No regulatory reform is required to support Option B which reduces the time and cost for ACT Government to develop the program.
Constraints	Considerations
No compliance or enforcement ability	Option B is voluntary and so there is no Regulation or offence provisions that apply.
Waste stream data benefits not realised	No data reporting is provided to government.
May not achieve desired outcomes	The voluntary nature means that uptake cannot be easily controlled, and it may not result in the reductions sought by ACT Government.

Option C – Sector level food waste reduction strategies

Option C adopts a strategic approach to addressing food waste within target sectors by developing overarching sector strategies underpinned by business-specific reduction plans. This enables food waste to be addressed in complex sectors which have multiple interrelated systems that might make reform challenging. The benefits and constraints of this option are outlined in

Table 7.

Stop FoodWaste Australia has already developed Sector Action Plans for several key sectors which operate in the ACT. These plans focus on raising awareness, developing skills and building capacity across the breadth of actors within a sector.

The ACT Government could explore existing Sector Action Plans and look to develop complementary plans in the ACT that could have broader application within Australia. Legislation could require FWRPs to be consistent with the requirements of Sector Action Plans.

A Section Action Plan would be a statutory document which businesses would have to follow when developing business-specific FWRPs. The strategy would guide the mitigation and management actions within the sector and ensures that all actors apply the same waste management approaches.

Table 7: Option C cost benefit analysis

Option C – Sector level food waste reduction strategies	
Benefits	Considerations
Strategic approach across multiple businesses	Waste management strategies apply to all actors within a sector to cumulatively address waste. This allows for food waste mitigation measures to target problem waste streams and drive sector-wide change.
Action targets largest sources in the ACT	Sector Action Plans for targeted sectors in the ACT would allow for a strategic approach to address known food waste management issues.
Builds on established model	Builds on the national body of knowledge being generated on reducing food waste. ACT model could be rolled out to other programmatic areas.
Incremental roll out	Allows for incremental roll out as sector strategies are developed.
Constraints	Considerations
One-size does not fit all	The strategy may be too broad to deliver outcomes in sectors where businesses operate and produce food waste in different ways.
Does not capture all food waste sources	Sector Action Plans for key sectors would not apply to all businesses (e.g., smaller cafes). This may be appropriate in early years to reduce regulatory burden on small businesses and target action where it is most effective.
Requires individual business FWRPs	Business-specific FWRPs would be needed in order to be effective and for compliance to be undertaken. This would increase burden on businesses.
Requires regulatory reform	The implementation of statutory sector action plans and mandatory FWRPs would require regulatory reform.
Costs business to implement FWRP	Costs to business to establish a plan, monitor and report on food waste, install infrastructure to capture, store and sort food waste and train staff.

Option D – Combined approach

Option D takes elements from all of the preceding options and applies them using a matrix based on the business type. Given the range of businesses that produce food waste in the ACT, a more tailored approach would help ensure that the FWRPs achieve the desired outcome and would limit the impost on business from applying a process that is not fit for purpose.

Table 8 illustrates the applicable approach based on each type of business. These could be refined based on food waste profiles. The benefits and constraints of this option are outlined in Table 9.

Table 8: Implementation approaches based on business type

Proposed implementation approach				
Business type	Sector Action Plan (SAP)	Mandatory FWRP (bespoke)	Mandatory FWRP (based on model)	Voluntary FWRP based on SAP
Pubs, Clubs and restaurants	•		•	
Quick service restaurants	•		•	
Institutions (education facilities, aged care, event venues)	•	•		
Cafes				•
Large chain supermarkets	•	•		
Green grocers and small independent supermarkets			•	
Food vans				•
Outdoor events		•		

Table 9: Option D cost benefit analysis

Option D – combined approach	
Benefits	Considerations
Captures all food waste streams	Ensures that all food waste streams across business in the ACT are captured. The level of regulation is based on the likely food waste profile and complexity of the business's operations.
Balanced approach	Regulates heavy food waste streams at a higher level and minor food waste streams at a minimum (or not at all).
Cost to business	Costs from reform and savings from managing food waste would align with the level of waste produced by the type of business.
Transition period	Allows for the reforms to be rolled out incrementally to ACT businesses.
Constraints	Considerations
Requires more Government support	Requires more investment and Government support to implement a range of mechanisms. Support could be targeted in areas that would achieve the most effective outcome.
Regulatory reform is required	Similar to Options A and C, regulatory reform is required if any compliance or enforcement is intended.

Option E – Food service precinct approach

Option E involves implementing a pilot approach to the introduction of FWRPs based on geographical locations. The benefits and constraints of this option are outlined in Table 10.

Under this option, FWRPs would be rolled out to all businesses in a particular food service precinct such as Dickson or Braddon as part of a trial. This trial would allow for reform to be implemented at a small, manageable scale before being rolled out more broadly, incorporating lessons learnt.

Table 10: Option E cost benefit analysis

Option E – Food service precinct approach	
Benefits	Considerations
Controlled implementation in a high service area	A controlled pilot in a small area with a high number of food service businesses would test the implementation of the FWRPs. This includes the rollout of food waste collection services and disposal options.
Collection services could be centrally located	A precinct approach may allow collection services to be centrally located for multiple businesses rather than separate facilities for each business.
Community approach	This may generate a community approach to the management of waste. Learnings can be shared between businesses as measures are tested.
Constraints	Considerations
Potential for inequitable regulation	Cost and time to implement the reforms may unfairly impact businesses in the pilot areas relative to other food service precincts.

Options Analysis – Outcome

This options analysis demonstrated the benefits and constraints of varying approaches in relation to the nature of regulation (mandatory vs voluntary), the scope (all businesses vs targeted groups) and the nature of food waste plans (prescribed, a national template, or flexible).

It was determined that the most effective and appropriate policy approach in the ACT at this time is to pursue mandatory requirements for a targeted group of food businesses. Food waste reduction plans may be flexible to suit business needs as long as they meet minimum requirements.

Mandatory measures as analysed in Option A are expected to be more effective at creating change than voluntary measures, whilst applying a single set of requirements to a smaller group will increase clarity, reduce the burden on businesses and lower the implementation costs for government.

Requirements are proposed to apply to food businesses by type rather than location, to capture businesses that are likely to generate a higher volume of waste and to avoid unfair geographical impacts. The proposed definition of a ‘food business’ includes supermarkets, cafes, restaurants, clubs, hotels and bars that sell food and businesses that sell takeaway food.

7. Setting the scene

7.1 Waste management and resource recovery in the ACT

The ACT has some of the most ambitious waste management and resource recovery targets in Australia. This includes a target of achieving up to 90% of waste being diverted from landfill by 2025 and a carbon neutral waste sector by 2020.

Waste management strategy

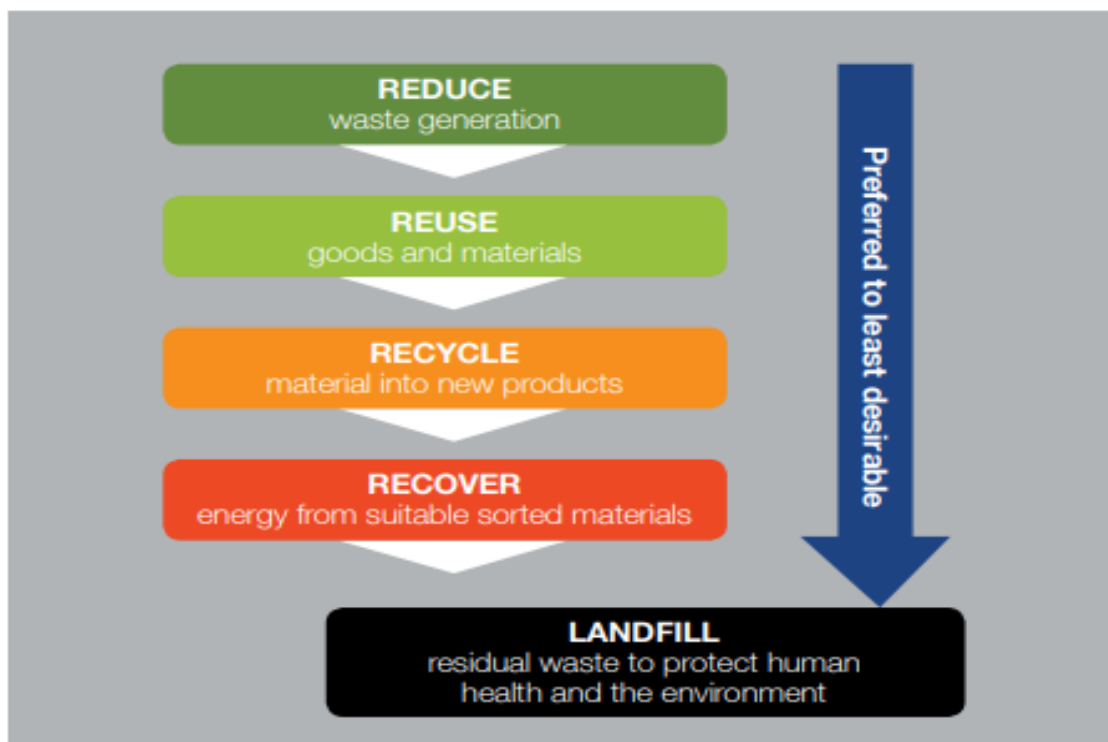
The ACT Government's approach to waste management and resource recovery is outlined in the ACT's Waste Management Strategy.^{xlvi} Developed in consultation with the public, it outlines a number of objectives, including; working to reduce the amount of waste we produce here in the ACT, and a shift to waste being viewed as a resource, rather than rubbish for landfill.

The cornerstone to effective waste management is the waste management hierarchy (Figure 1). This classifies waste management strategies according to their importance and aims to extract the maximum benefits from products while generating the minimum amount of waste. It does this by:

- avoiding products becoming waste (reduce and reuse),
- finding an alternative use for waste (recycle and recover), and
- ensuring safe and appropriate disposal as a last resort.

The ACT's waste management hierarchy supports the principles of a circular economy.

Figure 1: ACT Waste management hierarchy^{xlvii}



Waste legislation

The ACT's Waste Management Strategy is currently supported by a number of laws including:

- ***Plastic Reduction Act 2021***
This Act reduce plastic consumption in the ACT by prohibiting identified single-use plastic items via regulation and allow the Minister to declare single-use plastic-free events.
- ***Waste Management and Resource Recovery Act 2016***
This seeks to maximise recycling and reuse and minimise waste. It aims to encourage investment, innovation and best practice in the ACT waste industry.
- The ***Litter Act 2004*** and the ***Clinical Waste Act 1990*** support waste management in the ACT.

The Minister for Transport and City Services is the Minister responsible for these laws and for recycling and waste policy in the ACT. Consolidating these responsibilities has positioned the ACT Government to holistically consider environmental, waste management and resource recovery objectives and to streamline the regulatory and administrative approaches.

Container deposit scheme

The ACT Container Deposit Scheme began in June 2018. There are currently over 20 return points in operation.^{xlviii} The industry-funded Scheme encourages recycling within the Canberra community and aims to reduce litter and waste to landfill. Under the Scheme, consumers are able to return eligible, empty beverage containers for a 10-cent refund that they may collect or donate to charity. Most containers commonly found as litter, including aluminium, glass, plastic (PET and HDPE), steel and liquid paperboard beverage containers between 0.15 and 3 litres, are eligible under the Scheme.

ACT Government's Business Recycling Program

The ACT Government's Business Recycling Program is available to all businesses with a shopfront in the ACT. To be accredited in the program, businesses must implement organics and co-mingled recycling systems and complete a 10-step program, including a waste summary and management plan, educating staff, reporting and monitoring. Accreditation is maintained on an annual basis. In 2021-22, there were 113 accredited sites that have recycled approximately 57,821 cubic metres of mixed recyclables, 51,691 cubic metres of paper and cardboard, and 5,572 cubic metres of organic material, reducing harmful greenhouse gas emissions at the same time.

Climate Change Strategy 2019 – 2025

The ACT is a global leader on climate change action with some of the most ambitious emissions reduction targets in the world. The ACT Climate Change Strategy outlines the next steps the community, business and government will take to reduce emissions by 50% – 60% (below 1990 levels) by 2025 and establish a pathway for net zero emissions by 2045.^{xlix} It includes actions to reduce emissions and to build resilience to climate change impacts, including for the waste sector.

Given the significant emissions generated by food and organic waste, encouraging food waste avoidance will help deliver the ACT Government's commitment to tackling climate change.

Circular Economy Strategy

On 28 August 2023 the ACT Government released its Circular Economy Strategy and Action Plan. This Strategy outlines the actions and opportunities that can be progressed to develop a circular economy for the ACT- a cyclical, regenerative system that minimises resource inputs, waste, emissions and energy.

The Strategy sets the high-level ambition for the ACT, setting up short, medium and long-term actions to progress through to 2030. This aligns with the 2030 targets in the National Waste Policy Action Plan. The ACT's Strategy is designed to evolve over time, considering the progress of actions and as new opportunities and challenges arise.

The Strategy's actions target five areas of the ACT economy: food and organics, the built environment, consumer goods, emerging and problematic waste streams, and creating space to showcase our commitment to the circular economy. The Strategy highlights areas for industry, business and government to continue working together to build a circular city that supports sustainability and enables the ACT community and environment to thrive.

7.2 National Waste Agenda

National Food Waste Strategy 2017

In 2017 the Australian Department of Climate Change, Energy, the Environment and Water (DCCEEW) developed a National Food Waste Strategy to halve food waste by 2030.ⁱ Stop Food Waste Australia was established to support the strategy and implement initiatives such as the Australian Food Pact, sector action plans and education campaigns. It has also invested in research and technological improvements to reduce food waste and increase resource recovery.

The strategy faces some barriers such as lack of data, coordination and regulation, as well as market and behavioural factors. A possible improvement is to address these barriers through policy, funding and innovation.ⁱⁱ

National Packaging Targets

In 2018 Australian environment ministers committed to reducing the amount of waste generated and product recycling easier. Ministers endorsed a target of 100% of Australian packaging being recyclable, compostable or reusable by 2025 or earlier and committed to working with the Australian Packaging Covenant Organisation, representing over 900 leading companies, to deliver this target.ⁱⁱⁱ

The Australian Packaging Covenant Organisation Board announced three extra industry-led targets^{liii} to be achieved by 2025, which were endorsed by the Australian Government. These ambitious targets will require the support of industry, business, government and individuals to succeed:

- 70% of plastic packaging will be recycled or composted,
- 50% average of recycled content will be included in packaging (revised from 30% in 2020),
- Problematic and unnecessary single-use plastics packaging will be phased out through redesign, innovation or alternative delivery methods.^{liv}

National Waste Policy Action Plan 2019^{lv}

In 2018 all Australian Governments agreed to the National Waste Policy. The policy aims to promote a circular economy, making a shift away from 'take, make, use and dispose', to a more sustainable approach where the value of resources is maintained for as long as possible.

One of the key principles of the Policy is to avoid the creation of waste by prioritising waste avoidance and encouraging efficient use, reuse and repair.^{lvi} Strategy 10 specifically targets plastics and packaging and aims to *‘reduce the impacts of plastic and packaging on the environment and oceans, reduce plastic pollution, and maximise benefit to the economy and society’*.^{lvii} This ambition is reflected in the national targets outlined in the 2019 National Waste Policy Action Plan to:

- reduce waste generated in Australia by 10% per person by 2030, and
- phase out problematic and unnecessary plastic by 2025.^{lviii}

In August 2019, the Australian Government announced they will introduce a ban on the export of waste plastic, paper, glass and tyres. More information on the ban and the timelines is available on the Australian Government’s website.^{lix}

In July 2020, the Commonwealth and ACT Governments announced co-funding supporting the urgent need to upgrade the ACT Materials Recovery Facility to respond to the Waste Export Ban. This co-funding has since been formalised by a National Partnership Agreement.

In October 2022, the Environment Ministers Meeting recognised the progress that Australia has made to improve waste management under the Plan, and the pressing need for further action to arrest environmental decline.^{lx} The Plan will be expanded over the next year to ensure a harmonised phase out of problematic single-use plastics and action regarding product stewardship. Ministers agreed to work with the private sector to design out waste and pollution, keep materials in use and foster markets to achieve a circular economy by 2030.^{lxi}

Commonwealth Recycling and Waste Reduction Act 2020

The *Commonwealth Recycling and Waste Reduction Act 2020* provides a national framework for managing Australia’s recycling and waste reduction objectives. This regulates the export of waste materials, manages the health, environmental and safety impacts of product disposal and provides for product stewardship schemes. An objective of the Act is *‘to develop of a circular economy that maximises the continued use of products and waste materials over their life cycle and accounts for their environmental impacts’*.^{lxii}

7.3 Circular economy promotion and waste management in other jurisdictions

Jurisdictions across Australia and internationally are taking steps to move away from a linear economy framework (where raw materials are made into products and then discarded as waste at the end of the product life) to implement circular economy frameworks. This transition is a fundamental move towards sustainability and aims to improve social, environmental, and economic outcomes.

New South Wales

Legislation

The *Plastic Reduction and Circular Economy Act 2021* (NSW)^{lxiii} works to prohibit certain plastic items, specify design standards for certain items, and establish a product stewardship framework for brand owners of regulated items. The Act requires the development of Action Plans for regulated products and establishes design standards which must be complied with.

Strategies and actions

The Waste and Sustainable Materials Strategy 2041^{lxiv} established under the Waste Avoidance and Resource Recovery Act 2001 outlines the NSW Government's plan to transition to a circular economy over the next 20 years, including actions to minimise waste and increase efficiencies in the use and re-use of resources. To help achieve the targets of halving food waste to landfill and achieving net zero emissions from organics in landfill by 2030, the NSW Government will require the separate collection of food and garden organics from all NSW households by 2030 and food waste from targeted businesses and other entities that generate the highest volumes of food waste, including large supermarkets and hospitality businesses, by 2025.

Key findings

In comparison with some other jurisdictions, NSW has taken a regulatory approach to addressing the issue of reduction and circular economy initiatives. The Plastic Reduction and Circular Economy legislation provides for mandatory compliance with design standards and implementation of mandatory resource recovery.

South Australia

Legislation

South Australia's *Green Industries SA Act 2004*^{lxv} established an independent statutory authority, Green Industries SA (GISA) which remains responsible for leading development of the circular economy in the state. This Act incorporates the circular economy as a guiding principle and continues to be used to promote improved sustainable waste management practices and green industry development.

Strategies and actions

South Australia's Waste Strategy 2020-2025^{lxvi} seeks to promote innovation and business involvement in managing waste, recovering resources and pursuing economic growth in green industries. The Strategy includes a target of zero avoidable waste to landfill by 2030, and a *Valuing Our Food Waste Strategy 2020-2025*^{lxvii} with specific actions to regulate single-use plastics, to address commercial and household food waste, and to attract and support investment and markets.

South Australia uses Recycling Infrastructure Grants to incentivise businesses and local governments in the state to upgrade, improve and invest in the equipment, technology and processes required to process recyclable materials.^{lxviii} Eligible projects in 2023 were those that target fibre (paper, cardboard, newspaper etc), plastics, glass or organics from household, commercial and industrial sources, projects that improve the quality and volumes of recyclable materials, and projects that produce valuable recycled products for local use or higher value export.

Key findings

South Australia continues to define itself as the national leader on progressing circular economy and waste reduction initiatives. The South Australian Government first introduced a container deposit scheme in 1997, banned light-weight plastic bag sales in 2009, and at present has comparatively high rates of waste diversion from landfill. The state uses an independent statutory authority to push

forward progress in waste management, including a current focus on reducing and diverting food waste.

Victoria

Legislation

In 2021 the Victorian Government introduced the *Circular Economy (Waste Reduction and Recycling) Act*.^{lxi} This Act provides the foundation for Victoria's transition to a circular economy, including enabling laws for the new container deposit scheme and new state-wide four-stream household waste and recycling system that includes separate glass and FOGO by 2030. It saw the establishment of Recycling Victoria in 2022, a dedicated government business unit to oversee and provide strategic leadership for the waste and recycling sector. The Act and Recycling Victoria are key commitments of the Victorian Government's circular economy plan, *Recycling Victoria: a new economy*.

The Act provides for mandating sorting of waste materials by businesses and creates powers for data collection and reporting. It includes offence provisions related to failure to comply with standards for waste management businesses. The Victorian Government will introduce new rules to require businesses to sort commonly recyclable materials and organic waste from unrecoverable wastes.^{lxx} It is expected that these rules will apply to businesses that do not use the kerbside collection system.

Strategies and actions

In 2020, Sustainability Victoria published the *Path to half* report which aims to halve food waste by 2030. The report identifies agricultural waste, processing and manufacturing as the largest food waste stream followed by consumers. Retail food waste is the fourth largest waste stream in Victoria.

Key findings

Regulatory tools in Victoria are currently targeted at waste management and reduction in households through a mandated four-stream waste and recycling system. Future focus is on the regulation of waste management businesses under service standards and mandatory sorting of waste for commercial operations. FOGO waste management for businesses is focussed on behaviour change through community information and incentives.

Western Australia

Legislation

In Western Australia (WA), waste is regulated under the *Environmental Protection Act 1986* (EP Act), the *Waste Avoidance and Resource Recovery Act 2007* (WARR Act) and the *Waste Avoidance and Resource Recovery Levy Act 2007* (WARR Levy Act) and their regulations.

Strategies and actions

The Waste Avoidance and Resource Strategy 2030 is the state's primary policy instrument for guiding the management of waste. This strategy aims to progress the state towards becoming a sustainable, low-waste, circular economy in which human health and the environment are protected from the impacts of waste.^{lxxi} Targets include a 20% reduction in waste generation per capita, and recovery of at least 75% of waste. Under the Strategy, the Waste Strategy Action Plan 2022-23 includes plans to

implement a three-bin kerbside collection waste system with separated FOGO in the Perth and Peel regions by 2025.^{lxxii}

In collaboration with the federal government, WA recently announced a \$11.25 million program to deliver composting services aimed at increasing nutrients in soil from household and commercial FOGO waste streams. State funding is also being provided to support local government areas to implement the proposed three-bin system.

Key findings

In comparison with other jurisdictions, WA relies upon a more policy-based approach to the development of circular economy initiatives and waste management practices. Multiple pieces of legislation and policy interact in WA to give effect to waste reduction and avoidance practices. Regulation of waste streams is given effect on a project-by-project basis through the *Environment Protection Act 1986*.

Internationally

Globally, approximately 17 per cent of total global food production is wasted (61% in households, 26% in the food service and 13% in retail).^{lxxiii} The United Nations Sustainable Development Goals (12.3) identify a target of halving per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses by 2030.

European Union

The European Union (EU) is seen as a leader in advancing circular economy policy and many cities across the EU are progressing action towards a circular economy. The European Commission adopted the new circular economy action plan in March 2020, which is accompanied by legislative instruments including the Waste Framework Directive and a directive on single-use plastics.

United Kingdom

British-based global charity Waste and Action Resources Programme (WRAP) and the Institute of Grocery Distribution in the UK have launched the Food Waste Reduction Roadmap, a voluntary initiative that aims to halve food waste by 2030. They invite businesses to participate in Whole Chain food waste reduction Plans, working together across the supply chain to take joint actions that reduce farm to fork food waste. They also provide guidance, tools and resources to help businesses measure and report their food waste.

The initiative has achieved significant results, such as saving 180,000 tonnes of food worth £300 million from becoming waste across 45 companies. However, the initiative also faces some challenges such as data availability, consistency and quality, as well as consumer behaviour and awareness. A possible improvement is to increase the participation, transparency and collaboration of businesses and stakeholders.^{lxxiv}

In Scotland, the Waste (Scotland) Regulations 2012 include a requirement that food businesses that consistently generate more than 5kg of food waste per week are required to separate their food waste for collection. Scotland also has a landfill ban on biodegradable municipal waste, and has released its Food Waste Reduction Plan, which outlines how it will deliver its commitment to reduce food waste by 33% by 2025 and focuses on reducing food waste generation.

Milan, Italy

Milan in Italy has a voluntary FOGO collection service for households and businesses. It provides kitchen caddies, compostable bags and green bins to participants and collects food waste twice a week. The service has achieved a high participation rate and a low contamination rate of less than 5%. However, the service also has some issues such as high costs, limited processing capacity and variable quality of compost. A possible improvement is to increase the efficiency, scalability and marketability of the service.^{lxxv}

San Francisco, United States of America

San Francisco has a mandatory FOGO collection program for all residents and businesses. It collects food scraps, yard trimmings and soiled paper in a green bin and converts them into compost at a local facility. The program has diverted over 2.1 million tons of organic waste from landfill and reduced greenhouse gas emissions. However, the program also faces challenges such as contamination, odour, pests and theft. A possible improvement is to enhance education, enforcement and security measures.^{lxxvi}

Seoul, South Korea

Seoul in South Korea has a pay-as-you-throw system for food waste collection for households and businesses. It uses radio frequency identification (RFID) tags or smart bins to measure the weight and charge the users accordingly. The system has reduced food waste generation by 30% and increased recycling by 95%. However, the system also has some drawbacks such as inconvenience, privacy concerns and illegal dumping. A possible improvement is to address these drawbacks through user feedback, public awareness and regulation.^{lxxvii}

8. Proposed Reform Options

The ACT Government has identified two areas of potential policy reform that could be applied to a range of businesses:

1. require target businesses to have a separate collection for co-mingled recycling; and
2. require target businesses to have a separate collection for food waste and a food waste reduction plan.

The proposed reform options are:

1. Do not introduce the proposed Circular Economy Regulation 2023 at this time;
2. Progress the proposed Circular Economy Regulation 2023; or
3. Progress the proposed Circular Economy Regulation 2023 with amendments.

Option 1: Do not introduce a regulation at this time

This option means that the Circular Economy Bill 2023 could pass in the Legislative Assembly but would not give effect to provisions relating to commercial comingled recycling collection, food waste reduction plans or food waste collection as they need to progress via Regulation.

Not pursuing a regulation at this stage means the status quo would be retained and:

- the Bill would not have full effect;

- there would be no new waste requirements for businesses; and
- the lack of requirements would result in lost opportunities to address the economic, social and environmental problems posed by the disposal of food waste and recyclables in landfill.

Option 2: Progress the proposed Circular Economy Regulation 2023

This option means that the proposed regulation is supported, and the regulation will be introduced once the Circular Economy Bill 2023 passes in the Legislative Assembly.

This would apply comingled recycling collection requirements to all businesses in the Territory that produce recyclable waste. The food waste reduction and collection requirements would apply to a targeted group of food businesses as outlined in option 1 in Table 1, Section A.1, Appendix A which includes: cafés and restaurants, clubs, pubs and bars, takeaway food businesses and supermarkets. This would enable the ACT government and business community to transition to more sustainable waste management practices in line with the circular economy principles and objectives outlined in the Bill and in this RIS.

Option 3: Progress the proposed Circular Economy Regulation 2023 with amendments

This option means that support is given to the development of a Regulation, with amendments to the policy position outlined in this RIS. If option 3 is pursued, amendments could either increase, or reduce, the scope of businesses covered. Potential revised scope of businesses could include options outlined in Table 1, Section A.1, Appendix A.

Depending on the proposed amendments, the final Regulation may not be able to give full effect to the recommended reform such that the objectives outlined in this RIS are completely met. However, amendments which result in a reduced regulatory approach can still have a positive impact on consumer behaviour (e.g., reducing plastic use by raising awareness).

Recommended option

The public consultation undertaken in relation to the ACT's Circular Economy Strategy indicated there is general willingness to participate in a circular economy and high levels of support for action, including regulatory action, education and support for businesses, on waste reduction practices in the ACT.

Targeted consultation revealed there is capacity for additional recycling and food waste processing in the ACT waste industry. Impact assessments have revealed a mix of anticipated impacts across the affected groups. Overall the costs of implementation are outweighed by the likely benefits for the environment, businesses, waste providers, businesses, government and the community.

The recommended option is option 2 - to support the regulation as drafted.

9. Impact analysis

The purpose of an impact analysis is to present information relating to:

- the estimated net economic impacts of the reform options;
- the impacts on different groups within the community that are likely to be affected by the options;

- the risks associated with each option; and
- any effects that the reforms may have on competition.

A cost–benefit analysis (CBA) and distributional impacts assessment was conducted by independent consultants to determine the regulatory impacts of the proposed reform relating to comingled recycling and food waste. This is available at [Appendix 1](#) and the assessment outcomes are summarised below.

Whilst the draft Regulation also cover prohibited products, these are not addressed in this section. The Regulation recreates restrictions to single-use and non-compostable degradable plastic products that exist under the *Plastic Reduction Act 2021* and its regulations. A full RIS including a cost-benefit analysis was undertaken for the introduction of this Act and for each of its regulations. There would not be any new impacts from the Regulation, as these requirements are already in place in the ACT.

Provisions which may impose some cost

The following provisions are likely to impose some appreciable cost to government, the community or businesses. These are all discussed in more detail below:

- separate collection of commercial co-mingled recycling.
- food waste reduction plans
- separate collection of food and organics

9.1 Co-mingled recycling

This section considers the qualitative benefits, constraints, and implementation considerations for requiring the separate collection of comingled recycling from businesses in the ACT.

Comingled recycling is already commonly used by many businesses in the ACT on a voluntary basis. This approach to recycling offers a better solution than separated recycling streams for paper, glass and metal as it reduces the complexity of the recycling system that needs to be implemented by employees and saves space by having a dual bin system only (comingled and waste to landfill).

It is estimated that around two thirds to three quarters (67% to 75%) of businesses in the ACT already have recycling collection,¹ however there is limited data at this time on which businesses these are. Waste contractors report that for businesses, including co-mingled recycling collection is generally cheaper than sending all waste to landfill, and that the waste industry has sufficient capacity to transport and process additional co-mingled recycling.

The draft Regulation to require all businesses to have separate collections for co-mingled recycling. Requiring businesses to implement separate comingled recycling aligns with the Australian Government’s agenda of recovering waste and increasing the proportion of recycled material in the economy by 2030.

¹ The estimate that between two-thirds to three quarters of businesses already have co-mingled recycling in place was discussed and confirmed with representatives from both Veolia and Remondis.

The implementation of mandatory separation and collection of comingled recycling has a number of benefits and a few constraints that need to be considered and managed to minimise unintended policy consequences. These are explored further in Table 11 below.

Analysis of alternatives

Table 11: Analysis of alternatives for co-mingled recycling reform

Options:	Benefits and constraints
Require all businesses to have separate co-mingled recycling collections	Benefits – Products will be kept in the circular economy for reuse after appropriate processing, reducing the need for virgin materials and reducing landfill volumes. There will be equal and clear expectations for businesses to manage their waste sustainably. Constraints – Initial costs to some businesses and to Government to implement the reform and address any increases in illegal dumping.
Retain the current legislation, which does not require separation of commercial co-mingled recycling	Benefits – no regulatory impact on ACT businesses Constraints – there would be no progress of circular economy principles in treating commercial recycling. Businesses will continue to be able to externalise costs of waste management, resources will be landfilled rather than continuing to have value, and there be in environmental and community costs of higher landfill volumes.

Cost benefit analysis

Table 12: Costs and benefits of proposed comingled recycling reform

Sector	Costs	Benefits
Government	Illegal dumping - Increased business costs may lead to an increase in illegal dumping. - Additional controls may be required to be implemented for a period of time after the implementation of regulatory changes to deter increases in illegal dumping. Implementation - An education campaign may be needed to raise awareness of the new requirements. - Resources for compliance and enforcement could be necessary if this approach is pursued.	Quality control - Regulating comingled recycling provides the ACT Government with a mechanism to control the quality of recyclable material entering its resource recovery facilities. Industry signalling - The regulation of recyclable waste sets the expectation that recyclable material should be regulated and lays the groundwork for the expansion of recycled waste regulation in the future by creating expectations that responsible management of recyclable materials is a legal responsibility. For example, a move towards a requirement to recycle building materials such as timber, masonry, steel and tyres.
Business	Cost increase - Between 2016-17 there was an 18% increase in the cost of waste management across the board.^{lxxviii} By requiring comingled recycling for all businesses there will be a cost for businesses to manage. Industry capacity - Requiring the collection of comingled recycling from all businesses may increase the workload of waste management providers within the ACT. If there is not	Competitive advantage - Currently some businesses choose not to use a recycling service to avoid paying additional fees for waste management. These businesses opt to send recyclable material to landfill which has lower costs for their business (although arguable higher costs to government and the community). - Requiring the implementation of comingled collection for all businesses would level the playing field by requiring all

	sufficient capacity within existing providers, this may result in increased costs as demand for services increases relative to supply. It may be challenging for some businesses to engage a waste management service at an affordable rate if the volume of waste produced by the business is small and is not able to be bundled with waste from other companies (e.g. through shared tenancy). The waste industry may need to consider the development of alternative products to service this part of the market.	businesses to comply, not just those who wish to do so for social or environmental reasons. Industry signalling - Requiring the separation and collection of comingled recycling creates a signal to industry about the ACT Government's expectations around waste management. - This indicates that there will be a certain and sustained flow of product and could create opportunities for new companies to enter into the waste management sector in the ACT. This aligns with the circular economy strategy and the ACT Government's ambitions to manage waste more sustainably.
Community	There may be minor costs to consumers if businesses choose to pass on increases to the cost of waste management. These are unlikely to be substantial noting that it is already common practice within many businesses in the ACT to use comingled recycling.	Alignment with societal norms - This reform would align regulatory expectations with current social practice to set a minimum standard for business operations. Given that all employees in Canberra would be familiar with the use of comingled recycling, it would ensure the alignment between these facets of the community. - Establishing the comingled recycling requirement provides clear guidance for businesses which can be used to set accurate budget expectations. - Businesses will no longer be able to externalise the costs associated with waste disposal.

Summary

This reform would apply clear and equal requirements to all businesses in the ACT to partake in co-mingled recycling. This change would align business practice with current societal norms in the ACT, sets expectations for industry and allows greater quality control of waste streams.

Establishing a comingled recycling requirement would reduce the competitive advantage of businesses who do not recycle over those organisations that are currently recycling for social and environmental reasons. This would level the playing field by eliminating the advantage available to businesses who externalise waste management costs: these costs would have to be managed by each business rather than pushed onto the environment, the community and the government.

Co-mingled recycling collection requirements may result in cost increases or savings for businesses, depending on their waste contracts. Where costs rise, the proposed reform may potentially increase the risk of illegal dumping. For the waste industry, increased collection and processing needs for comingled recycling represents both a cost and an opportunity to benefit.

There will likely be costs for Government to introduce the requirements, and there is a potential for ongoing costs of compliance and managing illegal dumping. These costs and impacts are justified by the broader benefits of the reform, which would provide social and environmental value to the ACT, reflecting the values of the Canberra community.

9.2 Food waste reduction plans and collections

Food waste is a known problem globally and locally; wasted food resources contribute to greater production needs and environmental impacts of greenhouse gases produced by the breakdown of food waste. In the ACT the main contributors to food waste are households and businesses.

Whilst the ACT Government has introduced a FOGO trial for households, there are currently no requirements for the reduction or processing of commercial food waste in the ACT.

Various cities around the world have trialled different actions to address this problem and it is currently a focus area in Australia, guided by the National Food Waste Strategy. WA and Victoria are pursuing requirements for commercial food waste management, whilst NSW has introduced voluntary food waste reduction plans for business and South Australia is using grants to promote the development of appropriate waste processing infrastructure.

To address commercial food waste in the ACT, the draft Regulation proposes to:

- Introduce a requirement for specified business to develop food waste reduction plans;
- Allow the Minister to require separate collection of commercial co-mingled recycling and food and organics waste;
- Allow the Minister to require (by declaration) certain events to have separate collection of food waste;

Analysis of alternatives

Table 13: Analysis of alternatives for food waste reduction plans and collections

Options:	Benefits and constraints
Require food businesses to have food waste reduction plans and collections, and introduce the ability to require certain events to have food waste collections	Benefits – this would reduce food waste in the ACT. Reduction of food purchasing and diversion from landfill would increase food security, generate other products such a compost and reduce greenhouse gas emissions. Constraints – there would be some initial costs for ACT businesses to implement plans and separate collections.
Retain the current legislation, which does not address food waste reduction and collection	Benefits – no regulatory impact on ACT businesses Constraints –this would not redirect food waste from landfill to food rescue or processing to run into other products. This would not progress the circular economy in the ACT or reduce greenhouse gas emissions.

Cost benefit analysis

The full rapid cost-benefit analysis undertaken for the proposed food waste reform is at [Appendix 1](#).

Table 14: Costs and benefits of proposed food waste reform

Sector	Costs	Benefits
Government	• Cost of developing and implementing regulatory reforms & education • Ongoing audit & enforcement • Expansion of food organics infrastructure to meet demand	• Reduced landfill volumes
Business	• Food Waste Plan production • Some increased waste collection costs • Bin space and waste handling time	• Reduced food costs • Some reduced waste collection costs
Waste industry	• Additional waste collection trucks • Expansion of food organics infrastructure to meet demand • Additional bin lifts and milage	• Value of compost or other outputs produced
Community	• Potential transfer of costs from businesses to customers	• Potential transfer of savings from businesses to customers

		Increased food security through food rescue organisations
Environment	Additional milage of waste trucks – CO₂e	- Reduced CO₂e - Reduced Landfill externalities

Summary

The proposed reform would generate a mix of costs and benefits for affected food businesses, the waste industry and government, whilst delivering benefits to the community and environment.

There are costs to businesses to create food waste reduction plans and change waste collection practices. However, these will likely generate lower waste collection costs for some business, and result in lower food input costs when food waste reduction plans are effectively implemented, as less food is wasted to achieve the same outputs.

The waste industry would face increased collection and processing needs for food waste. This represents both a cost and an opportunity to benefit for affected businesses and government. The reform would have a positive impact on the environment and climate, largely due to reduced amounts of disposed food organics producing less leachate, carbon dioxide and methane in landfill.

There are no direct costs to the community, however there may be some cost increases or savings that are passed on to consumers by food businesses. Food waste reduction plans will likely increase the food available to food rescue organisations which provide food to community members who are experiencing food insecurity.

Overall this would result in long-term benefits to the environment and would ensure the Canberra food businesses manage food in line with sustainable principles. Whilst there would be costs to government and business to introduce and manage the requirements, there will also likely be savings and benefits as the ACT transitions to a more circular economic model.

10. Offences for non-compliance

The Circular Economy Bill 2023 which sets out the framework for separation of recycling and food waste and food waste reduction plans establishes a number of offences. The ACT Government has established a comprehensive enforcement and compliance framework for the offences detailed in the Act. In addition, an infringement framework has been developed to support the issuance of monetary penalties.

The Bill establishes three new offences and the power for the Minister to make offences via regulation with a maximum of 50 penalty units. The new offences are for:

- failure to provide a copy of a business food waste reduction plan upon request (20 penalty units), and
- failure to comply with a recyclable waste processing requirement for businesses (50 penalty units), and
- failure to comply with a food waste processing requirement for businesses (50 penalty units).

The Act also establishes powers for Authorised officers related to the seizure of prohibited items, the ability to require the provision of name and address and entry to premises. The Act provides for offences related to failure to comply with a direction to give name and address, as well as offences related to not disposing of prohibited items when requested. These are also strict liability offences.

However, the ACT Government's approach is to first educate and engage with local businesses, rather than taking compliance action.

11. Human rights analysis

Directorates are obligated under the Human Rights Act 2004 (HR Act) to act and make decisions consistently with human rights.

This includes ensuring any amendments result in a law that is proportionate (as per s28 of the HR Act) – that is, that it limits rights in the least restrictive way possible to achieve the purpose of the law. This includes considering if any amendment is going to have a disproportionate impact on low-income earners or other vulnerable people, engaging the right to equality under s8 of the HR Act.

The *Plastic Reduction Bill 2020* engaged with a number of human rights which were examined as part of the RIS prepared for the first tranche of single-use plastic reform. The associated policy development was supported by engagement with the ACT Justice and Community Safety Directorate, Human Rights and Social Policy Unit, and the ACT Human Rights Commission via the Human Rights Team and Commissioner for Discrimination, Health Services, and Disability and Community Services.

The second and third tranches of the bans under the *Plastic Reduction Act 2022* expanded the regulation of prohibited items under the Act. The matters considered relevant from a human rights perspective were considered for these through the development of Regulatory Impact Statements.

During the development of this Bill and draft Regulation due regard was given to their compatibility with human rights as set out in the Human Rights Act 2004 (the HR Act). The matters considered relevant from a human rights perspective are discussed in the following sections.

Right to recognition and equality before the law

The Bill and Regulation engage the right to recognition and equality before the law under s 8 of the HR Act, specifically s 8 (3) which provides protection against discrimination on any grounds.

The Bill bans products that were previously banned under the Plastic Reduction Act 2021, including single-use plastic drinking straws. This is accompanied by an exemption that has been designed to allow single-use plastic straws to be broadly available if required. This is because some people need access to them because of disability or a medical need. Banning straws engages the right to recognition and equality before the law under s 8 of the HR Act, which provides that everyone has the right to enjoy his or her human rights without distinction or discrimination of any kind and that everyone has the right to equal and effective protection against discrimination on any ground. For this reason the exemption has been designed to make straws as widely available as they can be in the context of a ban. The exemptions will allow businesses and organisations that provide care or supply products to people with disability or healthcare needs to display and supply packets of straws and individual straws for those who need them, while also allowing for hospitality venues to supply

an individual plastic straw to those who ask for one, with no requirement to provide evidence or proof of a need for a plastic straw.

In addition to the availability of single-use plastic straws, another potential human rights and discrimination issue is the possible stigma associated with asking for a straw. Section 12 of the HR Act contains the right to privacy and reputation. This includes that everyone has the right not to have his or her privacy, family, home or correspondence interfered with unlawfully or arbitrarily. The exemption to allow straws was designed so that potential limitations on the right to privacy are minimised. No evidence or proof of disability or a medical need is required to access a single-use plastic straw. Further, it is not required that someone say that they need a straw because of disability or medical need.

Right to be presumed innocent until proven guilty

The inclusion of strict liability offences engages the right to be presumed innocent until proven guilty under s 22(1) of the HR Act.

In a strict liability offence, there is no mental element (only a physical element). The defence of reasonable and honest mistake may apply, but if this is the case then this must be established by the defendant, effectively reversing the onus of proving this aspect of the offence. Placing the burden of proof to the accused limits the right to be presumed innocent until proven guilty. The prosecution still has the burden of proving the physical element. Strict liability offences allow an infringement notice scheme to be used for the efficient enforcement of offence provisions. While an infringement notice scheme offers the opportunity for a person to pay the infringement notice rather than face prosecution, it does not prevent them from choosing to challenge the notice and instead face prosecution in court, so the minimum guarantees in criminal proceedings under s 22(2) and rights to a fair trial under s 21 of the HR Act remain available.

The rationale for inclusion of strict liability offences is to ensure that a sufficiently robust and consistent enforcement regime can operate efficiently as part of an escalating enforcement framework, without requiring prosecution in all cases, to meet the purpose of ensuring community wellbeing, environmental and safety standards. This is an established and common approach to enforcing offences in regulatory contexts and will support the move towards a circular economy.

Rights in criminal proceedings

The reform has been identified as engaging s22(2)(i) of the HR Act which provides rights in criminal proceedings, particularly the right not to be compelled to testify against oneself or confess guilt. The Bill provides that the privilege against self-incrimination does not apply. The purpose of these provisions is to assist authorised officers in their function as truth-seekers and their ability to undertake full and proper investigations.

The restriction on the right against self-incrimination is proportionate. Any self-incriminating material directly or indirectly obtained as a result of a person being compelled to provide information cannot be used as evidence against that person in later court proceedings, other than an offence in relation to the falsity or the misleading nature of the answer, document or information or an offence against the Criminal Code, Chapter 7 (Administration of justice offences).

These provisions support Authorised officers to be able to fully consider all available information when exercising their functions, while protecting the people providing the information by conferring ‘use immunity’.

Use immunity is a well-established practice in relation to investigative agencies in the ACT, including the Human Rights Commission, Integrity Commission and Inspector of Correctional Services. The limitation is further circumscribed by way of the Act providing that an authorised officer must satisfy the reasonable belief test in exercising powers, and that a person must be warned that failure to comply is an offence.

Right to privacy and reputation

Under s 12(a) of the HR Act, everyone has the right not to have his or her privacy, family, home or correspondence interfered with unlawfully or arbitrarily. This right is engaged by a number of information gathering powers in the Bill, which support enforcement by giving authorised persons the ability to investigate potential offences. These include the power to direct a person to give the authorised person a document, information or other thing; the power to compel a person to give their name and address; and power to enter premises.

The limitation of this right directly supports its purpose because being able to investigate possible offences, including gathering information, is crucial for the effective enforcement of the offences in the Bill. Without those provisions, an authorised person will have limited means of enforcing the offences, which are all designed to support the circular economy objectives of the Bill.

Summary

Human rights have been considered in developing this RIS and any limits to rights have been developed in the least restrictive way possible, while achieving the objectives of this RIS and the legislation. The consultation on the draft Regulation and this Regulatory Impact Statement will allow the identification of any further impacts that have not been sufficiently considered at this point.

When considered as a complete package, the reform is considered reasonable and proportionate to the objectives of the legislation and the risks and outcomes for the community. These matters have been developed in consultation with Justice and Community Safety Directorate and are addressed in the explanatory statement.

12. Implementation

The Circular Economy Bill 2023 establishes the legal framework for existing plastic reduction and new waste management and reduction requirements. The details of waste reduction and collection requirements will be outlined in regulation, along with the lists of prohibited products.

The ACT Government will use the feedback received on the draft Regulation and this RIS to refine the regulation and any instruments, and to develop an appropriate implementation plan.

The regulation will be supported by a comprehensive public education campaign targeted at educating impacted local business about the reform. Education campaigns will be implemented

ahead of the regulation taking effect. This will ensure affected stakeholders are able to make informed decisions and implement required changes.

13. Conclusion and recommendation

The recommended option is to support the proposed Regulation (option 2). Introducing the Circular Economy Regulation following passage of the Circular Economy Bill 2023 in the Legislative Assembly will support the Bill, replace the *Plastic Reduction Regulations* and give effect to the policy contained in this RIS. This will ensure that the ACT has a legislative framework for sustainable management of commercial comingled recycling and food waste in line with circular economy principles.

The proposed reform would require separation of comingled recycling for all businesses and require food waste reduction plans and separate collections for specific types of food businesses, namely, cafés and restaurants, takeaway food shops and supermarkets.

There would be some impacts from the implementation of the Regulation. However, the cost to the community and government should the Regulation not be progressed would significantly outweigh the costs imposed. The Regulation provides a strong framework to reduce the generation of food waste across food businesses in the ACT, and to increase the rate of co-mingled recycling and food and organic waste that is being separated for appropriate processing so that it can enter the next stage of the product lifecycle rather than being sent to landfill.

It is recommended that following the consultation period and any subsequent changes, the Regulation be introduced, supported by a Decision RIS and a communication plan. Clear guidance will be provided to ensure that affected businesses understand their role and responsibilities in implementing changes to align their practices with the principles of a circular economy and the values of the ACT community.

Appendix A Rapid cost benefit analysis of circular economy reforms

A.1 Introduction and proposed reforms

The following rapid cost-benefit analysis (CBA) report and associated modelling of the proposed reforms was prepared by an independent consultant to support this Consultation RIS.

Options for co-mingled recycling collection

As noted above in section 5.2, a quantitative cost benefit for the introduction of requirements for ACT businesses to separate co-mingled recycling has not been undertaken at this time due to the availability of data and indications that this may not have substantial costs.

To undertake a cost benefit analysis for this reform, further data would be required to estimate:

- The number of businesses that do not currently have co-mingled recycling collection, but would now be required to under this option; and
- The quantity of co-mingled recyclate that would be collected.

If there is concern that the proposed reform would impose unreasonable costs on specific industry groups or business types and not demonstrate commensurate benefits, then this Consultation RIS provides an opportunity for stakeholders to provide data to support this proposition.

Options for food waste plans and food waste collection

While a commitment has been made to implement food waste reduction plans and food organics collection, several options arise around the extent of the requirements. The ACT Government has identified three options for the scope for the reforms:

- **Option 1** – Targeted approach (requirements applied to specific types of food businesses).
- **Option 2** – Medium legislative reform (broader application of the requirements)
- **Option 3** – Broad legislative reform (requirements applied to wide range of businesses).

Table 1 specifies the business types included in each of the reform options for food waste reforms.

Table 11: Food waste reduction plans and separate collection for food waste

Option 1 (Targeted)	Option 2 (Medium)	Option 3 (Broad)
Café or restaurant	All businesses included in Option 1	All retail and service food businesses
Clubs, pubs and bars	Specialty food stores (e.g. Deli, Grocer)	Manufacturing food businesses
Takeaway food	Institutions such as aged care and School canteens, hospital kitchens	Wholesale food businesses
Supermarkets	Preschool & Childcare	

Timings

The CBA has been undertaken using the assumption that the Bill and the draft Regulation, if passed by the Legislative Assembly, will be in place by early to mid-2024. Based on this, the timetable for introducing the proposed reforms is shown in Table 2.

It will be important that the industry is given a suitable lead time to implement each of the changes – for this reason the table identifies the timings for information and education.

Table 2: Indicative timetable for introducing the proposed reforms after the Act is in place

	Food waste plans	Food waste collection	Co-mingled recycling
Key constraints	Knowledge and guidance on writing food waste plans	- Additional food waste collection trucks required (~18 months) - Additional Food waste processing capacity required (~6-12 month)	- No additional collection trucks required. - Limited extra capacity but should be sufficient
Timings for information and education	April – October 2024	June – October 2024	April – October 2024
Requirements in place	1 July 2024	1 December 2025	1 July 2024

It should be noted that while there will be constraints on businesses and industry that need time to be developed (e.g., put extra vehicles on the road for collection), the key concern for the ACT Government will be around education and assistance, particularly for businesses developing food waste plans for the first time and educating on what constitutes ‘food waste’.

A.2 CBA approach

Identification of costs and benefits

The initial step of the CBA is to identify the full range of costs and benefits that are expected to arise from the proposed reform. The key anticipated benefits and costs for each of the stakeholder groups are outlined in Table 3Error! Reference source not found.. It should be noted that many of the benefits are in the form of avoided costs.

Regarding waste industry costs and benefits, it should be noted that while the CBA draws values from a process type, these values are indicative of a competitive process. This does not mean that the values rely on processors of food waste only using the identified techniques. There may be other competitive ways to process food waste that the report does not identify. The CBA does not rate any particular process over another.

A key consideration for the benefits to the general community (and the total benefits of the proposed reform) is whether the community is willing to pay for increased diversion of food wastes.

Research has previously indicated that the Australian community has a high “willingness to pay” for increased recycling of recyclables,² but we did not identify any research of a willingness to pay for food waste diversion. If it were identified that the community is willing to pay for increased food diversion, then this would be an additional benefit arising from the proposed reform.

² See for example the Victorian Container Deposit RIS (section 5.3.2) - www.vic.gov.au/sites/default/files/2022-07/CDS-Regulatory-Impact-Statement_0.pdf

Table 3 – Identified costs and benefits

	Main source of impacts	Costs	Benefits
Government	Implementing reform	Costs are expected to arise for the ACT Government to both implement each of the reforms and to oversee and regulate each reform on an ongoing basis.	- no economic benefits were identified, although it is recognised that the reforms would assist the Government to achieve its objectives. - Reduced landfill volumes
Businesses included in the requirements	Production of food waste reduction plans Waste separation	- For some businesses the total cost of waste collection may increase - Food businesses will experience an initial (or changeover) cost when staff or a consultant is used to produce the food waste plan. - There is a potential ongoing cost from additional staff time to separate wastes into the correct bin. - For some smaller businesses, the space requirement of an additional bin may cause some difficulties. When this issue arises – it would effectively create an opportunity cost, but we note that it would be hard to value.	- An effective food waste plan would likely result in lower food input costs – as less food is wasted to achieve the same outputs. - The collection of food waste may result in lower total costs for <u>some</u> firms. This arises as food waste is often heavy and diverting the waste to a separate collection may result in smaller bin sizes for general waste.
Waste industry	Reduction and diversion of food waste going to landfill	The processing of food waste would result in the production of compost or other valuable products. We identified three food waste processes: - maceration and direct application to farmland, - composting or - consumption of food waste by insect larvae Costs are relevant to the waste industry from collecting and processing food waste. These relate to trucking costs (both	- Food waste processing would result in a variety of valuable products, such as compost. - Increased business in managing waste processing

	Main source of impacts	Costs	Benefits
		purchase and operating costs such as milage) and to food organics processing (both construction and operating costs).	
Food rescue organisations and charities	Implementation of food waste reduction plans	• Diversion of rescued food away from waste streams would also result in increased food collection costs for food rescue charities.	• Reduced food wastage (resulting in reduced food input costs) • Increased levels of food being “rescued” and diverted from waste streams to be distributed for homeless and disadvantaged groups.
Community	Nil	No significant economic benefits or costs were identified. Some smaller cost elements will fall to the community (such as road wear and tear from waste collection trucks) – but as these are funded in part through fuel excise, they are grouped within the Vehicle operating costs. It is likely that food businesses would pass on their costs to customers. However, for the CBA we have focused on where the costs and benefits arise – to avoid double counting.	
Environment	Reduction and diversion of food waste away from landfill	• Avoided landfill externalities such as the production of leachate (which occurs when putrescible wastes are disposed to landfill) • Avoided carbon dioxide and methane production that would have occurred if food were disposed to the landfill.	• Carbon dioxide and air pollution arising from increased truck movements in order to collect food wastes.

Timings of costs of reform options

When considering cost impacts for both business and government, we sought to identify “set up” or “changeover costs” separately from ongoing costs. For clarity we use the following definitions:

- **changeover costs** – the costs of transitioning to the new requirements in capital costs, staff time, management time and contractor fees per annum during the changeover period; and
- **ongoing costs** – costs allocated to staff time, management time and contractor fees per year.

Changeover costs generally appear as an increase in costs occurred in Year 1 but may also appear later in the study period. The costs attributable to reforms are those changeover costs which would not have occurred in the absence of reform or have been brought forward in time by the reform.

Ongoing costs are the annual cost of compliance from Year 2 onwards. Ongoing costs attributable to the reform are based on information from industry and Government on:

- **current costs** – the cost of compliance with the current regulations given as average costs in terms of staff time, management time and contractor fees per annum; and
- **future costs** (without the reform).

The CBA establishes the costs for the first year and subsequent years of the study as follows:

$$\text{First year cost impact} = \text{changeover costs} + \text{ongoing costs} - \text{current costs}$$

$$\text{Ongoing cost impact} = \text{ongoing costs} - \text{future costs (without the reform)}$$

Conceptual approach to CBA

Cost benefit analyses for waste reform projects depend heavily on the predicted change in material flows (such as diverting food from waste streams and diverting food waste from landfill) from the base case (continuation of current practices).

$$\text{Material flows for Base case} - \text{Material flows for reform option} = \text{Change in Material flows}$$

The CBA is a comparison of the:

- Costs – noting that many costs are associated with implementing the reform; and
- Benefits – arising from reduced materials going to landfill.

A.3 Predicted impact on material flows and CBA inputs

Numbers of businesses

The ACT provided a grouping of 3,614 food businesses, of which we consider 3,342 are relevant to these reforms.³ Table 2~~Error! Reference source not found.~~ on page 17 of this RIS shows a grouping of the businesses, examples for each grouping and the distribution of business sizes by number of employees.

³ We excluded home businesses and community organisations.

The Australian Bureau of Statistics (ABS) data on businesses separates them by size ranging from non-employing (a sole trader) through to over 200 employees. While the absolute number of businesses identified by the ABS does not align perfectly with the ACT data, we apply the distribution of the businesses by size to the number of food businesses registered with the ACT Government.

Food waste to landfill from each type of business

The total food waste produced by each category of business can be estimated based on the waste produced by a large business and the distribution of small to large business. We have estimated the total waste produced and the total food waste currently going to landfill in Table 3 on page 17 of this RIS.

There is estimated to be around 9,500 tonnes of food waste currently going to landfill within the Commercial and Industrial waste stream. We note that the estimates of the total food waste generated and current food waste going to landfill are based on a range of data sources and are subject to reasonable error margins.

Modelled materials flows analysis

For each reform option the impact on food to landfill (materials flows) was modelled using the assumed reductions set out in Table 4. We note that there would be some linkage or overlap between these actions. However, we have found limited data on estimating the expected overlap of these values. The proposed implementation timings would allow businesses to first take stock and reduce their food waste through the development and implementation of a plan, which would then reduce the amount of food waste they would need to send to a collection service in future.⁴

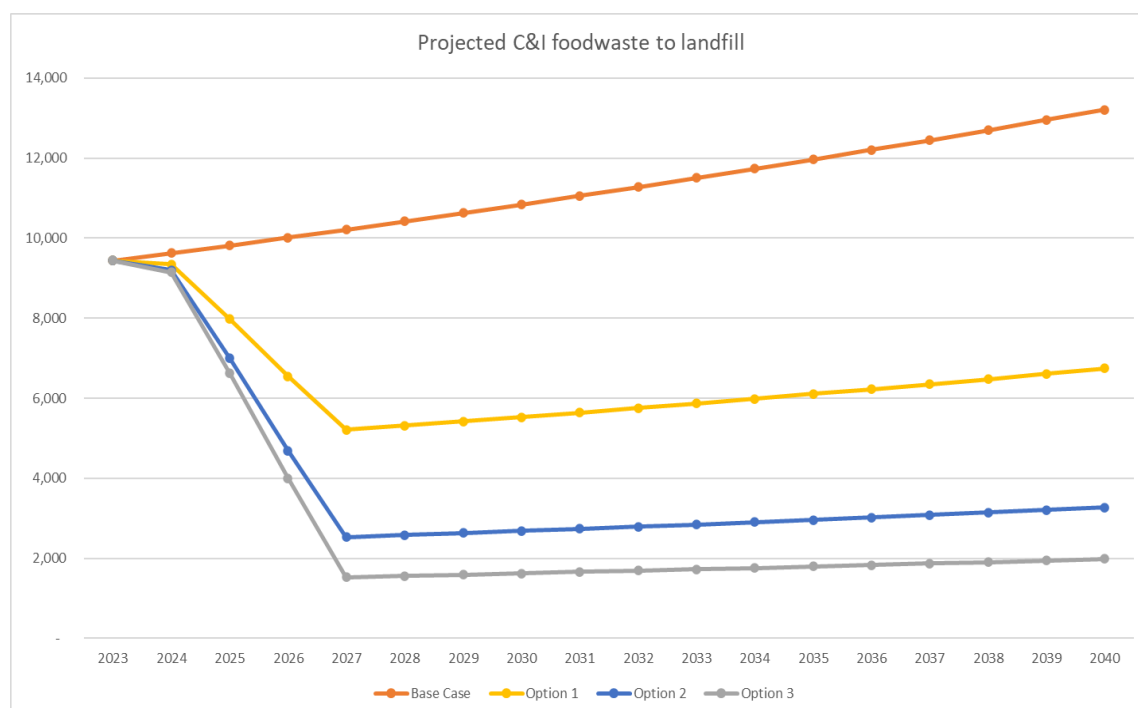
Table 4: Assumed reduction in food waste to landfill

Strategy	Year 1	Year 2	Year 3
Expected reduction in food waste by food waste reduction plans	5%	7.5%	10%
Expected reduction in food to landfill by food organics collection	25%	50%	75%

The projected impact on material flows can be summarised by the projected Commercial and industrial food waste going to landfill, set out in Figure 1.

⁴ <https://www.chefworks.com.au/how-to-reduce-your-restaurants-food-waste> Smaller survey suggests a 26% reduction in waste from a Food waste reduction plan.

Figure 1: Projected food waste to landfill under the base case and each reform option



Quantification of costs and benefits analysis

Drawing on the costs and benefits identified in section Table 3, the costs and benefits in the rapid CBA were quantified using a number of considerations, inputs and assumptions.

The input values are based on background research and preliminary consultation with waste service providers. The ACT Government identified a range of waste service providers, and all providers were given an invitation to contribute. We conducted short interviews with each of the respondents.

Importantly, while the values included based on information provided by specific providers and their processes, the CBA offers no opinion on the preferred technology. Alternative processes that are competitive on price and effectiveness are likely to be introduced over time.

In addition to the itemised costs and benefits, the cost benefit analysis relies on a large number of other inputs. The full list of assumptions and input values used in the CBA are set out in Addendum 1.

Limitations

The rapid cost benefit analysis and results includes a large number of assumptions and is based on the available data. Through the Consultation RIS process, all stakeholders will be encouraged to review the input data and provide comment on the inputs used.

If any costs and benefits are overlooked, then their inclusion may impact the CBA results and recommendations. Therefore, through the stakeholders will be encouraged to consider whether:

- There are costs or benefits that have been overlooked;
- The values used for each of the costs and benefits are a suitable estimate; and/or

- The timings and other inputs used are a suitable estimate.

It is also noted that the timing of costs and benefits has been collated using a single discount rate for all stakeholder groups. It is likely that the true discount rate will vary between stakeholder groups and even between businesses.

The distribution analysis seeks to identify the impact on stakeholder groups – and aims to determine if any group is significantly disadvantaged. There is a risk that within a stakeholder group, a particular segment may have higher costs and/or lower benefits that are not identified in this analysis.

Ahead of the outcome of the broader consultation process the results should be seen as indicative. Despite these limitations, the approach used to develop the cost benefit analysis follows accepted guidance and industry practice,⁵ including making simplifying assumptions.

Costs

The costs used in the cost benefit analysis for both the initial implementation and ongoing costs are set out in Table 5. The costs are grouped by the key stakeholder groups and are separated out to cover change over (or implementation) costs and ongoing costs.

Costs have been estimated for food businesses. It is anticipated that the costs will vary significantly by business size and by other factors such as location.

⁵ <https://oia.pmc.gov.au/resources/guidance-assessing-impacts/cost-benefit-analysis>

Table 5: Itemisation of costs used in the model

Stakeholder	Item	Value used	Calculation of cost estimate	Description	Source
Government	Implementation – Food waste plan	\$275,000	2 FTEs x \$137,500 for 1 year	Two staff members to develop guidance and templates for food waste reduction plans	ACT Government estimate
	Ongoing - Food waste plan	\$425,000	2 FTEs x \$137,500 ongoing + \$150,000 operating expenditure	Two staff members + operating expenditure to educate and assist businesses	
	Implementation – Food organics collection	\$137,500	1 FTEs x \$137,500 for 1 year	One staff member to assist waste industry and food businesses coordinate food waste collection	
Food businesses	Additional bins (Changeover cost)	\$50	\$25 per bin x 2 bins	Cost per bin is based on information from other states. Many businesses will require 1 bin, but some will require multiple bins.	Consultant estimate based on other research
	Development of FWRP (Changeover cost)	\$800 per business	20 hrs x \$40/hr for each business	Estimated cost per hour for casual staff and estimated time to develop a food waste reduction plan, if following a process set by ACT government.	Consultant estimate based on expected food waste plan structure and guidance.
	Staff training (Changeover cost)	\$200 per business	5 hrs x \$40/hr for each business	Estimated average cost per business. Note it will vary by business size.	Consultant estimate based on other research
Waste businesses	Lift costs (ongoing cost)	\$57.2 per business	\$1.10 x 52 weeks for each business	Economic cost per bin lift.	

Stakeholder	Item	Value used	Calculation of cost estimate	Description	Source
	Total Vehicle Operating Costs (ongoing cost)	\$1.55 per business	\$3.10 x 0.5km per business (includes externalities like road wear)	\$3.10 is the estimated full economic mileage cost of truck operation. Costs are detailed in Appendix 1. 0.5km per business is expected to be a high estimate of the average distance travelled by waste trucks.	<i>Consultant estimate based on other research</i>
	Food organics processing capacity (ongoing cost)	\$100 per tonne of food	\$100/ tonne levelised cost (including capital expenditure)	Estimate of the economic cost of processing food waste – including operating costs and an allocation of the capital cost over the life of the asset	
Food rescue organisations	Staff (ongoing cost)	\$1,000 per business per year	\$40 per hour x 250 visits per year / 10 businesses per hour	\$40 per hour is the estimated cost of casual labour. 250 visits per business per year is based on 5 days a week for 50 weeks a year. 10 businesses per hour assumes it takes 6 minutes to visit each business including time to walk to the next business	<i>Consultant estimate</i>
Community	No significant costs have been identified that will fall to the community. Some smaller cost elements will fall to the community (such as road wear and tear from waste collection trucks) – but these are funded in part through fuel excise, they are grouped within the Vehicle operating costs. However, it is likely that waste businesses will pass their costs on to food businesses and food businesses will pass on their costs to customers.				
Environment	No significant costs have been identified that will fall to the community. Some smaller cost elements will fall to the community (such as CO2e from waste collection trucks) – but they are grouped within the Vehicle operating costs.				

Benefits

The quantification of the benefits is set out in Table 6. We considered whether there would be a benefit arising from more efficient use of food resources. However, we believe that this benefit is too small to consider here.

Table 6: Itemisation of benefits used in the model

Item	Value used	Calculation of benefit estimate	Description	Source
Value of food rescued	\$5,333 per tonne	\$4 per meal assumed to be 0.75 kg	Food waste reduction plans will result in both less raw food being purchased by businesses and excess food being rescued for charities. The value used equates to \$5.33 per kilogram – which is a low estimate for mix of vegetables, protein and other input foods. This also equates to \$4 per meal. This is both a low estimate of the substitute cost for charities and assumes a large sized meal (750grams).	<i>Consultant estimate based on research of raw food and prepared meal prices.</i>
Reduced food input costs	\$5,333 per tonne			
Avoided landfill costs	\$189.20 per tonne	\$189.20 per tonne	Waste diverted away from landfill avoids the cost of landfilling the waste.	<i>Review of landfill rates for commercial customers for Mugga Lane Landfill</i>
Avoided GHG emissions	\$27.2 per tonne	\$34.00 per tonne CO ₂ e 0.80 tonnes CO ₂ e per tonne of putrescible waste	Food waste disposed of to landfill is likely to degrade anaerobically. This requires methane capture which burns the gas to form CO ₂ .	<i>Consultant estimate based on data from other jurisdictions</i>
Landfill externalities	\$8.33 per tonne	\$8.33 per tonne	Putrescible waste creates undesirable impacts for landfills and neighbours such as odour, pests (seagulls and vermin), and the creation of leachate. The value applied (\$8.33) represents the collation of the estimated impacts.	<i>Consultant estimate based on research</i>
Compost or Frass end value	\$100 per tonne of input food waste	\$500 per tonne produced. 0.2 tonnes produced per wet tonne of food	We identified three food waste processes: maceration and direct application to farmland, composting or production of Frass (following consumption by insect larvae). The value provided is appropriate for the production of compost or Frass, but is indicative of a competitive process. If the waste is processed by insect larvae, then insect protein is a by-product.	NSW Government Environmental Protection Authority. ^{lxxix} Prices are conservative estimates based on market analysis.
Protein end value	\$300 per tonne of input food waste	\$3,000 per tonne produced. 0.1 tonnes produced per wet tonne of food		

A.4 CBA results

The costs and benefits were considered over a 10-year period (2024 – 2033) to determine the net present value (NPV) and Benefit Cost Ratio (BCR).

The summary results are presented in Table 7. Option 3 is shown to deliver the largest benefit (\$32.301 million) and has a benefit cost ratio of 1.92. This indicates that for every \$1 invested, it is predicted that the reform would deliver a return of \$1.92.

Table 7: CBA Results (dollar values are in \$millions) (10 years at 7% discount rate)

	Incremental cost (PV) \$ millions	Incremental benefit / avoided cost (PV) \$ millions	Net Present Value \$ millions	Benefit Cost Ratio
Option 1	\$22.980	\$38.926	\$15.946	1.69
Option 2	\$34.138	\$59.806	\$25.668	1.75
Option 3	\$35.256	\$67.556	\$32.301	1.92

Sensitivity analysis

The CBA is necessarily based on a series of assumptions, which means that there is a degree of uncertainty in the results. Sensitivity testing can help to identify the input values and assumptions that can materially change the results. For this CBA, sensitivity tests were undertaken by adjusting the input values of discount rates and the analysis period.

Discount rate

The stream of costs and benefits (in real terms) has been discounted using a real discount rate of 7%; sensitivity testing uses real discount rates of 3% and 10%. These values align with the discount rates proposed by the Australian Government's Office of Impact Assessment (OIA).

The results from discount rate sensitivity tests are set out in Table 10Table , and indicated that the BCR result is not highly dependent on the assumed discount rate.

Table 8: Discount rate sensitivity test (dollar values are shown in \$millions)

	Discount rate 3% (sensitivity)		Discount rate 7%		Discount rate 10% (sensitivity)	
	NPV	BCR	NPV	BCR	NPV	BCR
Option 1	\$19.820	1.73	\$15.946	1.69	\$13.670	1.67
Option 2	\$31.820	1.79	\$25.668	1.75	\$22.051	1.72
Option 3	\$39.820	1.96	\$32.301	1.92	\$27.876	1.89

Analysis period

A 10-year period is used in the analysis because it is standard for regulatory reforms and recommended by that OIA. Table 9 shows the results for a 20-year period at a 7% discount rate.

Table 9: 20-year analysis period sensitivity test at a 7% discount rate

	Incremental cost (PV)	Incremental benefit / avoided cost (PV)	Net Present Value \$ millions	Benefit Cost Ratio
Option 1	\$35.761	\$67.579	\$31.818	1.89
Option 2	\$53.180	\$103.829	\$50.649	1.95
Option 3	\$55.065	\$117.285	\$62.220	2.13

Interpretation of the sensitivity analysis results

Both of the sensitivity tests undertaken have a similar impact: they slightly alter the values produced, but do not alter the ranking of the options or the conclusion of the analysis. All of the options deliver a net benefit under all of the sensitivity tests, and Option 3 delivers the largest net benefits and the largest benefit cost ratio under each of the scenarios tested. The results indicate that the CBA conclusions are robust under a range of inputs.

Distribution analysis

The distribution of costs and benefits are described qualitatively in Table 12.

Table 10: Qualitative description of distribution analysis

Stakeholder groups	Impact
Government	• Increase in implementation (such as education and communication with stakeholders) and ongoing regulatory costs. • Reduced costs for landfill operation
Businesses included in the requirements	• Implementation costs for developing and implementing a Food Waste Reduction Plan. • Some food input cost savings. • Likely mix of “winners and losers” from the change in costs
Waste industry	• Increased costs for collection and processing of food waste • Increased production of compost and other end products.
Food rescue organisations and charities	• Increased costs of food collection • Reduced costs for charities in delivering food to disadvantaged groups
Community	• No impacts are shown – however, changes in costs to businesses are likely to be passed on to consumers.
Environment	• CO₂e decreased from reduced food waste to landfill

The distribution of costs and benefits are set out quantitatively in Table 13 for option 3 (the preferred option). The Government impacts have been separated to illustrate which portion relates to implementation of the regulatory reform, and which to running the ACT landfill facility.

Table 11: Distribution analysis with values for Option 3 shown (10 years at 7% discount)

	Costs (PV) \$millions	Benefits (PV) \$millions	NPV \$millions
Government (as a regulator)	\$3.172	\$0	-\$3.172

	Costs (PV) \$millions	Benefits (PV) \$millions	NPV \$millions
Government-owned landfill	\$0	\$9.817	\$9.817
Target businesses	\$3.454	\$0	-\$3.454
Waste industry	\$6.855	\$17.905	\$11.050
Food rescue organisations and charities	\$21.774	\$37.992	\$16.218
Community	\$0	\$0	\$0
Environment	\$0	\$1.843	\$1.843
Total	\$35.255	\$67.556	\$32.301

Description of the results

The Distribution analysis indicates that the:

- ACT Government (as a regulator) and the target businesses will be the key groups that bear the costs of the proposed reforms.
- The Government-owned landfill, the waste industry and food rescue organisations and charities will be the key beneficiaries of the proposed reforms.

No significant costs have been identified that will fall to the community. Some smaller cost elements will fall to the community (such as road wear and tear from waste collection trucks) – but these are funded in part through fuel excise, they are grouped within the Vehicle operating costs.

However, it is likely that waste businesses will pass their costs on to food businesses and food businesses will pass on their costs to customers.

The modelled cost to business does not appear significant on an annual basis. Given that the Option 3 reform would impact an estimated 3,342 food businesses, the total 10-year impact is around \$1,030 per business, equating to an annual cost of around \$147 per business per year (accounting for the discount rate of 7%). This cost may be passed through to customers but would appear to be a small change in the cost base for many food businesses.⁶

⁶ For example, a small café with 2 staff that works short days (to target morning rush such as 7am-2pm) would have labour costs of around \$100,000. This is based on 2 Staff x \$30 per hour x 7 hours x 250 days per year = \$105,000.

Addendum 1 - Assumptions

The complete list of assumptions used in the CBA modelling is provided below. All values are presented in 2023\$ real values.

Reduction in waste to landfill

Expected reduction in food waste	Year 1	Year 2	Year 3 and onwards
Food Waste Reduction Plan	5%	7.5%	10%
Food waste collection	25%	50%	75%

By-products

Description	Value	Units	Source
Value of food saved	\$5,333	\$/tonne	Consultant estimate based on other market research
Frass production	0.20	Tonnes of frass per tonne of wet food	NSW Government Environmental Protection Authority. ^{lxxx}
Protein production	0.10	Tonnes of protein per tonne of wet food	
Compost / Frass end value	\$500	\$/tonnes	Consultant estimate based on other market research
Protein end value	\$3,000	\$/tonnes	Consultant estimate based on other market research

Vehicle operating costs

Description	Value	Units	Source
Rigid Vehicle operating costs	\$1.52	\$/km	Suggested values for consultation
Travel Time	\$0.62	\$/km	
Loaded truck Externality Costs	\$0.80	\$/km	
Accident Costs	\$0.01	\$/km	
Road damage	\$0.15	\$/km	
Overall Operating Vehicle Costs	\$3.10	\$/km	

Composting facility cost

Description	Value	Units	Source
Composting Facility (levelised economic cost, incl capex)	\$100	\$/t	Suggested values

Benefits

Description	Value	Units	Source
Avoided Landfill costs (capital and operating) (\$/tonne)	\$189.20	\$/tonnes	www.cityservices.act.gov.au/about-us/fees and charges
Avoided GHG emissions	\$34.00	\$/tonnes	Consultant estimates based on other jurisdictions
Decomposition in avg landfill with gas capture - Food	0.80	t CO2-e / t	
Landfill externalities	\$8.33	\$/tonnes	
WTP for additional recycling	\$87	\$/tonnes	
Incremental employment	\$50	\$/tonnes	
Contaminant disposal	48	\$/tonnes	
Contaminant percentage	5%		Value from other jurisdictions

Composition of co-mingled waste

Description	Percentage	Source
Paper	66.61%	2022 ACT Audit of incoming waste at transfer stations and landfill
Glass	21.33%	
PET clear	0.95%	
HDPE natural	0.75%	
HDPE coloured	0.04%	
Mixed plastics	0.37%	
Aluminium	0.59%	
Steel	0.81%	
LPB	0.27%	
Contamination	8.27%	
Total	100.00%	

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