CITY OF ADELAIDE

Resource Recovery Strategy

(Organics, Recycling and Waste)
2020–2028

Contents

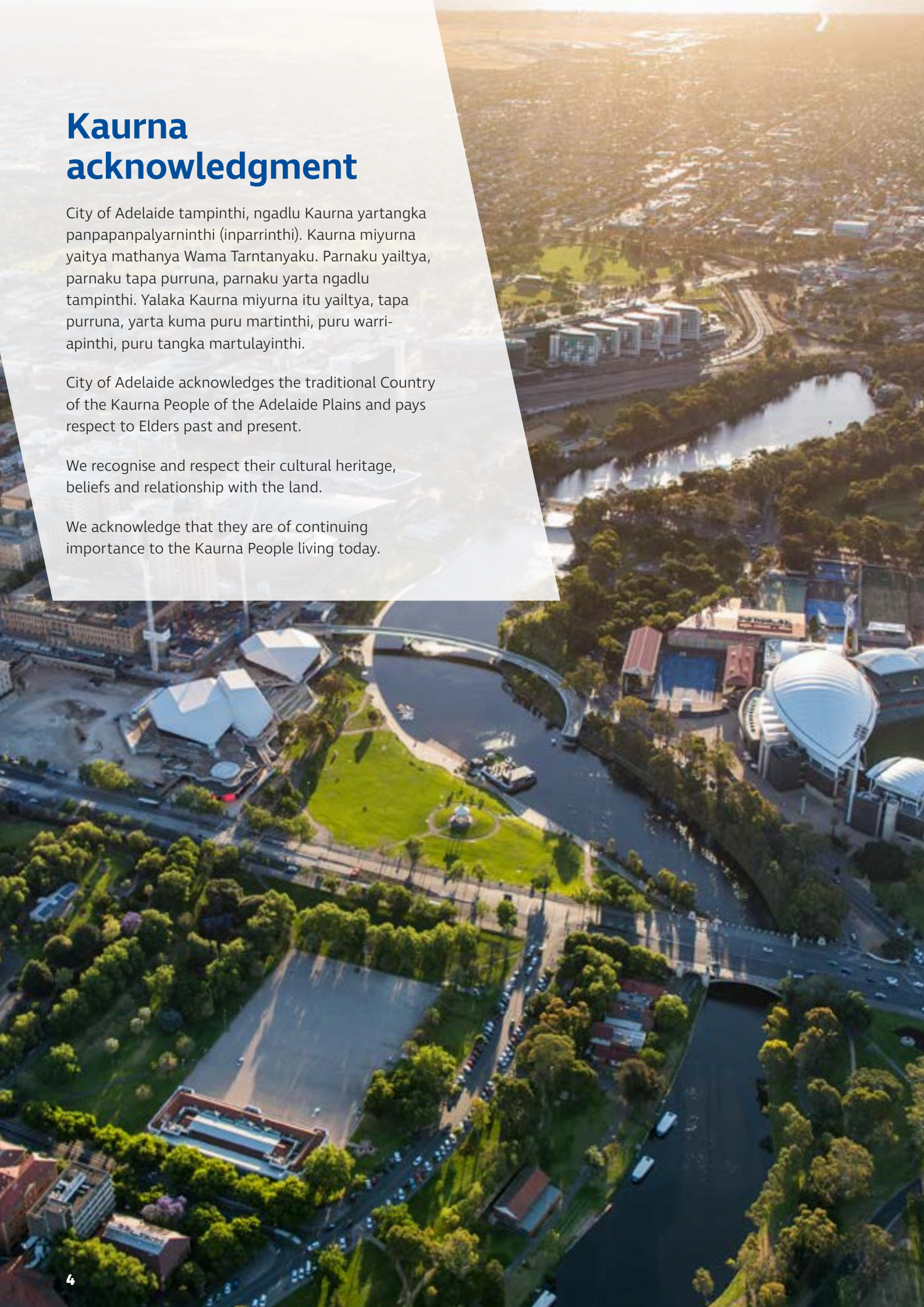
Kaurna acknowledgment

City of Adelaide tampinthi, ngadlu Kaurna yartangka panpapanpalyarninthi (inparrinthi). Kaurna miyurna yaitya mathanya Wama Tarntanyaku. Parnaku yailtya, parnaku tapa purruna, parnaku yarta ngadlu tampinthi. Yalaka Kaurna miyurna itu yailtya, tapa purruna, yarta kuma puru martinthi, puru warri-apinthi, puru tangka martulayinthi.

City of Adelaide acknowledges the traditional Country of the Kaurna People of the Adelaide Plains and pays respect to Elders past and present.

We recognise and respect their cultural heritage, beliefs and relationship with the land.

We acknowledge that they are of continuing importance to the Kaurna People living today.



Lord Mayor's message

As an environmental leader, the City of Adelaide has a long and proud history of investing in helping our community live sustainably.

Over the past year, Council has reviewed and assessed how we manage and reduce our waste, recycling and organic materials. Through this process we have discovered areas of opportunity and have set our sights on making significant improvement.

With this, I am excited to present our new way forward through our new Resource Recovery (Organics, Recycling and Waste) Strategy and Action Plan 2020–2028, based on extensive stakeholder engagement and valuable feedback from our community.

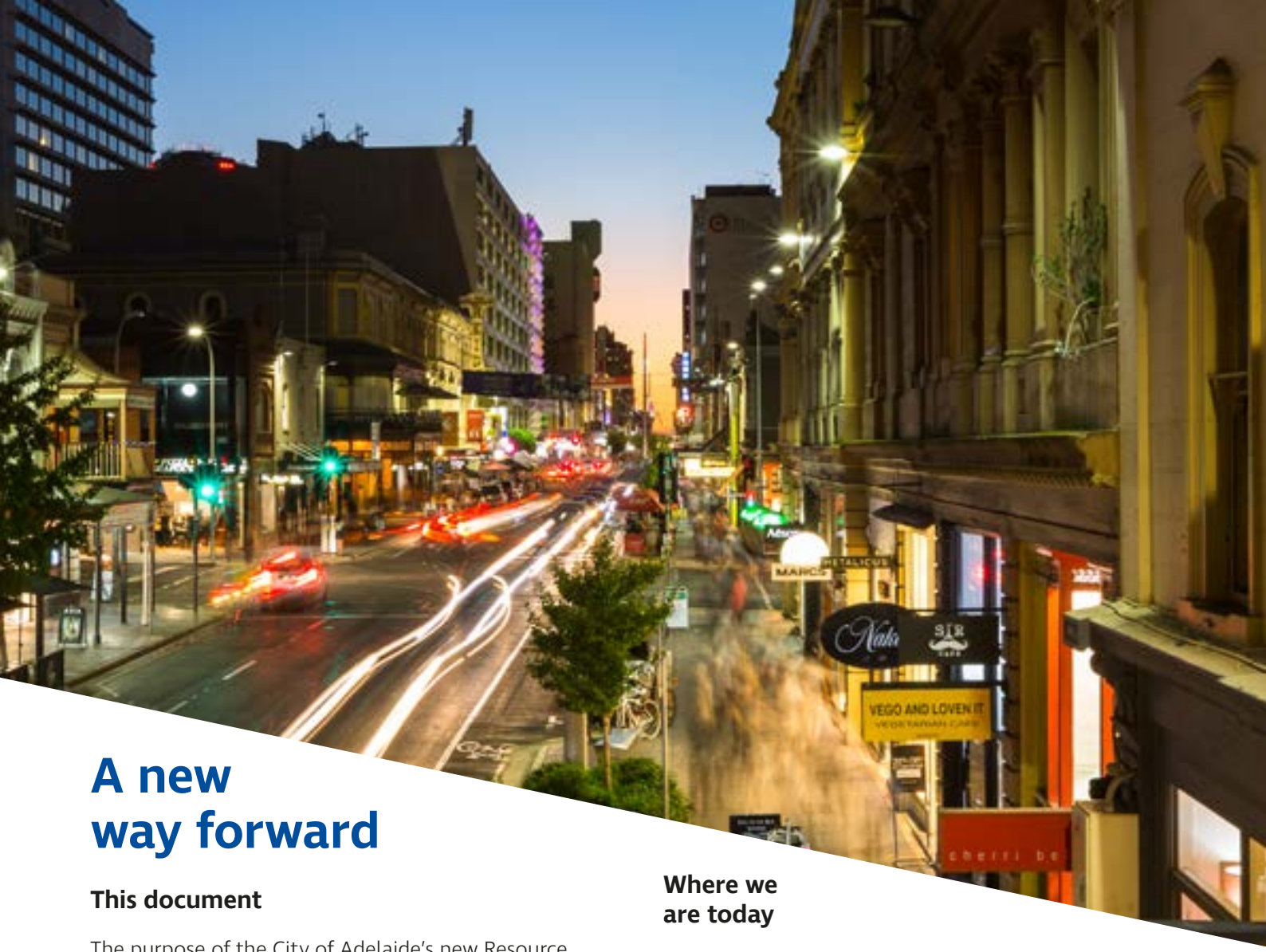
Through this strategy, the City of Adelaide is embarking on a journey with new approaches and ambitious targets endorsed by Council.

Council has already implemented new waste contracts as a major step forward in achieving the goals of this plan, and we will implement new roles to help lead us to where we envision our city to be.

Together we can change our perspective with waste, recover these resources and build toward a more circular economic and sustainable future.

Together we are creating a city, designed for life.

Sandy Verschoor
Lord Mayor, City of Adelaide



A new way forward

This document

The purpose of the City of Adelaide's new Resource Recovery (Organics, Recycling and Waste) Strategy 2020–2028 (the Strategy) is to provide a solid framework to redefine the concept of waste, improve resource recovery and build a circular economy in the City of Adelaide. Drawing on some of the targets established in the City of Adelaide's Waste Management Action Plan 2012–2016, the Strategy forges a new pathway through the development and delivery of forward-thinking, evidence-based programs and exceptional and timely service.

This document outlines the City of Adelaide's long-term Resource Recovery Vision and the high-level strategy to achieve it. The related Resource Recovery (Organics, Recycling and Waste) Action Plan 2020–2028, identifies the detailed steps we will take in order to achieve our Resource Recovery Vision.

Where we are today

Numerous influencing events have occurred over the last several years and during the development of this Strategy, shifting the way we interact with waste.

The waste and recycling industry has been placed under the spotlight due to China's 'National Sword' policy, which placed new, stringent regulations on recyclable materials imported into China. This resulted in severe market disruptions for the global recycling industry.

In addition, the Council of Australian Governments (COAG) has also implemented new waste export bans for certain waste plastic, paper, glass and tyres. This will drive responsibility of Australia's own waste, and spark innovation, jobs and deliver strong environmental outcomes.

The state government increased, once again, the Solid Waste Levy to $110/tonne and in July 2019, to $140/tonne in January 2020 and again to $143/tonne in July 2020, making sending waste to the landfill the most expensive of the three kerbside collection streams (waste, recycling and organics) to process.

Climate change is expected to continue to deliver unexpected challenges to our communities, such as the 2019–2020 bushfires which impacted well-established systems and resulted in significant clean-up and disposal efforts led by the state government.

The COVID-19 pandemic has resulted in an increase in waste generation through increased demand for single-use products.

Waste, recycling and related disruptions to the industry have been extensively covered by the Australian media, such as the documentary series *'War on Waste'* and *'Fight for Planet A: Our Climate Challenge'*. This has highlighted the impact of consumerism and reinforced community expectations for sustainable waste management practices.

Adelaide and South Australia

The City of Adelaide is responsible for sanitation of the city. It drives a rigorous waste management and cleansing program, ensuring its public parks, streets and waterways are kept clean of litter and graffiti and rate payers are offered high-quality services to meet their needs.

Approximately 10,000 residential, and 4,500 non-residential premises are serviced for waste and recycling by the City of Adelaide. An estimated 300,000 users visit the city daily, contributing to the need for public space waste management. Waste services are provided by City of Adelaide operations and through a joint-council contract (with the cities of Marion, Port Adelaide Enfield and Charles Sturt) for kerbside collection, which commenced in July 2020.

In August 2019, a comprehensive waste audit was conducted throughout the city, including the City of Adelaide's own operations. This provided a benchmark to measure against and identified several areas for improvement.

The estimated amount of solid waste generated within the boundaries of the City of Adelaide (including internal operations) for 2019–2020 is 8,600 tonnes, with kerbside serviced households each producing on average 650kg of waste per annum.

City of Adelaide's kerbside-serviced residents diverted approximately 54 percent of material from landfill. Approximately 43 percent of the red waste bin was food scraps, garden organics and compostable material, which could have been placed directly into the green organics bin. With methods in place to recover these materials, this represents a significant loss of valuable resources and indicates a gap in service uptake.

Influences and regulations

The City of Adelaide recognises the significant efforts made by several organisations and different levels of government to create meaningful change and believes the coordination and collaboration is key in achieving widespread sustainability.

The City of Adelaide is regulated by the federal and state governments, directed by its own Strategic Plan 2020–2024, and is guided by national and international case-studies and best practices. Consultation with the community was conducted to ensure the proposed Strategy and Action Plan met community expectations. These influencing factors have been thoroughly considered in the development of this Strategy. A comprehensive list of influences and context is in Appendix B.

The opportunity

The waste audit revealed that there is opportunity to achieve an overall improvement of waste management and to better support our residents, local businesses and the City of Adelaide's internal operations in our collective efforts for resource recovery.

This is especially important as our South Australian communities are expected to grow as set out in 2010 in the state government's 30-Year Plan for Greater Adelaide. The population growth scenario estimates that Greater Adelaide will increase by up to 545,000 people by 2045[2], resulting in an increased demand on waste management.

Resource recovery is economically beneficial. For every 10,000 tonnes of waste recycled, 9.2 jobs are created, compared with only 2.8 jobs when waste is sent to landfill.[3] In addition, $2.9 billion is raised through sales of recovered materials each year.[4] In a time where job disruptions are high, employment through the resource recovery sector can be capitalised.

1 Further details of alignment with the City of Adelaide's Strategic Plan 2020–2024 are shown on page 39.

2 The 30-Year Plan for Greater Adelaide, 2017.

3 Employment In Waste Management And Recycling. The Department of the Environment, Water, Heritage and the Arts.

4 National Waste Policy Action Plan, Australian Government, 2019.

The City of Adelaide has an opportunity to create a dynamic, equitable and responsive approach to become more resilient to future events and continue to serve our growing community.

This Strategy and Action Plan will serve as a key link in responding to this opportunity. Through community consultation, we have heard from our residents, businesses, the general public and our own staff to obtain feedback on priorities and opportunities for resource recovery in the city, and to ensure that our direction meets community expectations.

Our vision for resource recovery

In our modern society, waste affects us all. Waste is something we interact with in our homes, our businesses, workplaces, malls, restaurants, cafés, public spaces and even in our parks. It is also something that together we can improve.

The City of Adelaide's Resource Recovery Vision is to be the first city in Australia to achieve 'zero avoidable waste to landfill' ('zero-waste'). Aligning with the State Government's target, this equates to: 'the diversion of all waste from landfill where it is technologically, environmentally and economically practicable to do so. 'Unavoidable' waste therefore refers to wastes for which no other current treatment is available including (but not limited to) asbestos, toxic and quarantine waste.'[1]

This Resource Recovery Vision will guide the City of Adelaide through to 2028 and will promote a circular economy through reducing waste, increasing resource recovery and delivering exceptional customer service that is:

Customer-centric
Customer-centric programs that support our residents, businesses, public space users and our internal city operations to transition to a 'zero-waste' city.

Responsive/equitable
A high-functioning, timely and equitable resource recovery system.

Evidence-based
Objective decision making based on evidence and supported by data.

Collaborative
Collaboration and partnerships between neighbouring councils, industries and different levels of government to drive ground-shifting change.

Innovative
Initiatives that consider the whole cycle of consumption and prioritise reduction of waste generation to ensure the long-term protection of human and ecological health.

This vision for a system centred on resource recovery is guided by a strong strategic framework and action plan that is funded by an adequate budget. Achieving this Resource Recovery Vision will establish the City of Adelaide as a world-class resource recovery leader by redefining what waste is, establishing an integrated system of recovery, and building the supporting networks to deliver a circular economy and a 'zero-waste' city.

The City of Adelaide's Resource Recovery Vision of 'zero-waste' is measured by the following:

- Divert 75 percent of residential kerbside collected waste from landfill
- Divert 90 percent of waste from City of Adelaide activities and events from landfill
- Reduce waste generation by 5 percent per capita
- Reduce contamination to below 10 percent in kerbside collected yellow co-mingled recycling
- Reduce food waste in the kerbside collected waste bin by 50 percent
- Apply the waste management hierarchy in all actions and consider material safety.

1 A Vision for A Circular Economy Waste Strategy 2020–2025 Consultation Draft, Green Industries SA, 2020.

The Strategy

RESOURCE RECOVERY VISION	5 PRIORITY AREAS	5 TARGET AREAS	KEY ACTIONS

Resource Recovery Vision: where we see the City of Adelaide's future of resource recovery.

Priority Items: items that are critical to the achievement of the resource recovery vision. These are woven into every program created in support of this strategy.

Target Areas: the major sectors or stakeholders within the city for which programs will be created. These sectors and stakeholders have different needs and requirements and require a tailor-made approach for best resource recovery outcomes.

Key Actions: a set of tasks and projects that are specific to the five target areas and that integrate the goals set out in the Priority Items.

Key actions

	Priority Item 1: Eliminate food waste Reduce food waste generation and increase diversion of food scraps going to landfill by 50%.	**Priority Item 2: Engage, educate and inspire** Drive robust waste management education to all residents, businesses and users of our city.	**Priority Item 3: Foster innovation, new technologies, and data collection** Collaborate with industry, academia and entrepreneurs to develop innovative solution and data collection methods to reach the Resource Recovery Vision.	**Priority Item 4: Prioritise and centralise resource recovery** Support methods to establish waste avoidance, reduction and improved resource recovery as central in business decision making, development applications, building plans, product design, manufacturing and waste systems design.	**Priority Item 5: Advocate and align policies, guidelines and practices to the circular economy** Work internally and externally with different levels of government to drive long term fundamental change in consumption and waste management.
Target Area 1: Residents and the community Support residents and the community using the residential kerbside collection to achieve zero-waste at home.	1.1 Provide residents, community members and community event organisers with the tools and services to eliminate food from the waste stream.	2.1 Develop and provide a multi-faceted, multi-lingual suite of educational resources for residents, community and community events organisers to reduce waste generation and increase resource recovery.	3.1 Establish data collection methods for resource recovery and cost signalling mechanisms linked to waste disposal.	4.1 Increase visibility of the associated cost and volume of residential waste, and of the benefits of adopting the circular economy.	5.1 Drive initiatives and advocacy in our local communities to position the City of Adelaide as a leader in resource recovery.
Target Area 2: Residents in multi-unit dwellings Tailor supportive services to residential multi-unit dwellings (including apartments, low-rises, high rises) in development through to occupancy.	1.2 Provide multi-unit dwelling building owners, managers and residents with tailored waste management solutions that targets elimination of food from the waste stream.	2.2 Develop and provide a multi-lingual waste management education tool-kit for building managers and residents.	3.2 Establish behaviour feedback mechanisms through data collection methods specific to multi-unit dwellings.	4.2 Centralise best practice waste management decisions at development phase, during build and in occupancy phases.	5.2 Drive initiatives and advocacy for improvements to waste management for multi-unit dwellings to enable the city to be a vehicle for resource recovery.
Target Area 3: Businesses Expand support for businesses eligible for kerbside collection.	1.3 Investigate and provide green organics collection service and tools to businesses with a City of Adelaide kerbside collection service.	2.3 Develop and provide multi-lingual information targeting waste management best practices for business	3.3 Partner with circular economy businesses to encourage waste reduction and resource sharing for business.	4.3 Establish protocols that stipulate robust resource management plans must be approved and contingent to a business opening.	5.3 Advocate for improvements in policy and legislation which support the circular economy.
Target Area 4: Public spaces Establish public space like streets and Park Lands as conduits for resource recovery.	1.4 Investigate the collection of organic materials in public spaces.	2.4 Create a consumer-centric public space waste management systems that is consistent with the three-stream system.	3.4 Leverage opportunities in public spaces to drive resource recovery through life-cycle thinking and technological innovation.	4.4 Centralise waste management decisions in assets and infrastructure projects.	5.4 Drive the circular economy through collaboration.
Target Area 5: City of Adelaide own operations Establish the City of Adelaide's own operations, businesses, facilities and events as visible leaders in exceptional waste management.	1.5 Mandate diversion of all food waste in the City of Adelaide's own operations, building and tenants and provide support and services to achieve this.	2.5 Establish resource recovery as part of workplace culture in City of Adelaide properties, rentals, leases, and facilities.	3.5 Establish data collection methods and ensure data is linked to key roles for sustained resource recovery.	4.5 Review resource recovery program annually and establish adequate funding and resources to support strategy goals.	5.5 Review internal policies and guidelines to ensure alignment to this strategy and long-term vision.

Priority Items

Priority Items address challenges and opportunities which have been identified throughout the whole city. They will result in the biggest impact and transformational change across all Target Areas.

Priority Item 1: Eliminate food waste Reduce food waste generation and increase diversion of food scraps from landfill by 50%.	**Why?** Food waste is expensive for residents and businesses, has high disposal costs for council and ratepayers, and harms the environment when it is sent to landfill.
Priority Item 2: Engage, educate, and inspire Drive robust waste management education to all residents, businesses and users of our city.	**Why?** Sometimes the community need some extra information and help to do their best to reduce their environmental impact.
Priority Item 3: Foster innovation, new technologies, and data collection Collaborate with industry, academia and entrepreneurs to develop innovative solutions and data collection methods to reach the Resource Recovery Vision.	**Why?** There are new ways of doing things and there are lots of opportunities to partner with others so we can do things better.
Priority Item 4: Prioritise and centralise resource recovery Support methods to establish waste avoidance, reduction, and improved resource recovery as central in business decision making, development applications, building plans, product design, manufacturing and waste systems design.	**Why?** Thinking about waste and recycling first instead as an afterthought means better outcomes.
Priority Item 5: Advocate and align policies, guidelines and practices to the circular economy Work internally and externally with different levels of government to drive long-term fundamental change in consumption and waste management.	**Why?** Moving towards a circular economy will reduce our risk and make our city more resilient.

Priority Item 1: Eliminate food waste

Reduce food waste generation and increase diversion of food scraps from landfill by 50 percent.

Unopened, whole food, in packaging and within use-by date, found during City of Adelaide 2019 waste audit.

Overview

Food waste and its corresponding waste management system is a problem that affects all areas of our city including suppliers, distributors, residents, businesses, food retailers and the waste management industry.

Over seven million tonnes of food is wasted in Australia every year, which costs the economy approximately $20 billion[1].

Food waste costs businesses through food loss (production and investment), and food waste management (rates used for collection and processing). It also costs a typical family household up to $3,800 annually[2] in lost or uneaten food.

Factors contributing to food waste includes:

- Individuals being unaware of the amount of food waste they produce
- Over-buying/stockpiling
- Serving sizes
- Understanding of food labelling ('best before' vs 'use by')
- Lost or forgotten food in the fridge
- Excessive leftovers/pre-made fast food
- Waste management system under-servicing/ under-utilised or not available
- Collection system that prioritises waste collection over diversion
- Waste often considered after generation, not before.

Food waste is heavy and collecting it in the kerbside red waste bin is the most expensive option due to the $143/tonne Solid Waste Levy.

Additionally, food waste should not be sent to landfill as it contributes to greenhouse gas emissions via methane production from anaerobic decomposition. In fact, every year in Australia 5.25 million metric tonnes of CO_2-e is created from food waste going to landfill, which is equivalent to the Australian iron and steel manufacturing industries combined.[3]

The City of Adelaide provides residents with kerbside green organics collection or bulk-bin collection services and complimentary tools like kitchen caddies and compostable liner bags (available from the City of Adelaide Customer Centre, community centres and libraries).

The waste audit conducted in August of 2019 revealed a gap in the uptake and use of the green organics collection system. Approximately 43 percent of the red waste bin is food waste that could have been diverted from landfill. Food waste in the red waste bin included untouched food in packaging, whole fruit and vegetables that were still edible.

This is a significant problem, as 5 percent of the Australian population has experienced some form of food insecurity, and even more alarmingly, 40 percent of those at a severe level.[4]

An issue that is associated with food waste is food packaging waste. Food packaging is designed to extend the shelf life of foods, but can result in a significant amount of waste, especially at home. Diversion of materials is becoming increasingly difficult with packaging being made of different materials that can be difficult to identify.

The South Australian government has passed the Single-use and Other Plastic Products (Waste Avoidance) Bill 2020, which will regulate some single use plastics.

Opportunity

With systems in place for diversion of residential food waste from landfill, we can increase the adoption of green organics collection (and/or at-home or community composting) by removing barriers to uptake.

Currently, the green organics bin service is not offered to businesses. Opportunities to better support our business community to reduce the impacts of food waste (especially with the economic impacts of COVID-19) and increase diversion of food scraps from landfill should be investigated.

Measures to reduce the generation of food waste in the first instance can also be implemented city-wide. For example, address the unconscious behaviours and habits that contribute to food waste, from purchasing to cooking and disposal.

Advocacy for regulation of food waste generation and food scraps in landfill should be prioritised to address systemic changes.

1 Turning Australia's Food Waste Into Profit, Department of Primary Industries and Regions, Government of South Australia, 2019.
2 National Food Waste Strategy, Halving Australia's Food Waste by 2030, 2017.
3 Wasting Away, RMIT University, 2015.
4 Food Insecurity in Australia, Australian Institute of Family Studies, 2011.

Key actions

Priority Item 1: Eliminate food waste

Target Area 1: Residents and the community

1.1 Provide residents, community members and community event organisers with the tools and services to eliminate food from the waste stream.

Target Area 2: Residents in multi-unit dwellings

1.2 Provide multi-unit dwelling building owners, managers and residents with tailored waste management solutions that targets elimination of food from the waste stream.

Target Area 3: Businesses

1.3 Investigate and provide a green organics collection service and tools to businesses with a city of Adelaide kerbside collection service.

Target Area 4: Public spaces

1.4 Investigate the collection of organic materials in public spaces.

Target Area 5: City of Adelaide own operations

1.5 Mandate diversion of all food waste and compostable products from the City of Adelaide's own operations, building and tenants and provide support and services to achieve this.

Outcomes

An increase in the uptake of the green organics service and an overall reduction of food waste sent to landfill is expected as a result of these actions. Although this may affect service costs, it is also expected to reduce the Solid Waste Levy cost (which is risk to Council) by offering value-added services to our customers, reducing greenhouse gas, and aligning to Carbon Neutral Adelaide goals.

Priority Item 2: Engage, educate and inspire

Drive robust waste management education to all residents, businesses and users of our city.

Overview

Our city is multicultural, premises vary, land-uses differ, and our community is culturally and linguistically diverse which provides a spectacular community environment in which to live, work and play.

Our typical consumer lifestyles result in the generation of waste, and the amount of waste we generate and how we dispose of it – including through recycling or composting – has an impact on the environment and the health of our communities.

Overall, our community expectations demonstrate awareness of the environmental impacts of waste and support for resource recovery initiatives such as kerbside recycling, green organics collection and litter reduction programs. During consultation, the importance of education for improving recycling and resource recovery outcomes was the most frequently mentioned issue.

The comprehensive waste audits conducted in August 2019 provide evidence that our community and local businesses would benefit from further engagement and education surrounding the circular economy and waste management.

The varying needs of our community contribute to challenges with resource recovery and waste management. Residents in single dwelling homes, residents in multi-unit developments, business properties and public spaces all experience waste management differently. For example:

- Stakeholders have varying types of waste management systems based on the premises (homes, multi-unit developments, businesses etc.)
- Stakeholders may be accustomed to different waste management systems and/or may be multi-lingual
- Stakeholders encounter different types of waste
- Materials that are recyclable may be difficult to identify
- Stakeholders have different priorities.

With population growth, waste reduction and resource recovery education are critical.

Opportunity

To meet these challenges, a coordinated approach to waste and resource recovery education with a linked delivery program for each Target Area will be devised. This includes:

- A consumer-centric approach where resource recovery systems are replicated at home, work and in public spaces throughout the city would create conditions for high-quality source separation
- The provision of an inclusive, tailored, multi-faceted, multi-lingual suite of educational resources for each Target Area. This could include printed material, visual signage, bin stickers, in-person information sessions, online training and more
- Investigation into behaviour change programs that makes doing the right thing, the easiest thing to do
- Investigation of opportunity to leverage the great work seen in our community centres and libraries to disseminate information and provide more tailored assistance for resource recovery; for example, implementing or supporting repair cafés or lending libraries.

This will be completed by working together with neighbouring Councils and state government to ensure consistent and clear approaches.

Key actions

Priority Item 2: Engage, educate, and inspire

Target Area 1: Residents and the community

2.1 Develop and provide a multi-faceted, multi-lingual suite of educational resources for residents, community and community event organisers to reduce waste generation and increase resource recovery.

Target Area 2: Residents in multi-unit dwellings

2.2 Develop and provide multi-lingual waste management education toolkit for City of Adelaide serviced multi-unit dwelling residents and building personnel.

Target Area 3: Businesses

2.3 Develop and provide multi-lingual information targeting waste management best practices for business.

Target Area 4: Public spaces

2.4 Create a consumer-centric public space waste management system that is consistent with the three-stream system.

Target Area 5: City of Adelaide own operations

2.5 Establish a resource recovery as part of workplace culture in City of Adelaide properties, rentals, leases and facilities.

Outcomes

Outcomes of the waste education and outreach program includes stakeholders:

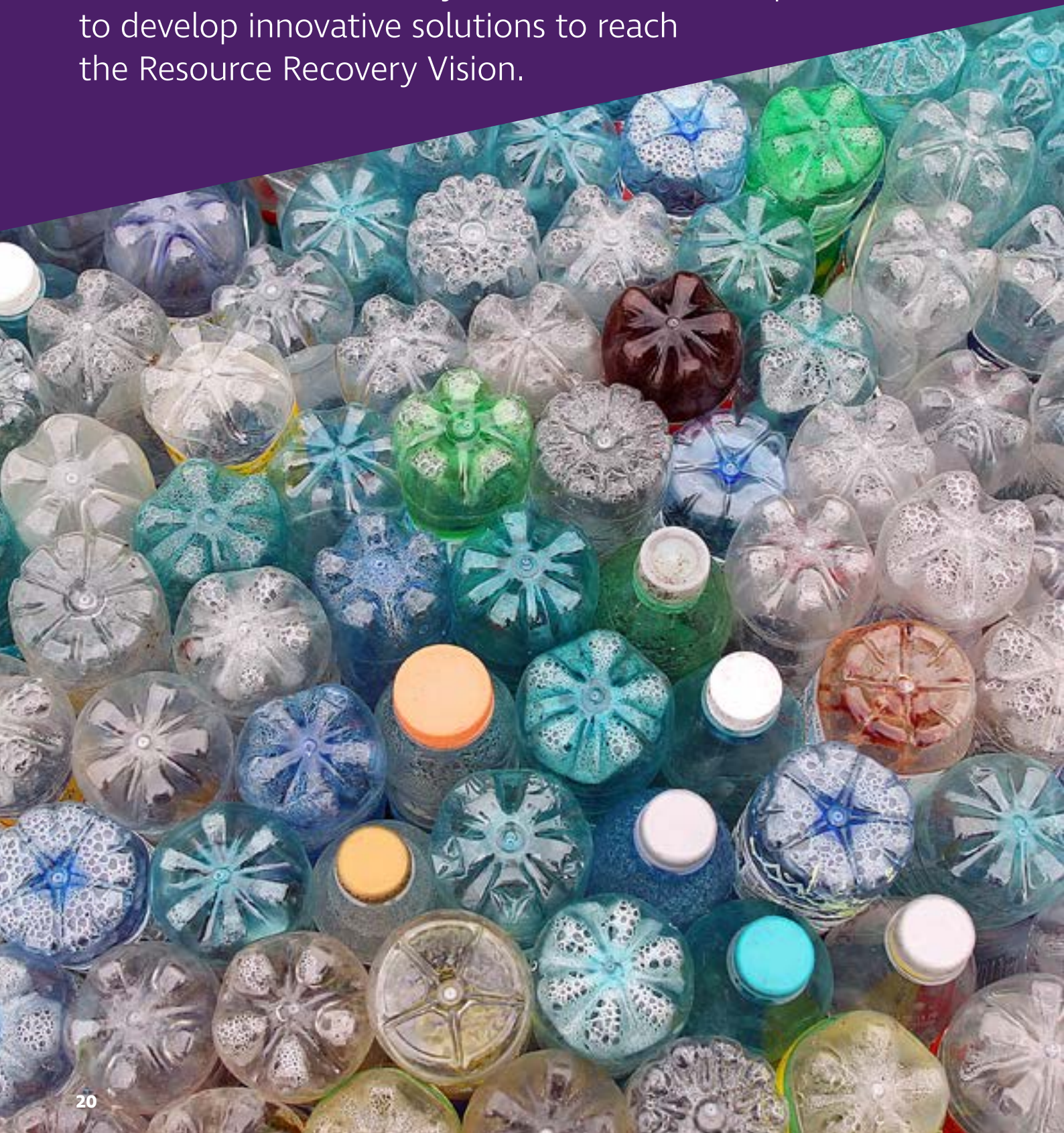
- Having greater clarity around their roles and how they contribute to waste reduction
- Understanding how behaviours, habits and actions at home, at work and in public spaces impact the whole waste management system
- Realising the value of resource recovery and material value for recycling
- Being well informed and taking practical action to reduce waste and divert more from landfill

Projects will contribute to:

- Better understanding of the three bin and hard waste system
- Understanding and implementing other forms of diversion
- Reduction of litter and illegal dumping
- Reduction of food waste generation and increased diversion from landfill
- Reduction in contamination of recovery streams
- Advocacy for the circular economy.

Priority Item 3: Foster innovation, new technologies and data collection

Collaborate with industry, academia and entrepreneurs to develop innovative solutions to reach the Resource Recovery Vision.



Overview

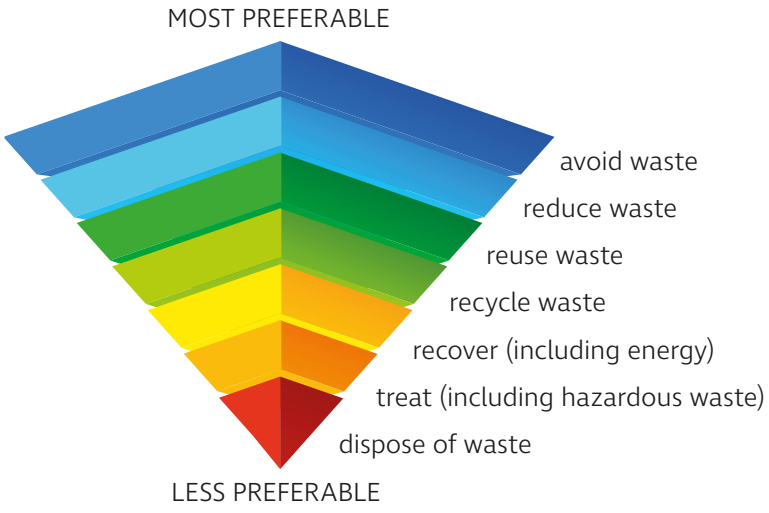
A city's waste management program serves to ensure sanitation for health and safety of the community. With significant widespread disruptions in the waste and recycling industries, and the economy, it is time to build a more robust, innovative and localised system to move toward the circular economy. Additionally, a growing population will place increased demand for a robust resource recovery system.

With an ambitious target of becoming the first 'zero-waste' city in Australia, 'business as usual' with regard to waste management will not drive the transformational change this vision requires. Therefore, new ways of thinking and new cutting-edge technology to drive evidence-based decisions must be generated.

The waste system is designed for a manufacturing, consumption and disposal model, sometimes referred to as a 'take-make-waste model', and this is generally reactive. A proactive system that addresses materials and products before they become waste is necessary.

The City of Adelaide has a history of implementing cutting edge technology and supporting sustainability goals. From recycled roads to electric vehicle charging stations and solar waste bins, the City of Adelaide has invested in new technologies. By continuing to embrace and support technology, innovation and data collection we can improve diversion of waste from landfill while addressing the challenges experienced with waste (such as impacts on amenity, health and safety when collecting waste and recycling from the kerb).

THE WASTE HIERACHY



Opportunity

South Australia is a state with exceptional entrepreneurial spirit. Working with industry, academia, advocacy groups and various levels of government, the City of Adelaide will collaborate, support and promote activities that will help us reach our Resource Recovery Vision of 'zero-waste'.

There are significant opportunities to drive the collection of useful and accurate data, develop methods to automate this data collection, and innovate based on the findings and opportunities that arise through these collaborations.

More specifically, opportunities include:

- Innovation that targets all areas of the waste hierarchy, and the cycle of consumption (design development, manufacturing, distribution, consumption, disposal, collection and redevelopment)
- Innovation in new technology to process hard-to-recycle materials and/or manage residual waste.
- Developing projects that are customer centric and that can be integrated into the current system and improve amenity
- Data collection that generate meaningful data (i.e. using big data) to provide evidence-based decision-making with cross-disciplinary benefits (e.g. Carbon Neutral Adelaide and greenhouse gas emissions inventory projects)
- Centralised data platforms to create feedback loops to track our progress, monitor environmental impacts and clearly see results on implemented initiatives. This will allow a dynamic system that can be adapted as needed in order to reach our goal, and will support the development of the jobs of tomorrow.

Key actions

Priority Item 3: Foster innovation, new technologies and data collection

Target Area 1: Residents and the community

3.1 Establish data collection methods for resource recovery and cost signalling mechanisms linked to waste disposal.

Target Area 2: Residents in multi-unit dwellings

3.2 Establish behaviour feedback mechanisms through data collection methods specific to multi-unit dwellings.

Target Area 3: Businesses

3.3 Partner with circular economy businesses to encourage waste reduction and resource sharing for businesses.

Target Area 4: Public spaces

3.4 Leverage opportunities in public spaces to drive resource recovery through lifecycle thinking and technological innovation.

Target Area 5: City of Adelaide own operations

3.5 Establish data collection methods and ensure data is linked to key roles for sustained resource recovery.

Outcomes

This Priority Item will support projects, collaborations and partnerships that lead to a circular economy.

It will help to design the future of resource recovery today, and invigorate outdated thinking surrounding 'waste'. It will question our infrastructure and our recovery and collection systems to drive transformational, meaningful and sustainable change.

Priority Item 4: Prioritise and centralise resource recovery

Support methods to establish waste avoidance and reduction, and improved resource recovery as central in business decision making, development applications, building plans, product design, manufacturing and waste systems design.

Overview

Waste is often only thought of when it accumulates, or becomes a problem. When products are considered 'waste' or 'garbage' they become somebody else's problem. It is usually only when waste systems fail us that we begin to ask questions, such as, when our bins are 'too small' and overflowing or when we find plastic pieces at our local beach.

As much as 80 percent of the environmental impact of a product is determined during the design phase.[1]

If resource recovery and waste management plans are not considered for their environmental merit before business decisions are made, or building plans are finalised, it can be much more difficult and costly to retrofit or adjust retrospectively.

Prioritising waste management decisions in all Target Areas including businesses, residential multi-unit developments and the City of Adelaide's operations, will take a considered perspective on waste management, bring the true cost of waste to the forefront, and ensure that key waste management decisions are made early on so that resource recovery is centralised.

Projects, prompts and policies will be positioned to bring resource management plans to the forefront of various situations.

Opportunity

Implementing the circular economy (which was also highlighted in the consultation process), includes:

- Establishing an understanding of the true cost of waste management
- Supporting businesses in resource recovery through waste management planning
- Providing ongoing waste management feedback for multi-unit dwellings
- Leading by example in the City of Adelaide's own operations.

This approach also offers an opportunity to support our local businesses. Such support might include investigations into shared, precinct-based resource recovery systems and support in developing Resource Recovery Plans.

These Resource Recovery Plans will identify actions necessary to avoid, reduce and divert waste from landfill in multi-unit developments and businesses, including in the City of Adelaide's own operations and tenancies.

Key actions

Priority Item 4: Prioritise and centralise resource recovery

Target Area 1: Residents and the community

4.1 Increase visibility of the associated cost and volume of residential waste, and of the benefits of adopting the circular economy.

Target Area 2: Residents in multi-unit dwellings

4.2 Centralise best practice waste management decisions at development phase, during build and in occupancy phases.

Target Area 3: Businesses

4.3 Establish protocols that stipulate robust resource management plans must be approved and contingent to a business opening.

Target Area 4: Public spaces

4.4 Centralise waste management decisions in assets and infrastructure projects.

Target Area 5: City of Adelaide own operations

4.5 Review resource recovery programs annually and establish adequate funding and resources to support strategy goals.

Outcomes

Prioritising and centralising resource recovery ensures that circular economy principles are considered, offering an opportunity to eliminate or reduce the generation of waste.

1 Sustainable Product Policy – EU Science Hub – European Commission, n.d.

Priority Item 5: Advocate and align practices and policies to the circular economy

Work internally and externally with different levels of government to drive long-term fundamental change in consumption and waste management.

Overview

Moving to a circular economy will reduce the City of Adelaide's exposure to risk. For example, within the waste management supply chain, a more robust waste diversion program will reduce the exposure and financial risk resulting from the Solid Waste Levy. It has the capacity to provide an exceptional customer experienced, if designed properly. With high community expectations for responsible handling of waste materials and a new generation of customers that demonstrates high value on 'access' over 'ownership' of goods, the opportunity for sustainable change is now.

Alignment of guidelines, regulations and policies to support a circular economy is key to driving long-term change.

The Objectives of the South Australia Environment Protection (Waste to Resources) Policy 2010 under the *Environment Protection Act 1993* supports resource recovery. However, under subclause (1) (b) metropolitan councils 'must provide a weekly general kerbside waste collection service (other than for recyclable waste or vegetative matter) in respect of residential premises within its area'.

As collection service models may affect diversion of materials, flexibility of service could further support transformational change.

The City of Adelaide has made some internal progress in this space, for example, through the Carbon Neutral Adelaide goal. As waste contributes to greenhouse gas emissions, measures to reduce carbon emissions work in synergy with measures to reduce waste.

Continued efforts to realign policy and regulation internally and externally is necessary.

Opportunity

Shifting to a circular economy will require the active collaboration of internal programs, all levels of government, industry, and consumers. Advocate for internal and external policies, regulation and guidelines will help shift our 'take, make, waste' society into a more sustainable, circular economic model where we value our resources and reuse them again and again. Instigate other levers to help reduce waste generation at source.

During consultation, there was support for a move to a circular economy and for the collaboration required to achieve this.

Key actions

Priority Item 5: Advocate and align policies, guidelines and practices to the circular economy

Target Area 1: Residents and the community

5.1 Drive initiatives and advocacy in our local communities to position the City of Adelaide as a leader in resource recovery.

Target Area 2: Residents in multi-unit dwellings

5.2 Drive initiatives and advocacy for improvements to waste management for multi-unit dwellings to enable the city to be a vehicle resource recovery.

Target Area 3: Businesses

5.3 Advocate for improvements in policy and legislation related to business and industry which support the circular economy.

Target Area 4: Public spaces

5.4 Drive the circular economy through collaboration.

Target Area 5: City of Adelaide own operations

5.5 Review internal City of Adelaide policies and guidelines to ensure alignment to this strategy and long-term vision.

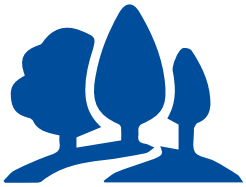
Outcomes

By advocating for a methodological, policy and regulatory changes, key actions under this Priority Item will target systemic change in waste recovery.

Target areas

The City of Adelaide is a wonderful patchwork of diversity and this is one of our strongest assets. We have a beautiful combination of historic premises, mixed-use premises and modern high-density spaces. As in many other cities, with this range of diversity comes waste management challenges. Different premises are equipped with varying available storage space and approaches for waste management. A diversity of linguistic and cultural backgrounds may mean that residents are accustomed to different waste management practices than those offered in our city. Therefore, different approaches must be taken to ensure successful outcomes.

There are five Target Areas, each of which focuses on a group of stakeholders within our city. They are grouped in this way to best address their different needs and provide a tailored waste management support system. The Key Actions are dynamic and are expected to shift over time. As a result, they will be closely monitored and should be reviewed annually for efficacy and direction.

 **Area 1: Residents and the community** Support residents and the community using the residential kerbside collection to achieve zero-waste at home.	**Why?** City of Adelaide residents are provided with three bins for kerbside collection. Nearly half of the material that is being placed in the general waste could go in the green organics bin, demonstrating a need for ongoing educational support.
 **Area 2: Residents in multi-unit dwellings** Tailor supportive services to residential multi-unit dwellings (including apartments, low-rises and high-rises) in development through to occupancy.	**Why?** The City of Adelaide provides a bulk-bin service to eligible multi-unit dwelling households. These residents have very different needs to those in single unit dwellings (such as houses) and this is evident through the audit figures in which up to 75 percent of the contents of red waste bins was found to be unrecovered resources.
 **Area 3: Businesses** Expand support for businesses eligible for kerbside collection.	**Why?** Businesses that generate about the same volume as a residential premise may be eligible for a City of Adelaide kerbside bin service. There are significant unrecovered resources in these bins and systemic challenges with location and space for bin, storage and amenity impacts.
 **Area 4: Public spaces** Establish public space such as streets and Park Lands as conduits for resource recovery.	**Why?** Public bins are provided across the city. They are highly visible and can be highly contaminated. This bin system can be improved and be leveraged to engage residents, businesses and visitors.
 **Area 5: City of Adelaide own operations** Establish the City of Adelaide's own operations, businesses, facilities and events as visible leaders in exceptional waste management.	**Why?** The City of Adelaide has a variety of facilities and businesses. We have the opportunity to lead by example to demonstrate to residents and businesses what is expected.


BioBag

Target Area 1: Residents and the community

Support residents and the community using the residential kerbside collection to achieve zero-waste at home.

Stakeholders: residents, students, community centres and organisations/groups

The City of Adelaide provides residents with the following kerbside collection services:

140L red waste bin collected weekly

140L or 240L yellow co-mingled recycling bin collected fortnightly

140L or 240L green organics bin collected fortnightly

2.5m³ hard waste – two collections annually

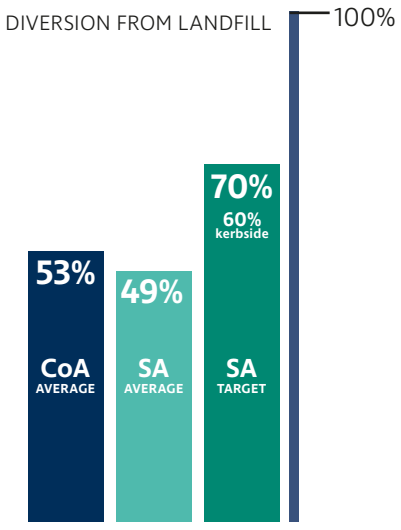
Kitchen caddies and compostable liner bags are also provided on demand to residents through the customer centre, community centres and libraries throughout the city.

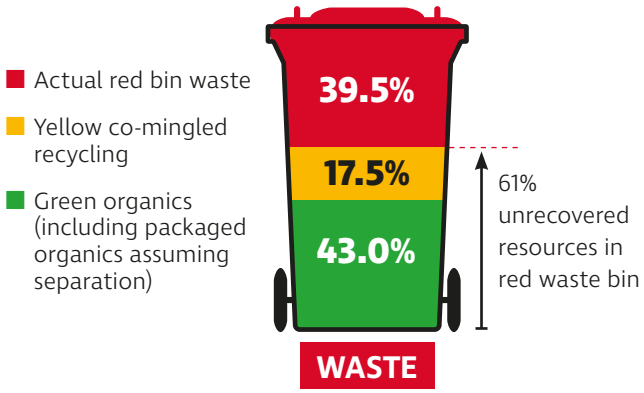
Compared with recycling and waste collections, there is relatively low uptake of the green organics bin. In fact, only about 20 percent of serviced premises have a green bin kerbside collection service. While our recent waste audit indicated that those who employ the kitchen caddy and the compostable liner bag understand the system well, there are gaps in data regarding distribution and use of kitchen caddies and liner bags, which could be improved.

The high volume of materials found in the red waste bin that could have been recycled or composted indicates that this bin is often considered the 'catch-all' solution. Approximately half of the materials (53 percent) that kerbside residents generate are successfully diverted away from landfill using the green organics bin and yellow recycling bin. This indicates that the City of Adelaide is performing better than the state average (49 percent) but lower than the state kerbside target (70 percent as listed in the consultation draft of the new waste strategy).

Materials that do not belong in the recycling bin or the organics bin are considered contamination, although, organics and recycling placed in the red waste bin are not usually labelled in this way. The red waste bin should be considered the last resort; therefore, we need to shift the dialogue to identify recoverable materials found in the red waste bin as contamination.

This could be achieved through various initiatives, for example the dissemination of information and supportive programs through our community centres, libraries and community-run events. Resources the City of Adelaide Sustainable Event Guidelines have been developed and are provided to event organisers via the City of Adelaide's website. This continues to be an important body of work to assist in resource recovery for both the events industry, event participants, organisers and the wider community.





Red waste bin:

- Approximately 650kg of waste is generated annually per residential kerbside serviced premise.
- Approximately 61 percent of the materials could be recovered by using either the green organics bin (43 percent) or yellow co-mingled recycling bin (17.5 percent).

Yellow co-mingled recycling bin:

- Kerbside residents have successfully adopted the yellow co-mingled recycling collection service and generally place glass and paper/cardboard in the correct bin; however, there is confusion regarding metals and hard plastics.
- On average, 21 percent of yellow co-mingled recycling bins had some form of visible contamination such as garden organics, recycling contained in plastic bags, and general waste (e.g. textiles and soft plastics).

Green organics bin:

- Kerbside residential organics collection is an opt-in service. Those who adopt the service understand the system well, which is demonstrated through low contamination rates (0.25 percent).
- The majority of the materials in the green organics bin are garden organics. Only 7.5 percent of the organics bin was food. Food was present in the red waste bin (over 30 percent) and yellow co-mingled bin (less than 1 percent).

Influencing challenges

- Premises come in different sizes. The physical space available to hold three bins is variable, for examples there are limitations in row houses.
- The current, large volume of waste bin does not encourage reduction of waste and more diversion from landfill.
- Limited support in the form of education is currently provided for residents.
- High Solid Waste Levy fees is a financial risk to Council.

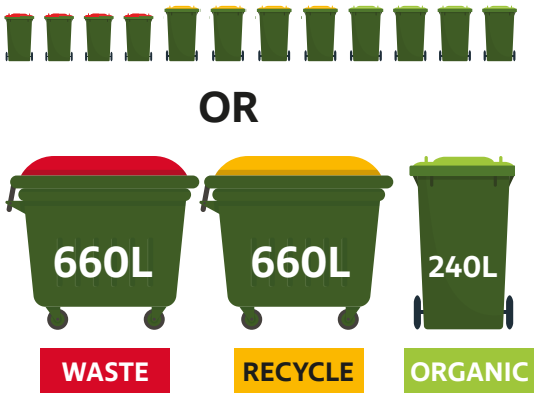
To address the challenges identified above and achieve our goal of 'zero-waste', significant support for our residents is needed.

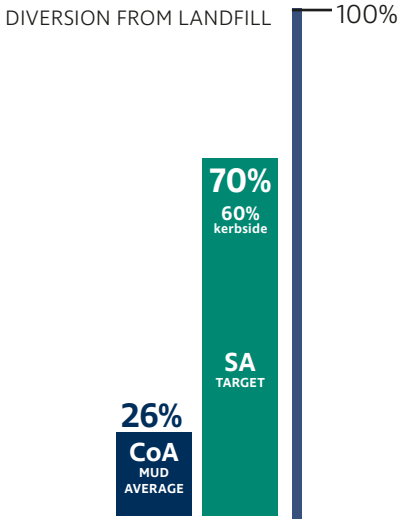
Target Area 2: Residents in multi-unit dwellings

Tailor supportive services to residential multi-unit dwellings (including apartments, low-rises and high rises) in development through to occupancy.

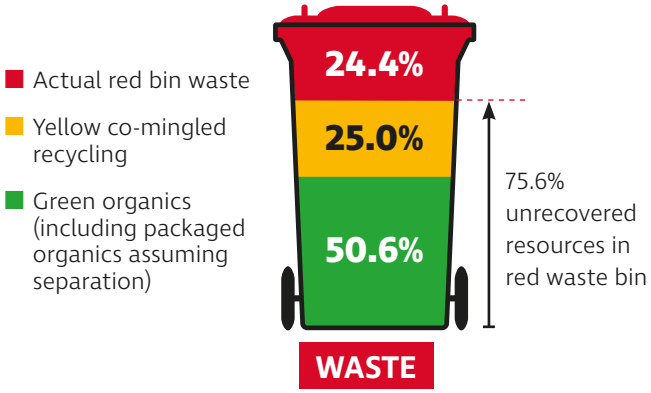
Stakeholders: residents, students, building managers, strata managers

The City of Adelaide has just over 600 strata and community title buildings, containing over 10,000 multi-unit dwelling households. The City of Adelaide provides multi-unit developments with either the standard residential kerbside service or a shared three-stream service (organics, co-mingled recycling, waste and hard waste service using 660L bulk-bins serviced weekly) if the premise is suitable for servicing. These services include shared 660L general waste, 660L co-mingled recycling and 240L organics recycling bins.





While these bulk services are efficient, these premises have been shown to have high contamination rates in all streams and a very low diversion from landfill rate of only 26 percent. This is significantly lower than the State's target of 70 percent of municipal solid waste diversion from landfill.



Red waste bin:

Unrecovered resources made up approximately 75 percent of the general waste bin with 50 percent of this being organics and 25 percent recycling material that could have been diverted. This means only a quarter of what is in the red waste bin is material that should actually go in the red waste bin.

Yellow co-mingled recycling bin:

- Contamination in the yellow co-mingled recycling bin (such as textiles and plastic bags) was high at 25 percent.

Green organics bin:

- No compostable caddy liner bags were found in either the red waste bin or the yellow co-mingled recycling bin. This demonstrates that, as with kerbside residents, multi-unit development residents likely link compostable caddy liners supplied by Council to the green organics bin.
- Contamination such as glass and plastics was high at 30 percent.

Influencing challenges

Waste diversion in multi-unit developments is complex. For example:

- The residents can be multi-lingual, more transient and may be accustomed to different waste and recycling systems, which means a consistent and ongoing support system is needed.
- Each building is unique, especially the waste management area, therefore a 'one size fit all' approach is not effective in these buildings. High contamination can be due to a number of factors including bins types and sizes, bin location, signage, language, building configuration and user knowledge of the waste system.

Onsite observation at various sites indicates that infrastructure, building design, systems and education need to be addressed to see improvements. Multi-unit dwellings must be addressed from the development through to occupancy for improved waste management.

It is anticipated that significant improvements could be made if hands-on support is provided by the City of Adelaide. Given the growth of multi-unit residential developments in the city, this sector is a key focus area for improvement.

Target Area 3: Businesses

Expand support for businesses eligible for kerbside collection.

Stakeholders: business owners, business organisations, permanent employees, contract workers, precinct groups.

Businesses in the City of Adelaide that generate a small amount of waste, similar to a residential premise, may be eligible for a Council general waste and co-mingled recycling service.

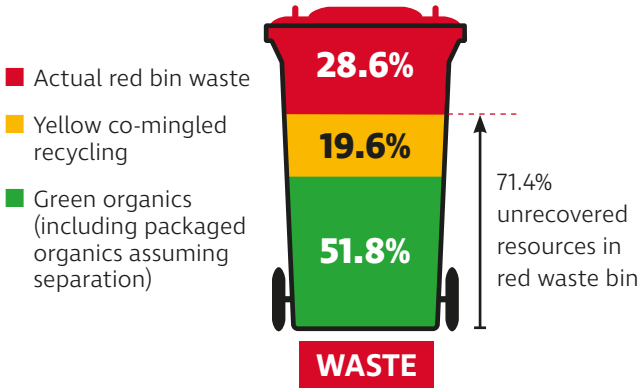
140L red waste bin collected weekly

240L yellow co-mingled recycling bin collected fortnightly

Commercial cardboard – collected weekly at kerb

Businesses that use the city kerbside waste services make use of it and rely on it heavily.

Approximately 40 percent of business bins are overfull. Overfull bins could mean that the size does not suit the need, and/or there is opportunity for waste reduction or diversion from landfill. Feedback loops providing information on diversion could be beneficial and employed if technology was implemented, for example radio frequency identification (RFID).



Red waste bin:

- About 71 percent of the red waste bin was unrecovered resources like organics, glass bottles, cardboard and hard plastics.
- 19.6 percent was recyclable materials that could have been diverted from landfill by using the yellow co-mingled recycling bin service, which is currently available to businesses. 51.8 percent was food waste that could be diverted from landfill; however, at present, green organics collection is only available to residents.

This demonstrates a significant opportunity for improved services.

Yellow co-mingled recycling bin:

- The yellow co-mingled recycling bin was highly contaminated. The audit revealed that over 20 percent of this bin contains non-recyclable materials such as building materials, compostable paper, recycling contained in plastic bags (recycling should be loose and not in bags), and general waste.

Influencing challenges

- Businesses have fluctuations in waste and recycling generation depending on delivery dates, day of the week and type of business.
- Businesses are likely to generate different waste materials and volumes than residential properties in the City of Adelaide. Therefore, residential education resources are not suitable for businesses even if the collection system is similar.
- To improve waste diversion from landfill it is important to provide services and education that is relevant to businesses.

In order to make the biggest impact, three-stream waste collection services should be mandatory for all businesses including those serviced by Council and those who use contracted services. Best practices should be designed in a way that compost and recycling is the simplest to do, and supportive services are provided for sustained improvements. An example program currently in place is the Sustainability Incentive Scheme (SIS), which could be leveraged as part of implementation.

Space is a premium in many of the city's businesses, particularly in food premises. Bins for waste, recycling and organics, both those provided by the City of Adelaide or by private contractors, are often stored in the public realm. Storage of bins on the kerb and in the street are a health and safety risk and contribute to reduced amenity. This can cause a reduction in foot traffic and vehicle access and can impact businesses. Bins systems should be considered in the development application process and prioritised in business decisions.

Advocacy to regulate diversion of food waste and other compostable materials would support City of Adelaide and business efforts in diversion and result in significant improvement.

Target Area 4: Public spaces

Establish public space such as streets and the Park Lands as conduits for resource recovery.

Stakeholders: residents, students, visitors, workers, tourists

The City of Adelaide provides waste collection and some recycling services through a variety of bin receptacles along public streets and in pedestrian areas. Innovative trials using solar powered compactor bins and solar powered sensor bins have offered insight into our city's habits.

In the Park Lands, the city offers waste collection via waste bins.

Unsurprisingly, the red waste bins on city streets contained a high percentage of materials that should be recoverable. Approximately 62 percent unrecovered resources, with co-mingled recyclables comprising 13 percent of the contents and compostable items 49 percent.

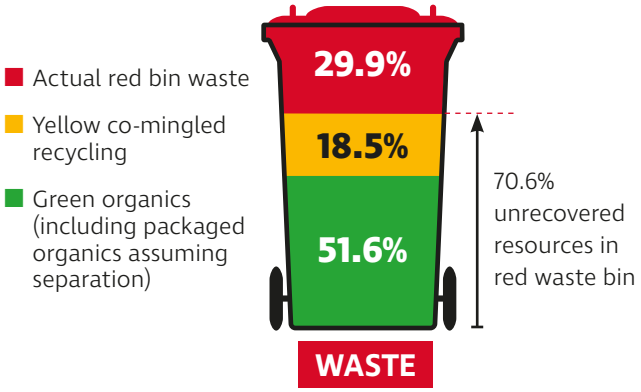
Red waste bins in the Park Lands also had a large proportion of unrecovered resources (70 percent), comprising 51 percent of compostable material and 19 percent co-mingled recyclables.

Waste management and resource recovery in the public space is known to be difficult, with a number of factors contributing to low diversion rates, such as users being accustomed to different systems.

Consistent resource recovery systems in residential homes, workplaces, and public spaces is one approach that can increase diversion. This approach eases the confusion of source separation by making users and customers central in the system, and therefore making doing the right thing easy.

The Key Actions address a range of challenges known in public space waste management and build on that knowledge for long-term sustainable change.

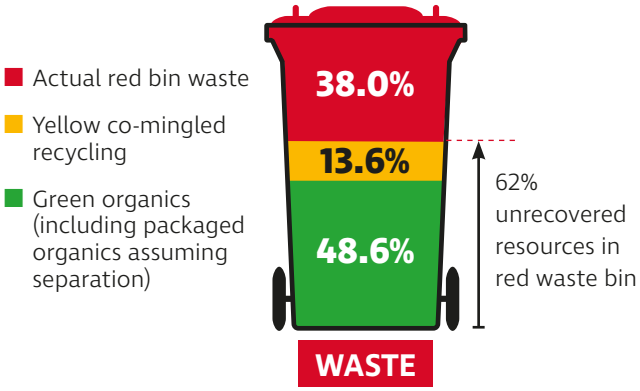
Park Lands – Red waste bin:



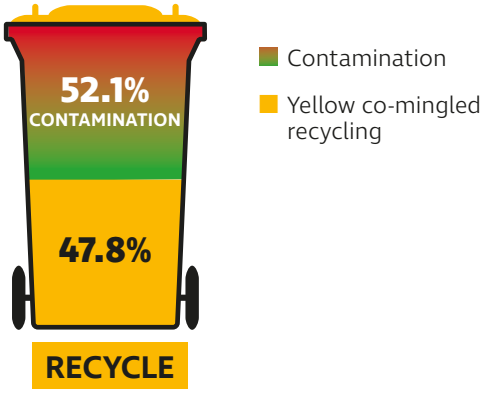
- Only red waste bins are available in the Park Lands. Around 70 percent of materials in the red waste bin has the potential to be diverted from landfill.
- Over 50 percent of the red waste bin could be placed in a green organics bin (if available), and 19 percent could be placed in a yellow co-mingled recycling (if both were co-located).
- Specific contents vary by location. For example, in some locations, over 10 percent of the Park Lands red waste bins was animal waste in plastic bags.

- **Streets – Red waste bin:**

- Over 60 percent of the red waste bin is unrecovered resources that could easily be diverted from landfill if appropriate services were offered.
- Over 48 percent could be placed in a green organics bin (if available), and 13 percent could be placed in a yellow co-mingled recycling bin (if both were co-located).



Streets – Yellow Co-mingled Recycling Bin:



- Over 50 percent of the yellow co-mingled recycling bin was contaminated with items such as coffee cups, drinks in containers, food organics and other waste. Highly contaminated recycling results in the entire contents of the yellow recycling bin being rejected by the recycling facility and sent to landfill.

Influencing challenges

- A large proportion of waste collected in public spaces within the City of Adelaide are illegally dumped. This includes a variety of waste types such as white goods, furniture, electronic and hazardous waste.

- There are known challenges with public place recycling bins and their level of efficacy. Often bins are highly contaminated with materials unsuitable for recycling (such as coffee cups and soiled paper), or the valuable materials (such as glass containers accepted in the Container Deposit Scheme) are removed from bins by informal recyclers.

- The contents of the red waste bins differ significantly by location and the surrounding land uses. There is opportunity for further investigation to better understand the nuances of waste generation patterns and service requirements for our streets and the Park Lands.

Target Area 5: City of Adelaide own operations

Establish the City of Adelaide's own operations, businesses, facilities and events as visible leaders in exceptional waste management.

Stakeholders: City of Adelaide employees, customers, visitors, tourists

The City of Adelaide has a variety of facilities and businesses that serve the greater Adelaide community. Facilities and businesses include: Colonel Light Centre and Eagle Chambers, London Road Depot, North Adelaide Golf Links, Adelaide Aquatic Centre, UParks and community centres and libraries.

The City of Adelaide also provides a range of tenancies, leases and rental space for property, retail and Park Lands spaces.

In order to benchmark the city, a waste audit was conducted on the four major City of Adelaide: Colonel Light Centre and Eagle Chambers, London Road Depot, North Adelaide Golf Links and Adelaide Aquatic Centre.

Depending on the facility, the City of Adelaide manages its waste and recycling though a combination of internal staff and external contractors, which revealed waste management inconsistencies across the City of Adelaide's own operations, facilities and businesses. This can cause confusion and contamination, especially if staff and customers frequent several of these facilities. As mentioned in Target Area 4: Public Spaces, for successful resource recovery, it is important to create a customer-centric approach where the resource recovery system is consistent at work, at home and in public spaces.

The waste audit also revealed opportunities for improvements in all spaces, particularly in contamination of the yellow co-mingled recycling bin and diversion of organics. The red waste bin was a good indicator of the opportunities available at each site and are documented next.

Along with infrastructure change, support is needed in the form of education for customers and training for our employees. Procurement policies should include circular economy principles.

Colonel Light Centre/Eagle Chambers

Approximately 79 percent of the materials in the red waste bin were unrecovered resources. Despite having a green organics service, over 44 percent of the material collected in the red waste bin could be placed directly in the green organics bin. Over 28 percent could have been placed in the yellow co-mingled recycling bin.

London Road Depot (Offices Only)

Over 77 percent of the materials collected in the red waste bin could be diverted from landfill. Of this, more than 50 percent could be placed directly into the green organics bin and over 22 percent could be recycled into the yellow co-mingled recycling bin.

North Adelaide Golf Links

There is significant opportunity for diversion at this facility. Over 87 percent of the waste that was placed in the red waste bin could be diverted from landfill. Approximately 25 percent of this material could have been placed directly in the yellow co-mingled recycling bin. Over 59 percent of the red waste bin could be directly diverted from landfill immediately if a green organics bin collection system was implemented. A further 8.3 percent could be recovered if visitors and staff separated food scraps from containers.

Adelaide Aquatic Centre

Approximately 50 tonnes of waste per annum is generated onsite at this facility, which includes a combination of food and packaging purchased at the café, as well as food, packaging, and textiles (clothing and towels) brought in by customers and disposed of on-site. The audit revealed that the diversion from landfill rate for this facility is very low at only 28 percent.

Close to 66 percent of the materials generated in the red waste bin were unrecovered resources. Over 42 percent of the material collected in the red waste bin could be placed directly in the green organics bin, and over 23 percent could be placed in the yellow co-mingled bin.

Influencing challenges

- Each facility is managed by different staff.
- Buildings vary significantly.
- Significant fluctuations of the number of visitors throughout the year.
- Illegal dumping occurs at most sites and contribute to overall waste.

With the City of Adelaide's Resource Recovery Vision of becoming the first city in Australia to be 'zero-waste', we must demonstrate leadership and improve our internal waste management operations to reflect the change we want to see in our communities.

Next steps

The Resource Recovery (Organics, Recycling and Waste) Strategy 2020–2028 provides the framework for change.

Linked to this document is the Resource Recovery (Organics, Recycling and Waste) Action Plan 2020–2028, which outlines further details regarding the Key Actions necessary to reach the Resource Recovery Vision.

Glossary

Bulk bin/shared bulk bin: a larger bin, usually on four wheels, that collects waste, recycling or organics, depending on the lid colour. These bins are often used for multi-unit dwellings, large office buildings or commercial complexes that share a collection service.

Circular economy: a methodology to use resources in a cyclical manner, effectively removing the concept of 'waste'.

Co-mingled recycling: a collection of recyclable materials like glass, tin cans and paper that are taken to a material recovery facility for sorting and recycling.

Food organics: Food scraps and waste collected for composting.

Green organics bin: a bin used to collect food waste and garden organic materials to be processed into composting. (also FOGO: Food Organics, Garden Organics) is also a frequently used term to describe food and garden waste in a green organics kerbside system).

Hard-to-recycle: products that are recyclable, however should not be placed in the kerbside co-mingled recycling stream. These products are made of several materials and need to be dismantled before recycling can occur.

Key actions: a set of tasks and projects specific to the five Target Areas.

Recycling: the process of converting 'waste' materials like plastic containers, metals and paper into reusable materials.

Red waste bin: a bin used to collect residual waste, garbage or rubbish. Often used as the 'catch-all' bin, where many materials can be recycled or composted.

Resource Recovery Vision: The City of Adelaide's long-term aim.

Priority Items: initiatives that are critical to the achievement of the Resource Recovery Vision. They are woven into every program created in support of this Strategy.

Target Areas: the major sectors or stakeholders within the city which programs and projects will be directed.

Waste avoidance: avoiding consumption that results in the production of waste.

Waste diversion: recovering materials that can be recycled so that they do not end up in landfill.

Waste generation: the process of making waste.

Waste management/resource recovery system: the actions needed to manage waste from generation to disposal; a waste management system that prioritises recycling and reuse of materials, rather then sending to landfill.

Yellow co-mingled recycling bin: a bin used to collect co-mingled recycling (see co-mingled recycling definition).

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APPENDICES

Ends of fluorescent lighting tubes sorted for recycling.

Appendix A: Link to City of Adelaide's Strategic Plan 2020–2024

The new City of Adelaide Strategic Plan 2020–2024 specified improvements in waste and resource recovery and the circular economy.

The following is an excerpt from the City of Adelaide's Strategic 'Plan on a Page' document. The underlined areas call for specific improvements in waste systems.

Outcome 4 Environmental Leadership

What we want to achieve together:

- One of the world's first carbon neutral cities by 2025, where sustainability is core
- A transition to low carbon and circular economies
- A climate ready organisation and community
- Integrated and sustainable development

How we will do it:

4.2 Implement improvements to city-wide waste and recycling services to support the transition to a circular economy

4.3 Educate and support our community to zero-waste, water sensitive, energy efficient and adaptive to climate change

4.4 Support our community to transition to a low carbon economy through education, incentives and appropriate infrastructure

4.6 Implement the Carbon Neutral Strategy for the city and achieve carbon neutral certification for our operations

4.7 Support all CBD businesses to be green accredited

How will we know we succeeded?

- Community greenhouse gas emissions are lower
- Less waste to landfill

More residents agree that Council is taking steps to protect our environment.

1 Goal 12 Sustainable Development Knowledge Platform, Progress of Goal in 2019.

Appendix B: Strategic and policy context

The City of Adelaide is influenced by several different internal and external regulations, policies and guidelines. These have been considered in the development of this Strategy and have shaped it accordingly. The list below is a summary for greater context.

Global context and influences

Sustainable Development Goals: 12 Responsible Consumption and Production

On 25 September 2015, all United Nations Member States in 2015, including Australia, established a set of goals to end poverty and protect the planet through a sustainable development agenda. Relevant to the City of Adelaide's Resource Recovery (Organics, Recycling and Waste) Strategy is Sustainable Development Goal 12 Responsible Consumption and Production. This goal specifically focuses on responsible consumption and production patterns, calls for urgent action addressing current material demands and policies that improve resource efficiency, reduce waste and mainstream sustainability practices across all sectors of the economy. Of particular relevance to the Strategy includes the following two goals:

- By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse and,
- By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses'[1]

This strategy aligns to the SDG to ensure our efforts are a part of the global collective goal for peace and prosperity and a sustainable future.

National context and influences

The National Waste Policy includes the waste hierarchy which sets out the preferences for waste management solutions: prioritising waste avoidance and minimisation and seeking to recover the highest value from materials.

a. Avoid waste:

- Prioritise waste avoidance, encourage efficient use, reuse and repair.
- Design products so waste is minimised, they are made to last and we can more easily recover materials.

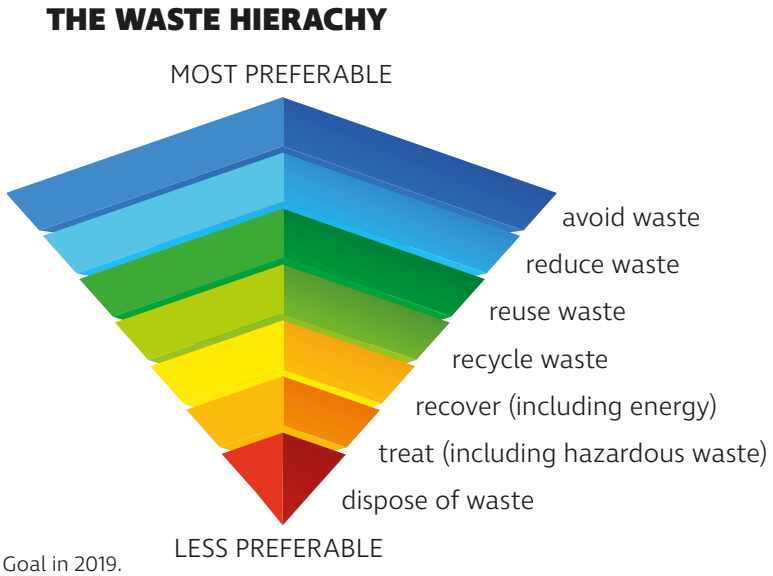
b. Improve resource recovery:

- Improve material collection systems and processes for recycling.
- Improve the quality of recycled material we produce.

c. Increase use of recycled material and build demand and markets for recycled products.

d. Better manage material flows to benefit human health, the environment and the economy.

e. Improve information to support innovation, guide investment and enable informed consumer decisions.



1 Goal 12 Sustainable Development Knowledge Platform, Progress of Goal in 2019.

The National Waste Policy Action Plan 2019 presents targets and actions to implement the 2018 National Waste Policy.

The National Food Waste Strategy which aims to halve Australia's food waste by 2030.

The Commonwealth's *Product Stewardship Act 2011* provides the framework to effectively manage the environmental, health, safety and disposal impacts of products

State context and influences

- South Australia *Environment Protection Act 1993*.
- South Australia Environment Protection (Waste to Resources) Policy 2010. Under this policy the City of Adelaide is required to provide a weekly general kerbside waste collection service (other than for recyclable waste or vegetative matter) in respect of residential premises within its area.
- *Green Industries SA Act 2004*
- A Vision for a Circular Economy, Waste Strategy 2020–2025 Consultation Draft
- Valuing our Food Waste. Food Waste Strategy 2020–2025 Consultation Draft
- *Beverage Container Act 1975*
- *Plastic Shopping Bags (Waste Avoidance Act) 2008*
- Single-use and Other Plastic Products (Waste Avoidance) Bill 2020
- South Australia Better Practice Guide for Residential and Mixed-Use Developments Guidelines for Waste Management. This document (created with feedback from the City of Adelaide) is referenced in development approval assessments.

Alignment to the efforts made by the state government's Green Industries SA will ensure consistent messaging across programs.

Local and other influences

- City of Adelaide Strategic Plan 2020–2024
- City of Adelaide Waste Management Action Plan 2012–2016. This Strategy will replace supersede this Plan
- Waste and Recycling Services Policy.
  The current Policy will be reviewed following adoption of this strategy by Council.
- Waste and Recycling Services Operating Guidelines.
  The current Guidelines will be reviewed following adoption of this strategy by Council.
- Design Guide for Residential Recycling.
  The current Guide will be reviewed following adoption of this strategy by Council.
- Carbon Neutral Adelaide Strategy 2015–2025 and Carbon Neutral Adelaide Action Plan.
  This strategy and action plan establishes ambitious targets of carbon neutrality for the City of Adelaide operations by 2020 and the broader community by 2025. It lists reduction of emissions associated with resource use and maximising recycling as a priority to achieving a carbon neutral Council.
- Sustainable Event Guidelines.
  This document provides guidance on how to deliver more environmentally sustainable events across six activity areas including waste reduction and recycling.
- City of Adelaide 2019 Waste Audits.
  Comprehensive waste audits were conducted in August 2019 and helped to inform the development of this Strategy.
- Fight Food Waste CRC.
  Organisations such as the Fight Food Waste CRC dedicate resources to address food waste challenges. Therefore, partnerships with such organisations can support our collective goals.

Appendix C: ‘Zero-waste’ in other organisations and cities

Although the goal of ‘zero-waste’ in other organisations and jurisdictions is similarly aligned with the underlying premise of resource recovery, there are several different applications and interpretations. The following organisations and cities provide the City of Adelaide with precedence and direction.

Zero Waste International Alliance

According to Zero Waste International Alliance, zero-waste is ‘the conservation of all resources by means of responsible production, consumption, reuse and recovery of products, packaging and materials without burning, and with no discharges to land, water or air that threaten the environment or human health.’[1]

Austin, Texas, USA

Adelaide’s US sister-city Austin, Texas, defines zero-waste as: ‘an ambitious goal to divert 90% of waste from landfills and incinerators by 2040 using a “whole system” approach to evaluate and manage the flow of resources and waste created by our communities.’[2] The City Council established three goals for achieving zero-waste:

- 20 percent per capita reduction of solid waste disposed to landfills by 2012
- 75 percent diversion of solid waste from landfills and incinerators by 2020
- 90 percent diversion of solid waste from landfills and incinerators by 2040

Sydney, New South Wales, Australia

‘The long-term goal of the City of Sydney is to reduce all waste for maximum resource recovery, so materials aren’t just used once and then disposed of. Zero-waste targets in other cities are defined as greater than 90 percent of waste diverted from landfill. The following are their targets for June 2030.

- Operations: To divert 90 percent of waste from City parks, streets, public places, City-managed properties, construction and demolition generated and managed by City operations, from landfill.
- Residents: To divert 90 percent of waste (with a minimum of 35 percent as source-separated recycling) from landfill.
- Businesses: To divert 90 percent of waste from operating businesses in the local government area, and from construction and demolition activities in the local government area from landfill.’[3]

Melbourne, Victoria, Australia

The City of Melbourne have also set an ambitious goal towards zero-waste, aiming for a 90 percent recovery rate. They aim to;

- avoid waste and reduce household waste generation by 20 percent
- improve how waste and recycling is separated, stored and collected in order to reduce noise, odour and congestion and improve the beauty of the city
- capture and recycle organic waste
- recover all valuable material if viable, with minimal waste going to landfill[4]

1 Zero Waste Definition - Zero Waste International Alliance, 2018
2 Austin Resource Recovery Master Plan, City of Austin, 2011
3 Leave Nothing to Waste, Managing resources in the City of Sydney Area,
4 Waste Strategy and Action Plan 2017 – 2030, Waste and Resource Recovery Strategy 2030, City of Melbourne 2019

Appendix D: The circular economy principle

What does a circular economy look like?

Waste as we currently know it, is often the last thought. Once a material has been deemed 'waste', or 'garbage', it becomes 'somebody else's problem'[1]. It is usually only when waste systems fails that we begin to ask questions, for example, when our bins are overflowing, or we find plastic on our local beaches.

In nature, biological systems consider 'waste' as a resource, feeding the next set of organisms and so on. Effectively, there is no 'waste' like in our typical consumer lives. The circular economy, much like natural systems, uses resources in a cyclical manner, and 'waste' becomes food for the next system. It employs design principles to effectively remove the concept of 'waste' entirely, treating it as an input for the next system. Applying this type of thinking to materials, manufacturing and consumption reduces the amount of new resources required in manufacturing and reduces the amount of materials ending up in landfill.

If we consider waste as a valuable resource, we can gain back much of what it took to make the product for example, the materials, the embodied energy and water.

This takes a different type of thinking from that which has been employed since the time of the industrial revolution.

Some of the essential elements necessary for a circular economy include:

- design and manufacture products that are made from recycled materials (rather than new resources), that can be repaired and/or recycled back into the system
- establish repair centres as part of this design and manufacture process, so that items can be repaired
- establish collection systems so that items unable to be repaired are collected, rather than disposed of in landfill
- ensure that there is adequate and appropriate recycling facility infrastructure in place, taking into account location and sorting capacity
- encourage manufacturers to purchase recycled materials, thereby closing the production loop.[2]

Designing for reuse, repair, remanufacture and effective recycling are some circular economy principles that redefine products and manufacturing approaches to design out waste.

How does this apply to our everyday consumer life?

Following the National Waste Hierarchy[3] and other governing bodies, reduction of consumption is the most effective action we can take. By reducing overall consumption of products, we reduce demand both up the supply chain, where products are made, and down the supply chain where products' fate in the waste system is decided.

Another way to reduce consumption and the resulting waste can be done by choosing the right products. For example, products that are designed to have long and useful lives, are designed to be repaired using standard tools, and are designed to be disassembled and made by companies that have extended producer responsibility policies in place, who will support the consumer in responsible end-of-product-life disposal.

Products for example, would be designed in a way that could feed into a viable recycling system – for example the yellow co-mingled recycling bin in a standard municipal kerbside system. Packaging would be minimal, made with recycled and recyclable materials, and only used to protect the product. Importantly, labelling regulations should be made to support the consumer in identifying responsible disposal.

1 Somebody Else's Problem, Robert Crocker, 2016
2 The Circular Economy, An explainer, Department of Parliamentary Services, Parliament of Victoria 2018
3 See page 44 for further details on the National Waste Hierarchy

What does a well operating circular economy system look like?

- An overall reduction of materials entering the waste system through measures like avoidance, reuse or repair.
- Manufacturers design for a circular economy.
- Labelling of packaging enforced to assist in recycling.
- Consumers practice avoidance, reduction, reuse and recycling and know what to do with all materials at time of disposal.
- All recyclable materials like cardboard/paper, plastic, metal and glass are placed in the correct bin and are separated and processed accordingly for recycling and remanufacturing.
- A localised and resilient waste and recycling system is in place.
- Businesses and residents are supported in good waste management practices.

How can the City of Adelaide support a circular economy?

- Advocate to state and federal governments for policies supporting a circular economy. For example, support the expansion of the extended producer responsibility policy, suggest implementing guidelines or policies for more sustainable material choice, and support and advocate for sustainable packaging and labelling on packaging.
- Provide assistance to businesses in choosing more sustainable materials and products.
- Educate our community and residents on choosing products that have minimal packaging and long useful lives and that can be reused or repaired. Encourage purchasing from companies that have extended producer responsibility, or product stewardship policies in place to support customers in end of product life options.
- Investigate how repair cafés, and lending libraries can be implemented in our communities.
- Advocate and support localised infrastructure to support local recycling and diversion of waste.
- Develop a strong Resource Recovery Strategy and Action Plan that weaves in circular economy principles.
- Lead by example via procurement and services.

By understanding what we want our economy and resource recovery to look like, we can shape the programs to support this goal and achieve our Resource Recovery Vision of ‘zero-waste’.

Appendix E: Waste audits 2019

Waste Auditor conducting a waste audit in 2019 for the City of Adelaide.

In August 2019, the City of Adelaide conducted a series of comprehensive waste audits to benchmark our progress and gain a better understanding of current challenges and wins.

The audit was conducted on external waste services provided by City of Adelaide and included kerbside residential, kerbside business, multi-unit developments, and public spaces collections.

Internal operations and facilities such as the Colonel Light Centre/Eagle Chambers, London Road Depot, North Adelaide Golf Links and the Aquatic Centre were also audited. This multi-audit approach gave a comprehensive baseline for the City of Adelaide.

The purpose of the waste audits was to:

- establish a baseline of data to assess the efficacy and efficiency of the City of Adelaide's waste approach and programs
- understand material generation and verify waste pathways and associated costs
- understand user behaviour within each site and service
- identify waste reduction, diversion and efficiency opportunities.

The audits provided information on:

- high-level waste generation data
- composition and contamination of bins
- recycling rate and diversion of materials
- bin fullness
- adoption of compostable liner bags for organics kitchen caddy.

The audit revealed good areas of opportunities, some of which can be achieved with quick wins, and others which require more substantial changes.

Publishing notes:

Disclaimer: While every reasonable effort has been made to ensure that this document is correct at the time of publication, the City of Adelaide disclaim any and all liability to any person in respect to anything or the consequence of anything done or omitted to be done in reliance upon the whole or any part of this document.

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