MACQUARIE POINT MULTIPURPOSE STADIUM

Project of State Significance

Solid Waste and Hazardous Material Management

August 2024

MACQUARIE POINT
DEVELOPMENT CORPORATION

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MACQUARIE POINT MULTIPURPOSE STADIUM

Concept Design
Version: 1

Solid Waste and Hazardous Material Management

PURPOSE OF REPORT

Incognitus as a consultant to COX Architecture has prepared this document on behalf of the Macquarie Point Development Corporation in support of a development application for the Macquarie Point Multipurpose Stadium, Project of State Significance.

The purpose of this report is to address the requirements relating to solid waste and hazardous material management as required by the Tasmanian Planning Commission's Guidelines for the Project of State Significance, dated 16 February 2024.

The relevant conditions addressed in this report are outlined below.

Incognitus

No.	Clause
Environmental quality and hazards	
8.6	Solid waste and hazardous material management
8.6.1	The reports are to identify the sources, nature and quantities of all solid wastes likely to be generated as well as any hazardous or controlled wastes that will be collected and disposed of separately from wastewater streams, and describe the management of these waste materials. The methods of use, storage, treatment or disposal of each type of waste are to be described.
8.6.2	The reports are to review and evaluate the potential for human health to be affected by wastes from the proposed project, including during handling, transport, or as a result of disposal. The reports are to describe any measures required to adequately mitigate or manage any identified human health impacts.
8.6.3	The reports are to describe any measures taken to avoid or minimise the amount of waste which must be disposed of.

8.6.1 Waste Management Approach

Waste Outlook

Sustainable development is paramount to the look of the future strategy. In order to achieve this, the need for a balance between economic, environmental, and social development spheres is required. To this end, the consultant has taken a 'look to the future' perspective and has assumed the introduction of a variety of initiatives. One of the key performance indicators (KPI's) is the diversion of waste from landfill via the effective adopting of recycling and treatment initiatives. These include:

- Reducing landfill waste: and aim to reduce the amount of waste going to landfill by 50% by 2030*
- Promoting recycling: The goal is to increase the recycling rate to minimum 50% from the outset
- Improving waste collection and transportation

Tasmania is on the front foot in determining a waste reduction strategy and developed a 2023-2026 Waste and Resource Recovery Strategy (attached to this report) using the National Waste Action Plan to baseline their initiatives. Additionally, the City of Hobart has developed a city-wide strategy.

Specifically related to waste, the sustainability requirements of Macquarie Point Multipurpose Stadium are to achieve high rates of waste avoidance. The focus on reduce, reuse, then segregate into as little amount of different waste streams as possible. To achieve this, the movement of waste both vertically and horizontally must be considered during planning, construction, and operational phases to allow for diversion from landfill.

To achieve this vision, the following initiatives should be the focus:

- Waste avoidance
- Volume reduction
- Development of a solid use strategy
- Streamlining of the waste inputs
- Elimination of single use plastics
- On site segregation
- Closed loop recovery (circular economy)
- Strategy that designed around local handling resources.

** Strategy prepared by the City of Hobart, with MRA Consulting Group Just Waste Consulting Document approved by Council 9 May 2016*

Figure 1: Service vehicle access into the Stadium, image courtesy Stadium Design Description (COX+Cumulus)

8.6.1 Waste Infrastructure Design

Requirements for the Waste Strategy Design

The following proposed actions have been used in the development of the waste strategy are as follows:

- Waste will be segregated at point of waste generation as it is industry best practice.
- Bin stations will be provided for General, Organic, Paper/ Cardboard, and Co-mingled waste streams.
- Public realm bin stations should be based on spatial distribution and agreed collection frequency. A minimum of 30-40m distances between bins will be maintained at low foot traffic areas and 10m intervals for high foot traffic areas within the public realm.
- Internal public circulation spaces (eg, concourses, entrances/exits) will be catered to as a minimum.
- Event Space and public realm bin stations will be provided with 120L or 80L waste receptacles.
- Waste receptacles will be emptied as required dependent on daily visitor frequency.
- Where large volumes of waste will be generated frequently and regularly e.g., food courts 240L bins are recommended to be utilized. This will reduce the number of waste handling areas (I.e., bin stations) and will maintain adequate capacity.
- All BOH Waste bins will be tailored to the functional area's requirements
    - Parking
    - CPU kitchen requirements
    - Merchandise
    - Workforce – Check in and break areas
    - Maintenance
- All waste generated on site will be collected for disposal/ treatment. Waste will be sorted and contained within the waste rooms allocated to each facility. Waste rooms will be located within the Stadium's service level (equivalent to field level). Adequate space will be provided for this task along with the correct utilities including but not limited to:
    - Water
    - Lighting
    - Power
    - Drainage
- The waste room(s) will be designed to cater for the anticipated waste to be generated estimated waste volumes. The internal waste elements (specific waste receptacle types) should be monitored to reflect the waste segregation habits of users. Specific reference to access to grease traps needs to be considered in the design.
- It is assumed that sufficient access is provided to waste receptacles and containment points once configuration and handling methods are established. Specific consideration will be required for truck collection and turning circle, and must be considered in conjunction with the traffic flow (one way) that is planned.
- Dependant of the waste handling methodology, spatial planning in the Stadium will allow for the introduction of:
    - Bulk waste bins
    - Compactors
    - Compost containers
    - Liquid waste containment
- Appropriate signage and recycling awareness programs along with training schemes should be implemented on-site, thus facilitating active recycling participation from staff, visitors and vendors. It is recommended to provide signage in English and use simple pictograms to promote correct source segregation.
- The site has potential to achieve a high rate of recycling and composting; and some degree of the end result should be considered to be fully processed on site as part of a full circular economy waste service.

To support the waste strategy, the infrastructure listed in the table below is proposed to be incorporated in the design:

Waste Infrastructure	Indicative Quantity
Compactors	
General waste compactor in Waste Compound	2
Co-mingled (packaging/ cardboard) compactor in Waste Compound	2
Organic Material Disposal	
Organic digestors, macerator units, or other systems with in-vessel composting will be provided in locations close to main food production and return locations	2
Bins	
Bins at 120L and 80L capacity will be distributed in public areas	20
Bins at 240L capacity will be located in areas where large volumes of waste may be generated	
Insinkerators	
To be fitted to all commercial kitchens and prep room sinks across site	TBC

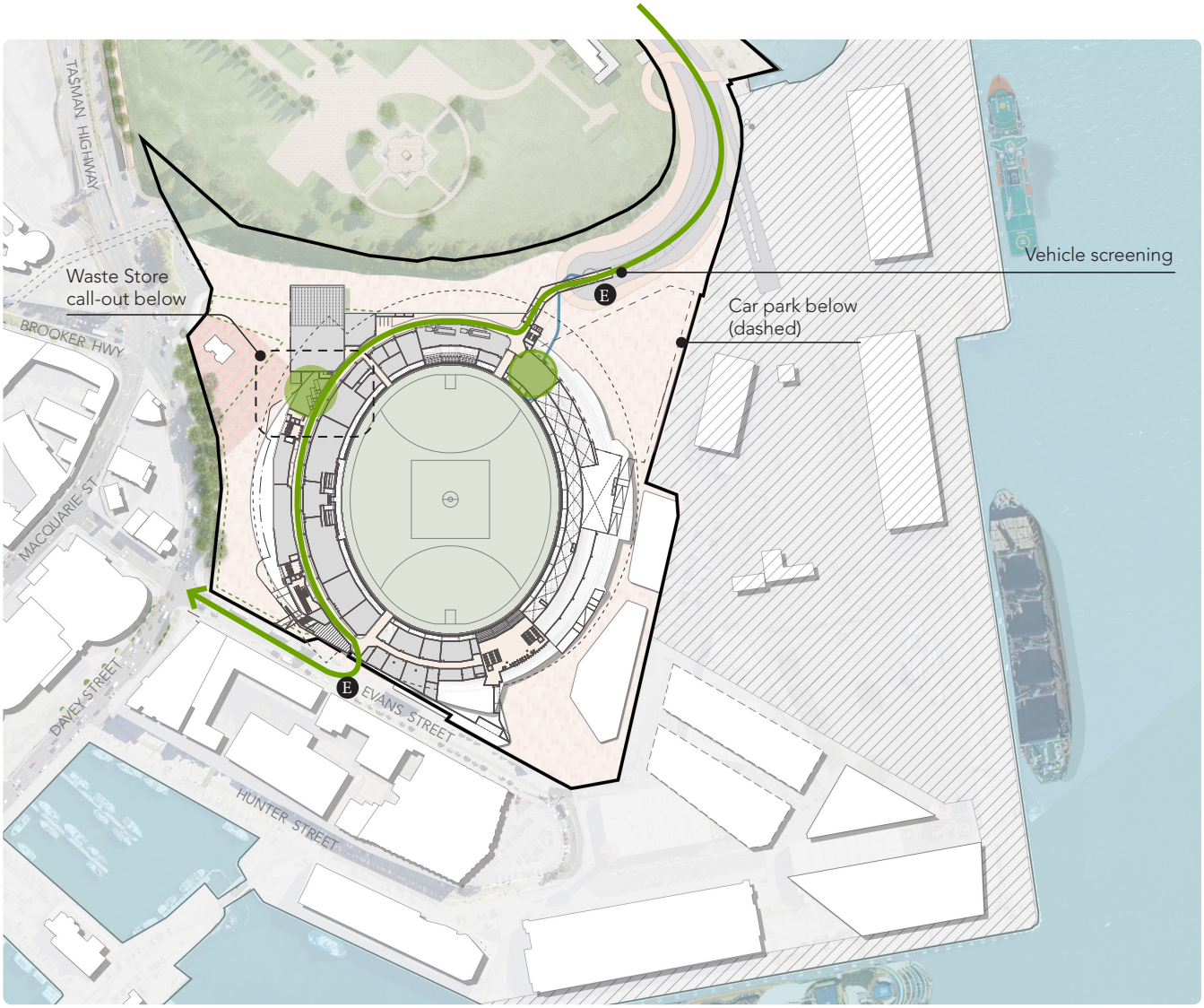


Figure 2: Waste truck serving site access, image courtesy Stadium Design Description (COX+Cumulus)

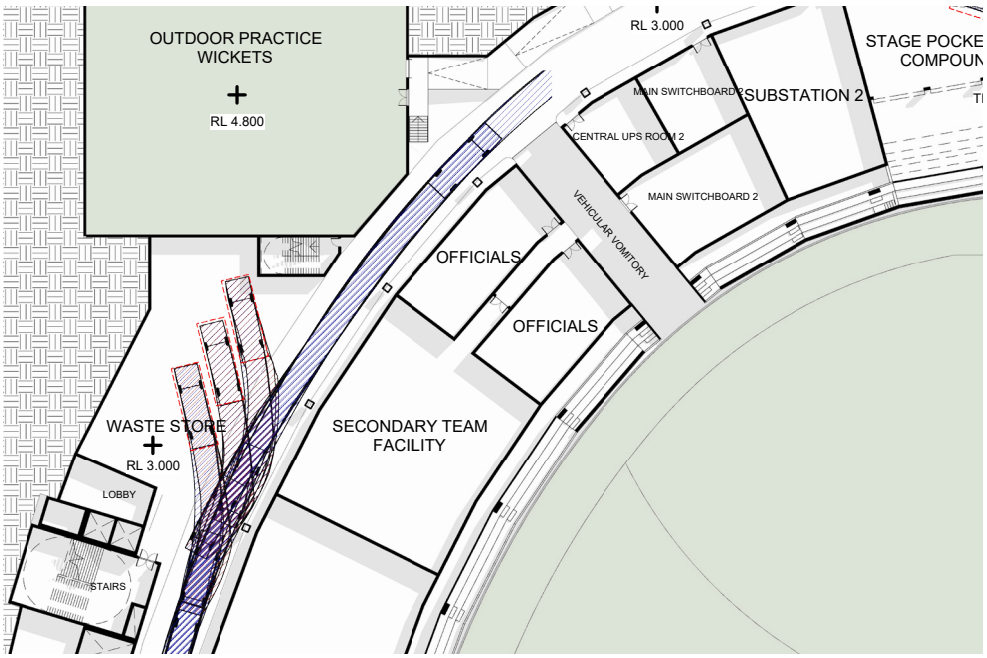


Figure 3: Vehicle access into the Waste Store Room, image courtesy Stadium Design Description (COX+Cumulus)

Waste Sources

Operational waste estimates, benchmarks, and composition are based on assessment of waste arisings for similar events in the past. At the new Macquarie Point Multipurpose Stadium, an average estimate of 0.7kg/visitor/hour is anticipated. Based on this criterion and occupancy numbers (i.e., venue capacity and crowd modeling) waste generation estimates during events were determined.

Waste sources will include:

- General Admission and public areas, including organic waste from lawn and other garden maintenance
- VIP and hospitality
- Suppliers and vendors
- Retail and merchandise
- Catering production and preparation
- Sponsors and other stakeholders (AFL, Cricket, Bands), and
- General Back-of-House (BOH) activities related to specific events.

It is noted that medical waste as a true waste source requiring separate treatment is not likely to be present at the Stadium. If present in small quantities as a result of a response to an emergency, it should be treated as landfill only. In the unlikey scenario that larger quantities are generated, it could be diverted for medical waste treatment. Medical waste could include:

- Bandages and wraps
- Sharps
- Sanitary waste (could all be handled via the sanitary disposal units across site).

It is estimated that only 30% of the total waste generated will be from public areas (ie, directly from bins on the concourses, waste in seating decks etc). The remaining waste will be generated from BOH activities and is therefore considered in the overall waste collection strategy of the event spaces. The management of public space waste will be captured in the correct Front-of-House (FOH) waste stream bins and housekeeping activities when cleaning the seated areas. Hence, bin stations (number of bins placed collectively for separate collection of waste streams) will be distributed within the venues accordingly.

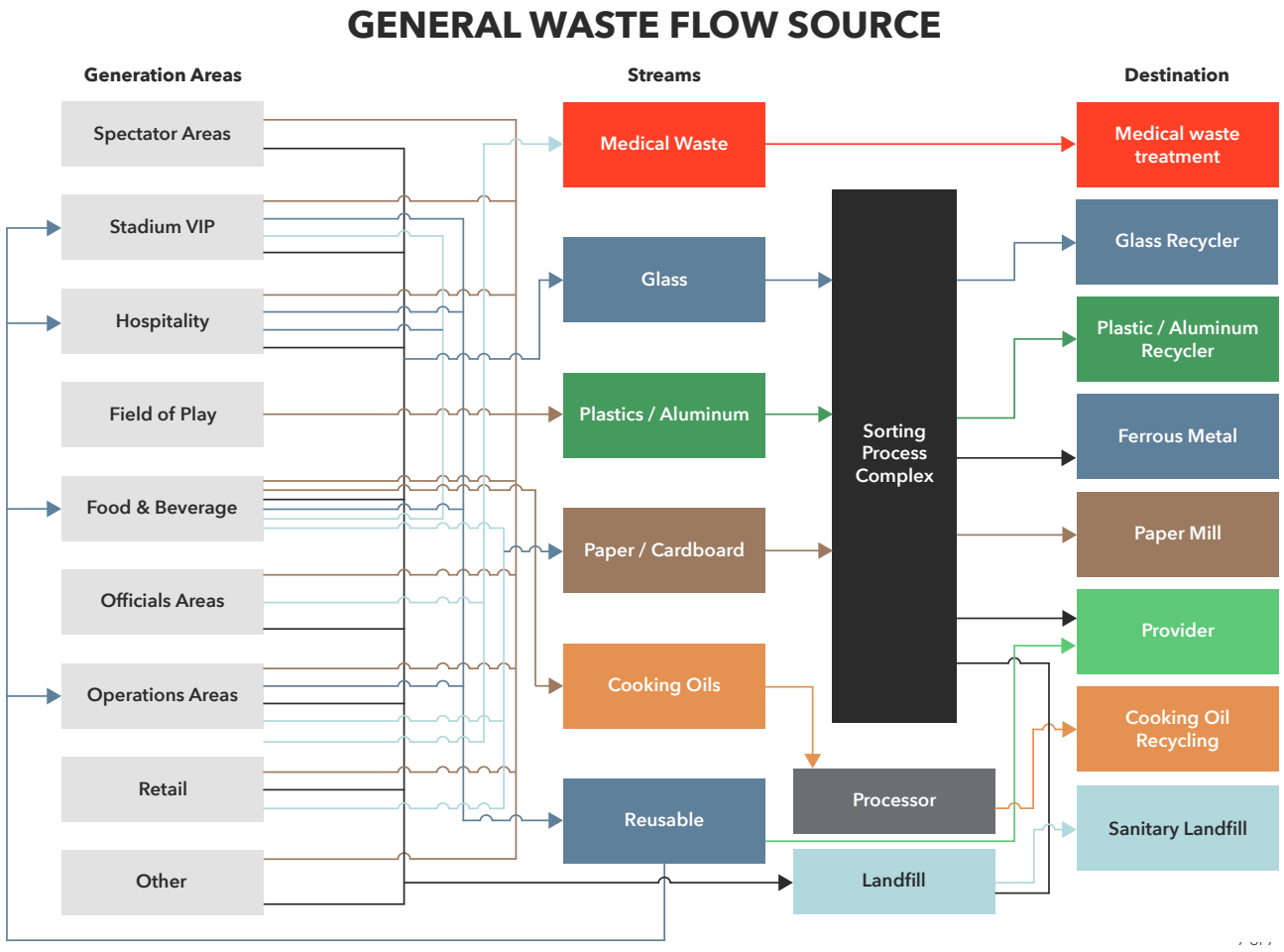


Figure 4: Waste sources and flow

Waste Estimates

The volumes of waste that are generated within the Stadium will be contingent on the waste strategies that are adopted by Stadium Management, and are both affected and effected by:

- Market pressures and pricing of commodities
- Controls and restrictions placed on;
    - Patrons
    - Sponsors
    - Promoters (via occupancy contracts)
    - Operational styles and methodologies that are adopted by Stadium Management

A range of volume generation is depicted below:

Macquarie Point Multipurpose Stadium - Waste Generation Guide							
Stadium Events	Sport Activity	Generation Range		Attendees	Patron dwell time (Hours)	Total KG	
		Low	High			Low	High
Stadium Events	AFL	0.5	0.7	24,500	4	49,000	68,600
	AFL	0.5	0.7	12,000	4	24,000	33,600
	Rugby	0.6	0.9	24,500	3	44,100	66,150
	Rugby	0.6	0.9	12,000	3	21,600	32,400
	Rugby Union	0.4	0.7	24,500	3	29,400	51,450
	Rugby Union	0.4	0.7	12,000	3	14,400	25,200
	Soccer	0.4	0.5	24,500	3	29,400	36,750
	Soccer	0.4	0.5	12,000	3	14,400	18,000
	Cricket	0.4	0.6	24,500	7	68,600	102,900
	Cricket	0.4	0.6	12,000	7	33,600	50,400
	Special event	0.3	0.8	24,500	4	29,400	78,400
	Special event	0.3	0.8	12,000	4	14,400	38,400
Conferences		0.1	0.2	1,500	6	600	1,200
		0.1	0.2	400	6	240	480
Festivals	Single day	0.4	0.6	30,000	8	96,000	14,4000
		0.4	0.6	12,000	8	38,400	57,600
		0.4	0.6	6,000	8	19,200	28,800
Concerts		0.8	1.1	30,000	4	96,000	132,000
		0.8	1.1	12,000	4	38,400	52,800
		0.8	1.1	6,000	4	19,200	26,400

8.6.2 Human Health

Waste Minimisation

Waste minimisation at stadiums involves implementing strategies to reduce, reuse, and recycle materials. This can include offering reusable cups and containers, setting up well-labelled recycling and composting stations, and encouraging fans to bring their own water bottles. Partnering with vendors to eliminate single-use plastics and sourcing sustainable, locally produced food can also help. Additionally, digital tickets and programs reduce paper waste. Educational campaigns during events can promote eco-friendly behaviour among attendees. Regular audits and collaborations with waste management companies ensure continuous improvement in waste reduction efforts, making stadiums more sustainable.

Waste minimisation will be at the core of the waste strategy and will consider:

- Vendor management and controls
- Packaging design and use control
- An awareness of circular economy efforts and trends
- Third party vendor packaging control enforcement
- Reusable drinks containers
- Limiting all advertising and signage of non-reusable or electronic in nature
- Encourage the use of reusable water containers for all guests.
- Eliminate single use plastics by providing alternative solutions:
- Drinkable chilled filtered water stations throughout public realm areas
- Replacement of the sale of PET water bottle with aluminium can option
- Replacement of PET cup within venue spaces with reusable polycarb cup option
- Digital marketing and advertising avoiding 'on paper' mediums by clients within the event spaces should be promoted.
- Allowing for facilities in FFE and CAPEX Phases
- All receipts for all transactions should be digital
- The use of solar powered compactable bins
- Voice activated Smart interaction between user and receptacle applauding encouragement of their smart waste choice of disposal (first adopted at 2021 World Expo Dubai)
- Simple signage for easy choices
- Waste reduction
- Recycling and reuse
- Public awareness

The site has potential to achieve a high rate of recycling and composting; and some degree of the end result should be considered to be fully processed on site as part of a full circular economy waste service.

Circular Economy

- Organic recovery
  - Aerobic digestion
  - Organic composting
  - Worm farm (first adopted and Sydney Aquatic Centre in Sydney Olympic Park in 1998)
- Onsite processing
  - Glass crushing (a common method used to minimise waste volume in venues and events across east coast Australia)
- Waste segregation (on site)
- Waste stream minimization

Impact on Human Health

The impact of unmanaged waste on human health is profound and multifaceted, affecting physical health, environmental quality, and socio-economic conditions. Implementing comprehensive waste management practices is crucial to safeguarding public health and protecting the environment.

Improper waste management poses significant threat to human health and the environment, presenting risks as follows:

Infections and disease

Poor waste management in stadiums can lead to the accumulation of garbage, providing breeding grounds for pests like rodents and insects that spread infections.. The crowded environment of stadiums exacerbates the risk of disease transmission, posing a significant public health threat if waste is not properly managed and sanitized.

Respiratory problems and issues

Contaminated waste and stagnant waste liquids and water can harbour pathogens, leading to the spread of diseases such as gastrointestinal infections, respiratory illnesses, and vector-borne diseases

Skin and eye irritations

Poor management of waste can lead to the release of harmful chemicals and pathogens, causing skin irritations, eye discomfort, and respiratory issues. Exposure to decomposing waste and unsanitary conditions can trigger allergic reactions, infections, and other irritations, affecting the health and comfort of attendees and staff.

Data specifically addressing the impacts of poor waste disposal systems in stadiums is limited but can be extrapolated from broader studies on waste management in large public venues. Research often focuses on the environmental impacts, such as increased pollution and waste accumulation, rather than directly linking these to health outcomes in stadiums. However, studies on waste management in similar contexts, like festivals or large events, indicate that poor disposal can lead to increased pest populations, pollution, and health risks like infections and irritations, as well as excessive costs.

8.6.2 Human Health

Health Protection Measures

The following health protection measures are proposed:

- Segregated and secure waste compounds
- High volume ventilation in waste rooms
- Containment of waste in a compactor
- Lockable bins and regular bin emptying
- Vermin and pest control through baiting
- Public awareness via education
- Training for staff in hygiene
- Provision of PPE to waste control staff
- Efficient waste management
- Regular Sanitization
- Fitout of hygiene facilities
- Development of Emergency Response Plans, and
- Cleaning of public seating areas in the stands after each event to deter birds and rodents.

8.6.3 Waste Minimisation

Re-Use and Recycling

The Macquarie Point Multipurpose Stadium will adopt re-use and recycling initiatives as a means of reducing the quantity of waste that would otherwise be diverted to landfill. Initiatives that could be employed by the venue operator include:

Re-Use

- Marketing bags should be re-usable
- Encourage the use of serving on wash ware in all catering locations in VIP and Corporate areas
- Only use reusable pallets for transport
- Have produce delivered in reuse stackable tubs
- Reusable cups at concessions
- Workforce encouraged to use reusable containers
- "Second Bite" style of program whereby the food remaining after an event could go to a charitable cause.
- Zero tolerance for any plastic bag packaging site wide should be implemented. Reusable bags should be encouraged.

All stakeholders should be encouraged to use reusable containers and items where possible as this has the potential to reduce the total the amount of waste generated from the development

Recycling

- Input during the master planning phase securing required footprint
- Design of waste removal infrastructure, this will include,
    - o Compactors
    - o Open top bins
    - o Organic digestors
    - o Liquid waste
    - o Hydrators
- Designing of waste design space in internal areas, ie: kitchen fitouts
- Collection program design to work effectively and not impact traffic flows and consumer lifestyle
- Layout out for "Fit for Purpose" waste space to accommodate proposed initiatives on waste streaming
- Designing a universal waste plan that suits all the requirements of a multipurpose site that encompasses city planning and development
- Assisting in detail architecture planning in developing waste space and infrastructure that doesn't intrude on consumer lifestyle
- Planning for the future the 2030 plan.
    - The key to this plan is to understand and adopt the likely waste management infrastructure that will exist in the City of Hobart (as the cost and investment of others), and design our waste handling techniques around that infrastructure rather than adopt waste handling methodology that will not be in the 2030 plan.
- Master Planning allows the estimation of waste generation based on predetermined demographics
- Early design assists in the site adopting pre-determined municipality strategies and visions for future growth
- Planning state of the art equipment tailored to the site's specific needs.
- Waste minimization and packaging controls
- Recycling initiatives

All BOH Waste bins will be tailored to the functional area's requirements:

- Parking
- CPU kitchen requirements
- Merchandise
- Workforce – Check in and break areas
- Maintenance

Storage and Disposal

All waste generated on site will be collected for disposal/ treatment. Waste will be sorted and contained within the waste rooms allocated to each facility. Waste rooms will be located within the site's basement level. Adequate space will be provided for this task along with the correct utilities including but not limited to:

- Water
- Lighting
- Power
- Drainage

The waste room(s) will be designed to cater for the anticipated waste to be generated estimated waste volumes. The internal waste elements (specific waste receptacle types) should be monitored to reflect the waste segregation habits of users.

Signage

Appropriate signage and recycling awareness programs along with training schemes will be implemented on-site, thus facilitating active recycling participation from staff, visitors and vendors. It is recommended to provide signage in English and languages that are prevalent to workforce within the Tasmanian region as well as the use of simple pictograms to promote correct source segregation.

The Australian Standards (AS) designate specific colours that correspond to the different waste streams (refer figure below).

Waste stream	Pantone	RGB colour code	Example
Mixed Recycling (yellow)	Yellow C	254, 224, 0	
Cardboard (blue)	Process Blue	0,133, 202	
General waste (red)	Red 032	227, 27, 32	
Clear Soft Plastics (orange)	PMS 1655	240, 80, 34	
Food Organics (maroon)	PMS 209	117, 38, 61	
Food Organics (lime green)			
Cooking Oil (black)	Black 2	0, 0, 0	
Clinical and related wastes	**Pantone**	**RGB colour code**	**Example**
Cytotoxic waste	PMS 526 C	108, 43, 145	
Clinical Waste	PMS 1235 C	247, 186, 27	
Sharps Waste	PMS 1235 C	247, 186, 27	
Pharmaceutical Waste	PMS 1655	255, 88, 0	
Anatomical Waste	PMS 1655	255, 88, 0	
Sterile Wrap	PMS 290 C	194, 222, 246	

Figure 5: AS 4123.7-2006 waste stream colour designation

Appendix A

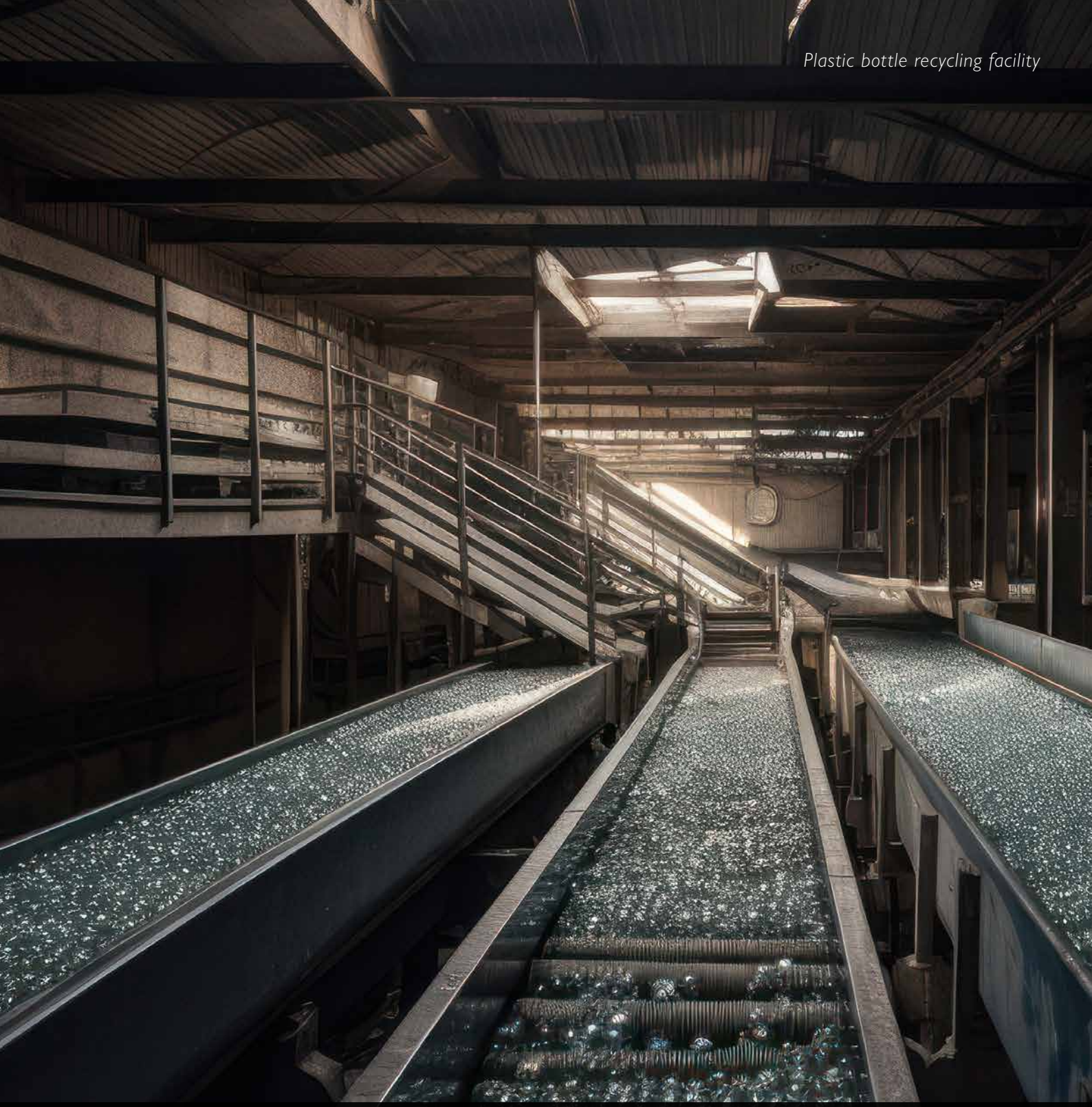
2023-2026 Waste and Resource Recovery Strategy

Tasmanian Waste and Resource Recovery Strategy

2023-2026

Tasmanian Government

Tasmanian Government



Plastic bottle recycling facility

Author: Tasmanian Waste and Resource Recovery Board

Publisher: Department of Natural Resources and Environment Tasmania

Online ISBN: 978-0-6458323-2-7
Print ISBN: 978-0-6458323-4-1

Date: October 2023

Photo: AdobeStock images

Buttongrass moorland, Southern Tasmania

In recognition of the deep history and culture of this island, we acknowledge and pay respects to all Tasmanian Aboriginal people; the past and present custodians of the land and exemplars of sustainable living.

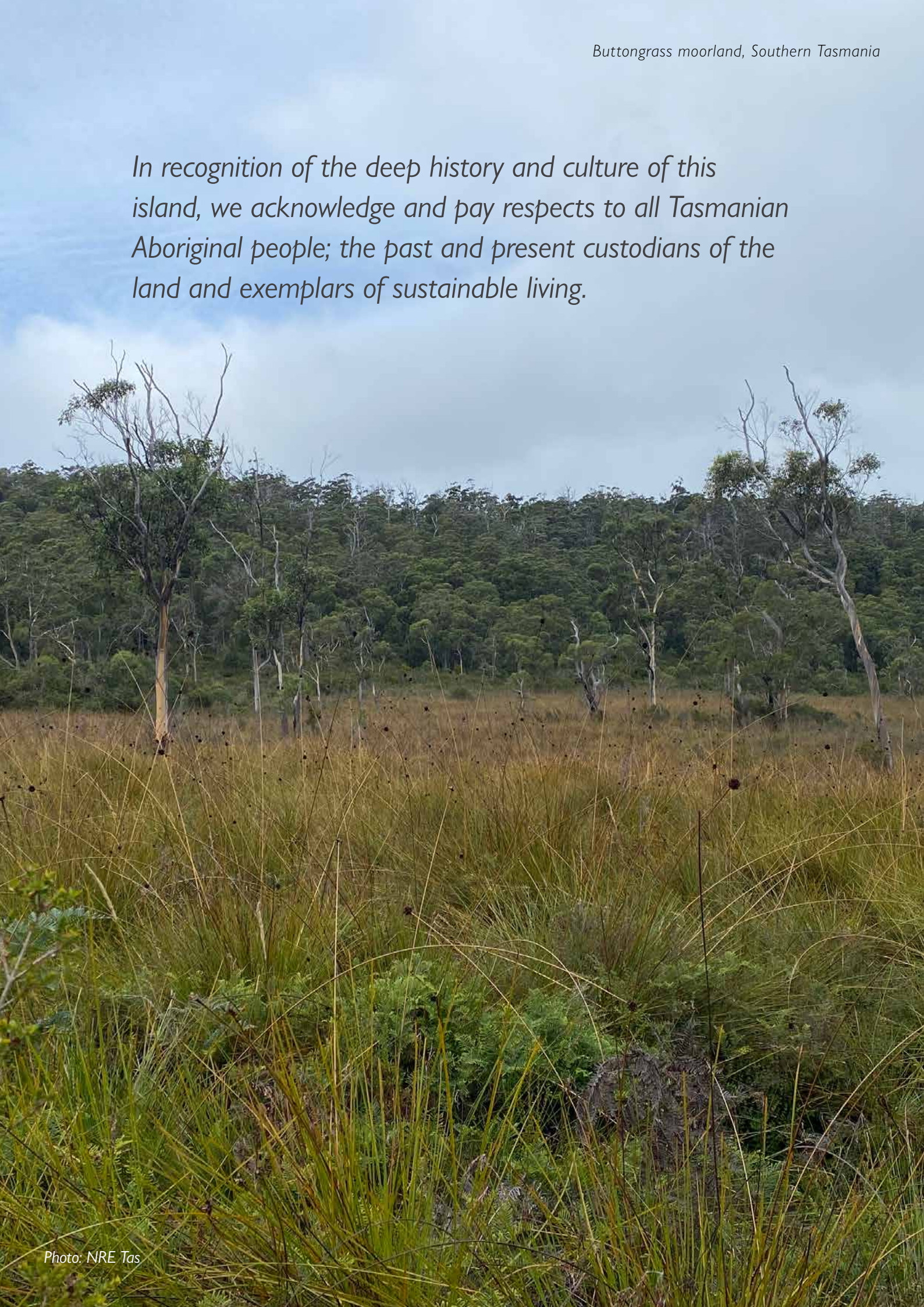


Photo: NRE Tas

Contents

Minister's Message

The T*asmanian Waste and Resource Recovery Strategy 2023-2026* is our first ever legislated waste strategy. It comes at an exciting time, when governments, industry and the community are all focused on working together to achieve a circular economy and low-emissions future for our state.

The Tasmanian Government has invested significantly in the waste and resource recovery sector in Tasmania over the past few years. We have put in place laws and policies that will help us make the best use of our resources and products. To achieve this, we not only need a strategy, but also ongoing engagement and enthusiasm from governments, industry, and the broader community.

Following the public release of the Draft Strategy, I was very pleased with the high level of support for the vision of Tasmania as being ***a place where nothing is wasted***. This reflects the strong goodwill across Tasmania to achieve this vision and the desire for coordinated leadership and greater investment certainty. It showed us that a lot is already being done right.

I was encouraged to see the high level of support for the strategy from Tasmanian businesses. They naturally see the benefits, but also want to know that there will be support as they make the transition. I understand their excitement and this strategy sets out mechanisms to help achieve the desired changes.

One of the most exciting common themes within the feedback on the Draft Strategy was the eagerness and enthusiasm to make the most of our Tasmanian advantages. This is an approach that the Government and the Tasmanian Waste and Resource Recovery Board are keen to pursue. Our smaller size and island status might bring some challenges, but it also helps us develop close and strong networks and partnerships that can achieve so much.

Renewable energy and climate action are also a critical part of a circular economy and Tasmania has a unique advantage in that space. Our regional areas have individual strengths that can make a substantial contribution to this journey. The Government is recognising the clear benefits of this kind of future through adopting circular practices in its policies on climate change and emissions reduction, bioenergy, agriculture, and the visitor economy.

We know that such an approach will create jobs, continue to maintain the value in products, and create value from materials we once just threw away. The *Tasmanian Waste and Resource Recovery Strategy* will help to set us on a sustainable pathway as we move to make our state a place where nothing is wasted.

Hon Roger Jaensch MP

Minister for Environment and Climate Change

Chair's Message

I am very proud to be delivering Tasmania's first statewide *Waste and Resource Recovery Strategy*. It has been an amazing year to begin the Board's involvement in Tasmania's journey to being a place where nothing is wasted.

The Board came into being not long after the new landfill levy was introduced and has spent its first year building strong dialogue and relationships with its partners and stakeholders, delivering on the Tasmanian Government's promise to provide support to the regional waste groups, remote councils and charities, and working to develop this strategy and the key programs that will ensure its success.

The Board is creating a robust investment framework to ensure that the landfill levy funds are directed to where they will have the most impact. There is still a lot of work to do. The landfill levy can by itself send out an appropriate price signal, but it will be how the accumulated funds are invested that will have the greatest and lasting impact. This Strategy provides the policy basis for future expenditure.

It is my hope that this Strategy will now help to establish the critical programs and partnerships that we will need in the coming years as we work towards an economy where the real value of products and materials are realised. It is the first part of a two-part pivot.

The Strategy will see us develop a better understanding of product use, reuse, repair, and resource flows in Tasmania, support the development and adoption of new business models, and help to build the capacity of Tasmania - and Tasmanians - to work and innovate in this exciting space.

The second part (through the next Strategy for 2027-2030) will be based on the foundational work arising from this Strategy. It will need to take what we have learned from our first foray into circularity in the waste and resource recovery sector, and apply it across governments, industry sectors, and communities.

The overwhelmingly positive response to the Draft Strategy and extremely useful feedback has shown us that we are well positioned to take advantage of our island advantages and the special regional strengths we have.

Together we can create a pathway that will be uniquely Tasmanian, and also provide creative and innovative solutions and services for the world's circular low emissions future.

Hon Pam Allan

Chair, Tasmanian Waste and Resource Recovery Board

Tasmanian Waste and Resource Recovery Strategy

Vision

Tasmania

*a place where **nothing** is wasted.*

Purpose

- Support strong circular economy to reduce waste and greenhouse gas emissions and improve the amenity, liveability, and sustainability of Tasmania.
- Divert products and materials from landfill and recognise the inherent value of products and materials.
- To invest in circular economy programs to increase the recovery and reuse of products and materials and respond to emerging issues.

Pillars and Objectives

Integrated Planning and Action

Alignment of state, regional and local strategic planning

Actions:
Regional planning, 2027-2030 Strategy

Effective landfill levy administration

Actions:
Regulation of levy

Moving towards a circular economy

Actions:
Circular economy mapping

Strategic Investment

Understanding material flows, infrastructure capacity, supply chains and priorities

Actions:
Improved waste data and circular metrics

Supporting infrastructure, new systems, and skills

Actions:
Investment in infrastructure, Levy Rebates

Improved regional and remote access to services

Actions:
Optimise kerbside recycling, Supporting regional waste groups

Prioritise Circularity

Understanding priorities

Actions:
Resource Recovery Market Strategy
Support relevant research and development activities

Reducing waste production

Actions:
Support for business, circular economy precincts, sustainable procurement

Increasing reuse and recovery

Actions:
Recycling and Resource Recovery Grant Programs
Container Refund Scheme (Recycle Rewards)

Engagement and Partnerships

Improved community and business education and engagement

Actions:
Education, Skills development

Strong partnerships addressing priority issues

Actions:
Circular economy networks, Engagement with private sector

Promoting success and champions

Actions:
Support existing, and develop new, channels for recognition

Introduction

In Tasmania, around one tonne of waste per person is landfilled every year. This represents lost resources and lost economic opportunities for Tasmania.

The past five years has been one of significant change for the waste and resource recovery sector. Many of our international and local customers are increasingly demanding longer life, reusable and repairable products, and high-quality recycled materials. Recent national and state laws have helped to make sure that is happening, and we are in a time of transition.

Globally, many businesses and governments are adopting circular laws, regulations, financial instruments, certifications, and practices to increase reuse, repair and efficiency, support climate goals and meet growing demand for zero emissions and low-waste products and services. In Australia we are rethinking our financial, regulatory, and other policy programs to improve products and rebuild our systems, incentives and infrastructure for reuse, repair, and recycling. The adoption of circular economy practices is one of the main Tasmanian policy responses to the problems in the recycling and reuse sector and material shortages. It provides an exciting opportunity to bring circular approaches to a wide range of sectors and policy areas in the state, and to tackle several economic, environmental, and social issues.

In a circular economy we design out waste and pollution, keep products in use for as long as possible, then recover and regenerate products and materials at the end of their lifecycle. It is the opposite of our current traditional linear economy. Rather than extracting resources, making products, and discarding 'waste', products are kept in use for as long as possible. The full value of products and materials is gained through sustainable design, prioritising "reuse, refurbishment and repair", and where this is not possible, remanufacturing, or recycling and recovery for other purposes. This reduces the need for expenditure on new raw materials and promotes a more sustainable and regenerative system (Figure 1), which includes growing our renewable energy capacity, improving our economic strength, community wellbeing, and environmental resilience.

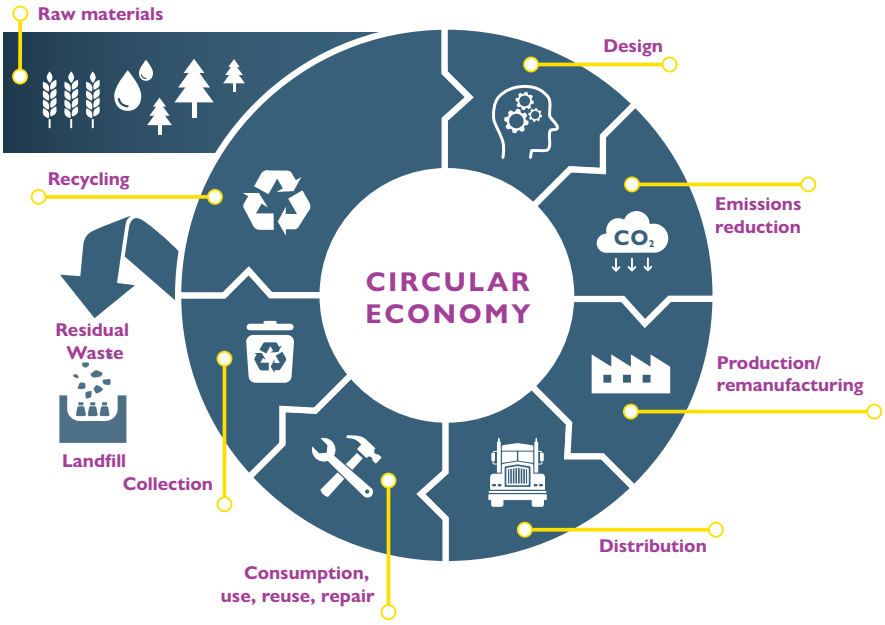


Figure 1. The circular economy

These preferences for how we treat our resources and products are like those expressed in the Waste Hierarchy, which has been a widely recognised framework for waste management for over 40 years (Figure 2). The Waste Hierarchy emphasises waste prevention as the most desirable outcome. It promotes strategies such as reducing consumption, improving product design, and minimising waste generation. It is one roadmap that guides the transition to a circular economy, optimising product and resource use, and minimising loss and waste at each stage of the product lifecycle. It is often about using less, using for longer, and using again.

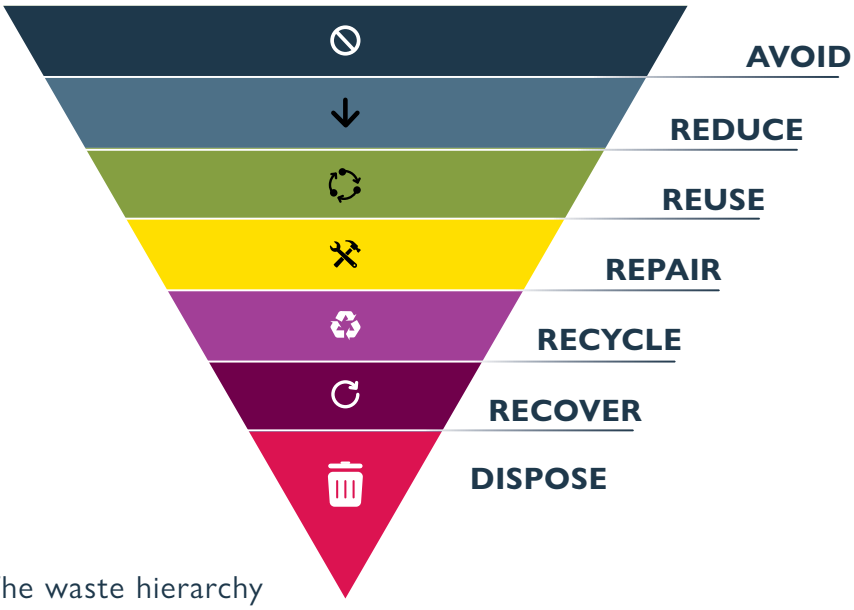


Figure 2. The waste hierarchy

Transitioning to a more circular economy will require changes to the way we manage and use products and resources. But the benefits will be significant. In addition to helping us reduce emissions, it will create new jobs, drive innovation, reduce the amount of waste we produce, support healthy ecosystems, and ultimately can result in cost savings for households and businesses. It not only helps to achieve these outcomes in the waste and resource recovery sector, but can also create new economic opportunities in Tasmania.

Baled cardboard and paper

Photo: NRE Tasmania

This Strategy will help inform discussions on priority areas for reinvestment of the landfill levy. It advocates an integrated and coordinated approach to achieving key waste and resource recovery outcomes and Tasmania's broader shift to a new kind of economy. It is the first part of a two-stage response that aims to achieve a structural shift over the next six to seven years. It sets foundations and initial priorities, identifies actions to boost reuse and repair and the demand for long-life, reusable, repairable products and recycled materials, sets up programs to drive change, and boosts our collective ability to respond to emerging challenges and opportunities. It sets the scene for further waste and resource recovery strategies and programs after 2026.

A key part of setting the foundations in this Strategy is to identify solutions that are the right scale for Tasmania and in the right place. This will be achieved through integrated planning and action, strategic investment of levy and other funds, prioritising circular practices and approaches, and strong engagement and partnerships. Making the most of our Tasmanian advantages – for example, our size which enables strong local partnerships, and our renewable energy strengths - will be critical, as will be moving to systems that are sustainable and regenerative. This will not only help to significantly reduce the tonne of landfill per person, but will increase the reuse and the value of diverted materials, provide new opportunities for Tasmanians and Tasmanian businesses, and move us ever closer to the vision of Tasmania as being a place *where nothing is wasted.*

Garden waste

Photo: iStock

What is Tasmania Doing?

Policy and Regulation

The Tasmanian Government is incorporating circular economy principles into its policies in numerous areas, including climate change and emissions reduction, bioenergy, agriculture and the bioeconomy, and the visitor economy. The Tasmanian Government's COVID recovery strategy included a substantial investment in resource recovery, and it is viewed as an area of future opportunity for investment and job creation in the state.[1] The *Waste and Resource Recovery Act 2022* (WRR Act) established the landfill levy in Tasmania, which discourages landfilling of valuable products and resources and promotes the diversion towards more valuable and sustainable ends. The *Container Refund Scheme Act 2022* will help to boost improved recovery of drink containers and the Government is also working to ban selected problematic single-use plastics by 2025.

Waste management and resource recovery can pose a range of environmental risks that require regulatory oversight to avoid negative social, environmental, and economic impacts. This occurs through EPA Tasmania and local government and legislation such as the *Environmental Management and Pollution Control Act 1994*, *Litter Act 2007*, and regulations like the *Environmental Management and Pollution Control (Waste Management) Regulations 2020* and the *Litter (Infringement Offences) Regulations 2020*. EPA Tasmania also receives funding though the landfill levy to implement programs to address illegal dumping and littering.

Investment and Regional Support

In the past few years, the Tasmanian Government has made a significant investment in infrastructure to enhance the recovery and recycling of organic waste, plastics, and end-of-life tyres. Projects are also being delivered that enhance recycling opportunities within Tasmania's most remote communities. Tasmania is the only state in Australia where all the landfill levy collected is being reinvested into achieving resource recovery goals. This includes growing the state's capacity for repair and refurbishment, reuse, recycling, and remanufacturing, and helping to position Tasmania to take advantage of this global shift. Revenue from the landfill levy is also being distributed to the three regional waste authorities and remote councils to help them fund action under their own waste and resource recovery strategies and also to charitable recyclers.

Circular Networks and Opportunities

We all have a role to play and make a difference in the move to a circular economy. Across Tasmania individuals, governments, businesses, and community organisations are already working to shift the common mindset of creating waste to one of extending life and retaining value of products and materials. This will require some broad behavioural and process changes that result in sustainable circularity systems and a much greater level of coordination. This Strategy and the further implementation of many circular economy-based practices will help bring us all together to capture the opportunities and the value in the products and resources in our economy.

[1] See References.

The Role of the Tasmanian Waste and Resource Recovery Board

The Waste and Resource Recovery Board was created in 2022, following the enactment of the WRR Act. It is charged with undertaking activities to encourage the diversion of waste from landfill and increase resource recovery from waste through the strategic investment of funds generated from the landfill levy.

Preparation and implementation of the Tasmanian Waste and Resource Recovery Strategy, including reviewing and assessing the effectiveness of the strategy over time, is a key function of the Board. This will be achieved through a combination of collaborative and combined plans, allocated resources and efforts with community, industry, Government and other stakeholders, and the investment of funds, including those generated from the levy.

The Board sees this collaborative approach as critical given the responsibility for delivering specific actions sits not only with the Board or the Department of Natural Resources and Environment Tasmania (NRE Tas), but also other government agencies such as EPA Tasmania, which also has responsibilities under the Act in relation to litter and illegal dumping. A range of other government agencies have circular economy objectives, for example in the climate change, agriculture, and visitor economy areas. The Board works closely with NRE Tas to ensure there is an enabling policy framework in place to deliver the actions in the strategy, oversee the use of levy funds, and achieve the shared vision of Tasmania being a state where nothing is wasted.

Tasmanian Waste and Resource Recovery Board members and NRE Tas staff at the Launceston Recycling Centre

Photo: NRE Tas

The Vision

Tasmania

*a place where **nothing** is wasted.*

The vision of Tasmania as being ***a place where nothing is wasted*** was widely embraced and supported in submissions on the Draft Strategy. There is a strong desire to see products properly valued through initial product design, promotion of reuse and repair, and improved remanufacturing and recycling. This is part of the necessary transformational change that designs out waste, keeps products and materials in circulation and builds regenerative systems. This vision for Tasmania is the core of the *Tasmanian Waste and Resource Recovery Strategy 2023-2026*.

At the centre of this Strategy is Tasmania: using its smaller scale to build effective networks and partnerships, capitalising on its significant and diverse regional strengths, and showcasing its circular credentials to the world through innovative policies and actions.

Purpose

- To support the creation of a strong circular economy that will reduce the generation of waste and greenhouse gas emissions, and improve the amenity, liveability, and sustainability of Tasmania.
- To have a future where we divert products and materials from landfill and the inherent value of products and materials is recognised.
- To improve and invest in critical programs to bring about change, in the recovery and reuse of priority products and materials, and in responding to emerging resource recovery issues.

Baled aluminium cans

Photo: NRE Tasmania

The Approach

The implementation of this Strategy is based on an approach that will be:

- Innovative: facilitating innovation by encouraging and promoting investment in local communities, businesses, new technologies and market development.
- Responsible: ensuring those who generate waste are responsible for its sustainable disposal.
- Accountable: ensuring transparency of information relating to waste management processes, decision making and spending.
- Collaborative: facilitating coordinated action, building partnerships, and harnessing existing capability to achieve desired outcomes.
- Equitable: applying principles of equity and accessibility of services to the community while understanding that different communities have different needs.
- Well led: providing leadership across all sectors and the State to champion improved waste management and resource recovery, leading to improved circularity.
- Smart and self-reliant: building internal capacity within Tasmania and using accurate information and data to guide decisions.

Setting a Baseline

The *National Waste Policy Action Plan 2019* set national targets for waste and resource recovery. These targets are currently under review by the Australian Government, States and Territories. The targets were:

- Reduce total waste generated in Australia by 10% per person by 2030.
- 50% recovery across all waste streams by 2025 and 80% by 2030.
- Halve the amount of organic waste sent to landfill by 2030.
- Make comprehensive, economy-wide, and timely data publicly available to support better consumer, investment, and policy decisions.
- A phase out of problematic and unnecessary plastics by 2025.

The national target of 50% recovery across all waste streams by 2025 was ambitious for some materials, particularly for smaller jurisdictions that did not have landfill levies and policies in place to improve recycling rates.

Several studies on organic waste and waste and resource recovery infrastructure in Tasmania commissioned over the last few years have helped to provide a better picture of waste and material flows in Tasmania. Our understanding of the sector in Tasmania will also improve significantly in the next few years as landfills and resource recovery facilities are required under the WRR Act to provide more information about the materials they are receiving.

This will give us a more accurate understanding of the overall waste stream and will inform actions and the development of Tasmanian-based targets. Over the duration of this first strategy waste and material data baselines will be established and priority targets established to measure our progress.

Reporting

Under section 22 of the WRR Act the Board is required to prepare an annual report. The annual report must be tabled in Parliament and will provide information on:

- Progress on actions identified in the Board's Operational Plan and any Ministerial Directions.
- Performance against the objectives, functions and powers of the Board as specified in the WRR Act.
- Relevant financial statements and reports, including explaining how levy funds were expended.

This annual report will be in conjunction with more detailed reporting against this strategy, including assessing how the Board, NRE Tas and other government agencies are progressing against relevant actions in more detailed implementation plans. NRE Tas will provide online half-yearly reports on Tasmanian waste and resource recovery data and is developing a system to deliver more automated and regular data reporting. EPA Tasmania will also report on its litter and illegal dumping compliance activities in its Annual Report. Partners and stakeholders will also be encouraged to report on the actions they are taking that are aligned with this Strategy.

Container Refund Scheme machine

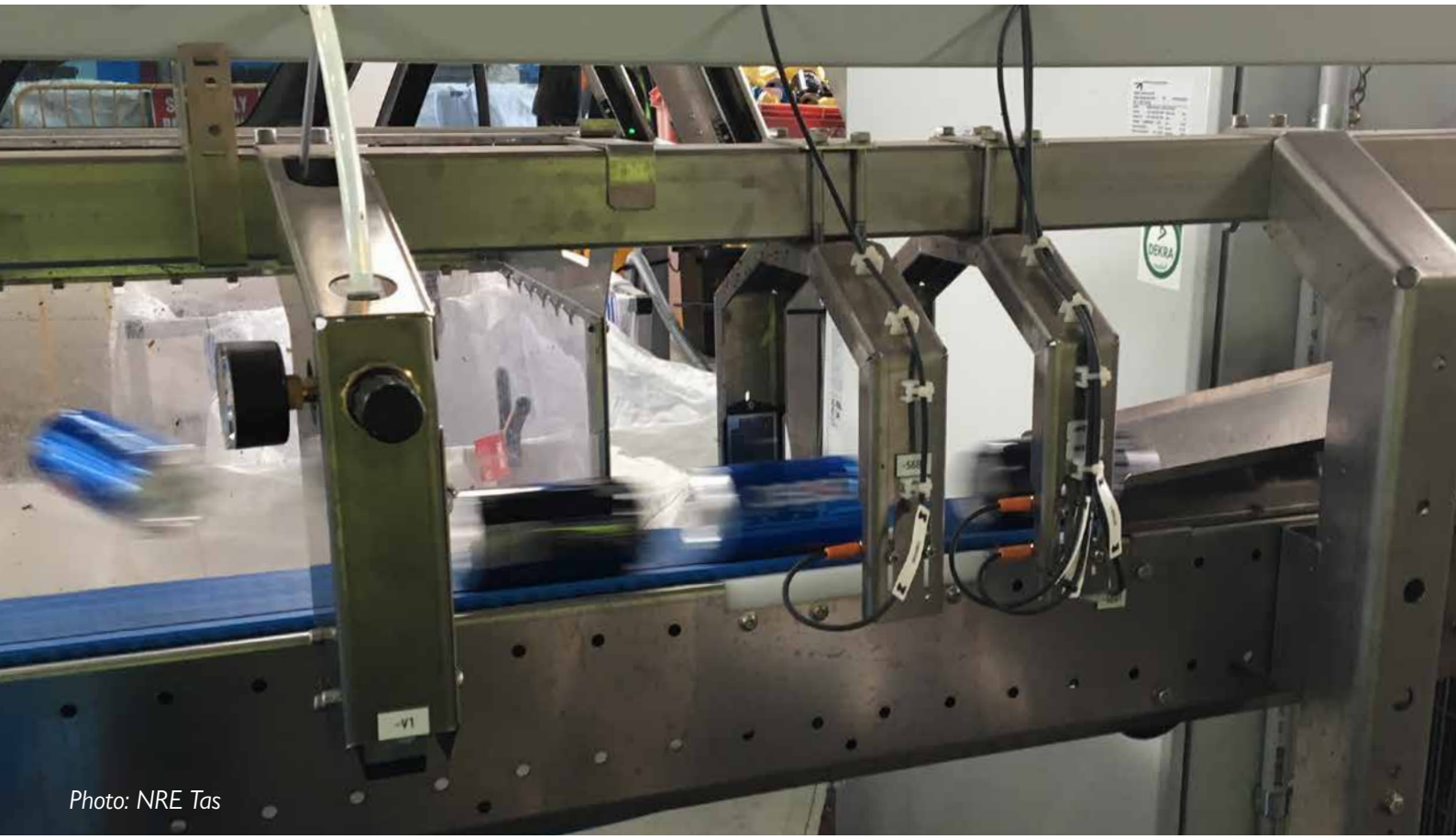
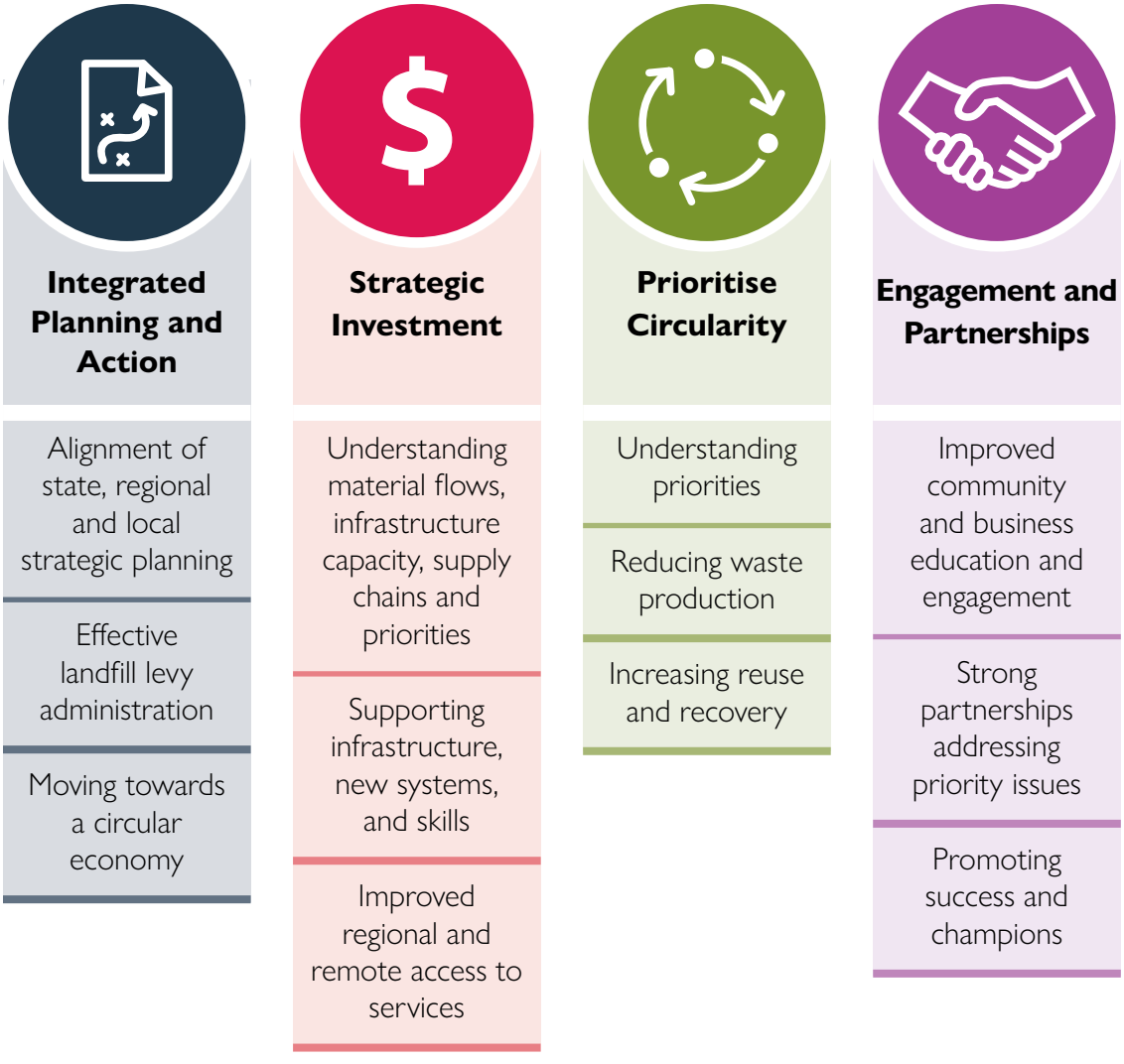


Photo: NRE Tas

The Pillars

This Strategy is based on Four Pillars. Each Pillar has three objectives supported by actions. Collectively, these will achieve an increase in the reuse of products and materials, the recovery of resources, the processing and reuse of our valuable natural resources and reduction in the amount of waste produced.



The Objectives, Strategic Priorities and Actions

Linking Objectives to Actions and Impacts

The table below describes what the objectives mean and outlines key outcomes for this Strategy include setting foundational goals, outlining the actions needed to increase recovery of priority materials, helping to build demand for these materials and products, establishing baseline data on material flows and developing methods to measure our progress towards a circular economy. This will only happen if the actions in this Strategy lead to the outcomes sought. To help achieve this, the Waste and Resource Recovery Board is developing an investment framework to ensure levy funds are allocated to the priorities identified in this Strategy and to the types of projects and programs that will have effective outcomes.

End-of-life tyres ready for processing

Photo: Tyre Stewardship Australia

Pillar 1: Integrated Planning and Action

Objective	Description	Action	When
Alignment of state, regional and local strategic planning	Planning to identify responsibilities and consistency in delivering priority services to the Tasmanian community and businesses. Aligning with circular economy actions under existing Tasmanian Government policies.	Develop regional waste and resource recovery strategies that align with this Strategy and address regional and local priorities and broader circular economy priorities.	2023-24 2025-26
		Prepare draft 2027-2030 Waste and Resource Recovery Strategy.	2025-26
Effective landfill levy administration	Working with all stakeholders to ensure effective systems to administer the levy and transparency in reporting to the community. Developing robust investment frameworks.	Implement and regulate the landfill levy, including reporting on administration and expenditure of funds and assisting Class B resource recovery facilities to prepare for reporting requirements beginning 1 July 2024.	2023-26
Moving towards a circular economy	Promoting programs and systems that encourage system and behavioural change and waste minimisation in Tasmania. Working with government and industry to support the development of national product stewardship schemes that provide tangible benefits for Tasmania.	Map and describe and coordinate circular economy activities and policies in Tasmania.	2023-24

Pillar 2: Strategic Investment

Objective	Description	Action	When
Understanding material flows, infrastructure capacity, supply chains and priorities	Ensuring we use existing information and data to understand the current system and our future requirements. Develop new systems to improve circular economy services to Tasmanians.	Develop data management, analysis, and reporting systems to gain a better understanding of product and material flows, and resource recovery capacity in Tasmania, and develop metrics to measure progress towards a circular and a low emissions future.	2023-25
Supporting infrastructure, new systems, and skills	Developing and implementing programs to support priority actions to address infrastructure, skills and new systems for reuse, repair, refurbishment and resource recovery and community needs. Education and incentives for business, governments, and the community to move to a circular economy and support for research and development.	Invest in private and public infrastructure and programs to improve the reuse, repair, refurbishment of products and the collection, sorting, processing, and remanufacturing capacity for the following priority materials: construction and demolition waste, difficult-to-recycle plastics, agricultural plastics, end-of-life tyres, and organic waste.	2023-26
		Where feasible provide operational (non-capital) support for industry, local government, and community-based organisations to minimise waste generation, adopt circular approaches and achieve resource recovery outcomes.	2023-26
		Provide levy rebates to resource recovery businesses, public authorities affected by illegal dumping, and charitable recyclers as required under the Ministerial Direction.	2023-24
Improved regional and remote access to services	Supporting all Tasmanians to have access to systems that allow for improved reuse, repair, refurbishment and recovery of products, materials, and resources.	Support the optimisation of kerbside collection systems and upgrading of local government and private sector infrastructure to improve the collection and sorting of a range of materials (e.g. paper, cardboard, glass).	2025-26
		Provide annual special grants to the regional waste authorities and remote councils to reduce waste generation and to promote circularity and resource recovery.	2023-26

Pillar 3: Prioritise Circularity

Objective	Description	Action	When
Understanding priorities	Ensuring we understand what current and future issues we face, so we can address problems and capture opportunities. Developing ways to measure progress towards a circular economy. Developing clear pathways for reuse, repair and use of secondary materials through market development.	Data management and circular economy metrics. See Pillar 2.	2023-25
		Develop and implement a market strategy to grow the resource recovery sector in Tasmania by identifying new and existing markets and actions to boost the recovery of priority materials.	2024-25
		Where feasible support relevant research and development activities that contribute to circular economy goals.	2024-26
Reducing waste production	Supporting systems that reduce waste generation and encourage circular and regenerative systems, including through sustainable procurement across industry and government, as well as addressing littering and illegal dumping.	Provide support for the development of emerging circular economy business models that emphasize waste reduction, resource recovery and circular approaches, including product libraries, repair cafes, and sharing platforms. Identify opportunities to integrate CE business models with bioeconomy assets.	2023-26
		Promote the establishment of circular economy precincts and partnerships with industry and the community to achieve circular outcomes.	2024-26
		Develop sustainable procurement guidelines for governments, and asses their implementation and evaluation of impacts.	2024-25
		Develop policies and legislation to phase out the use of a range of problematic single-use plastics and single use items in Tasmania by 2025.	2023-25
Increasing reuse and recovery	To move away from "waste disposal," to valuing our products and resources through improved collection and sorting, reuse, repair, recovery, reprocessing, and remanufacturing.	Recycling and Resource Recovery Grant Programs	2023-26
		Implement the Tasmanian Container Refund Scheme (Recycle Rewards).	2023-24

Pillar 4: Engagement and Partnership

Objective	Description	Action	When
Improved community and business education and engagement	Supporting changes to current practices and behaviour through aligned and consistent education and engagement, together with programs to facilitate change towards a circular and low emission future. Assisting Tasmanian businesses through information, training, and other support.	Develop and/or support public awareness, education, and engagement programs.	2023-24
		Develop programs to improve waste management and resource recovery skills across all sectors.	2025-26
Strong partnerships addressing priority issues	Ensuring that sectors, organisations, and communities are involved in collaborative partnerships that share responsibilities and share the opportunities and rewards.	Develop programs that support and facilitate efforts from stakeholders to achieve resource recovery outcomes (e.g. food banks, home composting, community gardens, partnerships with Stop Food Waste Australia and Tasmanian Hospitality Association).	2023-24
		Establish or enhance existing circular economy networks, partnerships, and reference groups across governments, business, research institutions, and communities (e.g. Circular Economy Industry Reference Group).	2023-24
		Engage and consult with the private sector to consider impacts on and benefits for business of circular economy.	2023-25
		Establish programs to combat littering and illegal dumping.	2023-24
		Engage with the Tasmanian Aboriginal community on circular economy and sustainability.	2023-25
Promoting success and champions	Developing networks and supporting programs that recognise success to help promote further action and demonstrate the rewards from changes being made.	Support existing related award programs and develop new channels for recognition.	2024-25

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Demolition waste in skip bin

Photo: iStock

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The Board is supported by the Department of Natural Resources and Environment Tasmania.

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Appendix B

Waste Management Strategy 2015-2030

WASTE MANAGEMENT STRATEGY 2015-2030

A Strategy to achieve zero waste to landfill by 2030

MAY 2016

City *of* HOBART

This Strategy has been prepared by the
City of Hobart, with the assistance of

MRA Consulting Group
JustWaste Consulting

Document approved by Council: 9 May 2016

The City would like to thank all those members of the community, industry, government, peak bodies, and council staff who kindly gave their time to provide input into the development of this Strategy through the consultation process.

This document is printed on recycled paper

EXECUTIVE SUMMARY

The City of Hobart is preparing for life without its own landfill, and has set a target date of 2030 to cease the operation of the landfill at McRobies Gully in South Hobart. The City has developed the Waste Management Strategy 2015-2030 to implement significant waste reduction actions and programs with the primary aim to achieve zero waste to landfill. This represents a long term commitment to waste reduction that will provide environmental, financial, and social benefits to the community of Hobart.

Around 25,000 tonnes of general waste is disposed to the McRobies Gully landfill each year. This represents a waste reduction of 50% over the past decade due to measures including recycling programs, organics composting, and inert waste recycling. External factors including commercial operators increasing recycling and waste diversion, the availability of multiple waste disposal facilities in Southern Tasmania and increases to gate fees have also contributed. The City recognises that the landfill should not be seen as a long term revenue raising activity, and this strategy should be evaluated on delivery of reduced future transport and disposal costs to the community through better resource recovery.

This strategy has been developed to place the City in the best possible situation in 2030, with the ultimate aim of zero waste to transport and dispose at an alternative landfill facility by that time. The timing of the strategy has purposely been set to coincide with the proposed closure of landfill operations at McRobies Gully. It will provide a considerable lead in time to allow for progressive waste reduction to occur, and for technology advancements relating to the residual waste to develop and become reliable and financially viable.

The City's previous waste management strategy delivered considerable improvements to infrastructure and waste reduction, with completion of a waste transfer station and resource recovery facility. The City has undertaken substantial consultation and research in the preparation of this strategy, resulting in accurate baseline data and the identification of the waste stream composition entering landfill. This has enabled specific actions to be detailed to reduce waste that consider the:

- amount of waste that can be avoided, reduced, reused or recycled
- cost effectiveness of identified options
- field of influence of the City of Hobart Council
- practicality and achievability of programs and actions

This strategy will provide the blueprint and strategic impetus for eliminating waste disposed to landfill, in addition to wider ranging waste reduction benefits. This will be achieved by a combination of actions including cooperation, collaboration, advocacy, education, and the delivery of recycling services and waste reduction programs.

The strategy details a committed, planned approach to waste reduction, focussing on key priority areas and maintaining cost effectiveness, service to the community, whilst creating social inclusion and positive environmental outcomes.

TABLE OF CONTENTS

1. INTRODUCTION

This strategy will build on the outcomes of previous strategies, in particular the built waste infrastructure.

1.1 WHY DO WE NEED A STRATEGY?

The City is making a commitment to achieving zero waste to landfill and to cease operating the McRobies Gully Landfill by the year 2030.

To be in the best possible position come 2030, the City must find ways to progressively reduce the amount of waste being disposed to its landfill, and as such a waste strategy from now until 2030 is required that outlines the actions needed to achieve this goal.

Once the City ceases to have a facility to dispose of waste, there will be significant costs for the consolidation, transport, and disposal of any residual waste to an alternative facility. We have the remaining 15 years to implement as many actions as we can to reduce that liability.

Actions to be implemented by 2030 will range from targeting specific materials for reduction or removal from the waste stream, to broader education and advocacy programs.

1.2 WHAT WILL THE STRATEGY DELIVER?

MORE		LESS
Recycling	>	Organics to Landfill
Waste Diversion		Greenhouse Gas Emission
Community Awareness		Illegal Dumping
Cooperation		Reliance on Landfill

2. WHERE ARE WE NOW?

2.1 BACKGROUND AND PREVIOUS STRATEGIES

In 2010 the City identified the need to develop strategic documentation and plans to detail how to deal with increasing community expectation, increased environmental controls, and planning of appropriate infrastructure and waste management service requirements into the future. The development of the Waste Management Strategy 2010-2015 and the McRobies Gully Waste Management Centre Strategic Plan 2010-2015 have provided the blueprint for advancements in waste management for the City. Both plans have reached the end of their life span, a new phase of strategic planning is required.

The implementation of the former strategies has provided infrastructure and service review, and new planning needs to build on these achievements and delve further into waste avoidance, reduction and recycling programs.

The previous strategies outlined objectives and actions to ensure the development of infrastructure at the Waste Management Centre in particular. Some of the major actions completed include:

- Construction of a Waste Transfer Station and Resource Recovery Centre
- Landfill rehabilitation works
- Completion of significant diversion drain works to divert clean water around the landfill
- Implementation of a waste grants program
- A range of waste reduction programs focusing on concrete, ewaste, phone and battery recycling, and organic waste.

These outcomes represent a sound foundation on which the City can build to support its future waste requirements. The importance and quality of these outcomes was reinforced when the City was shortlisted as a finalist in the Waste Management Association of Australia Landfill and Transfer Stations Excellence and Innovation Awards for 2015.

A key focus of the development of the former Waste Management Strategy was to ensure all actions were realistic and achievable, with the progress made to date demonstrating that this has been accomplished.

The development of the new Waste Management Strategy 2015-2030 is more focussed on goals associated with minimising waste to landfill through reuse and recycling programs and reducing waste generation.

The City's waste strategy aims to deliver evidence based waste management outcomes that consider economic, environmental, social and regulatory impacts. This will enable the City and the community to understand and measure the waste management initiatives implemented.

2.2 DEMOGRAPHICS

The City of Hobart municipal area is approximately 78km^2, with a population of 50,655 as at June 2014. The population is approximately 10% of the state total.

The City is the most densely populated local government area in the state, with 650 people per km^2. There are only 3 other areas with a population density over 100 people per km^2, being Glenorchy (378) Devonport (230) and Clarence (143).

The population of Hobart has remained fairly static in recent years, with a very slight increase of 0.4% from 2013 to 2014.

The average weekly earnings for Tasmania are the lowest in the Country, at $1,290 per full time adult at ordinary hours. The low population growth in conjunction with comparatively low earnings effectively reduces the level of consumption and associated waste generation compared to the rest of the country.

Around 400,000 tonnes of waste is landfilled in Tasmania annually, with the average waste generated per person in Tasmania around 0.8 tonnes per person per year.

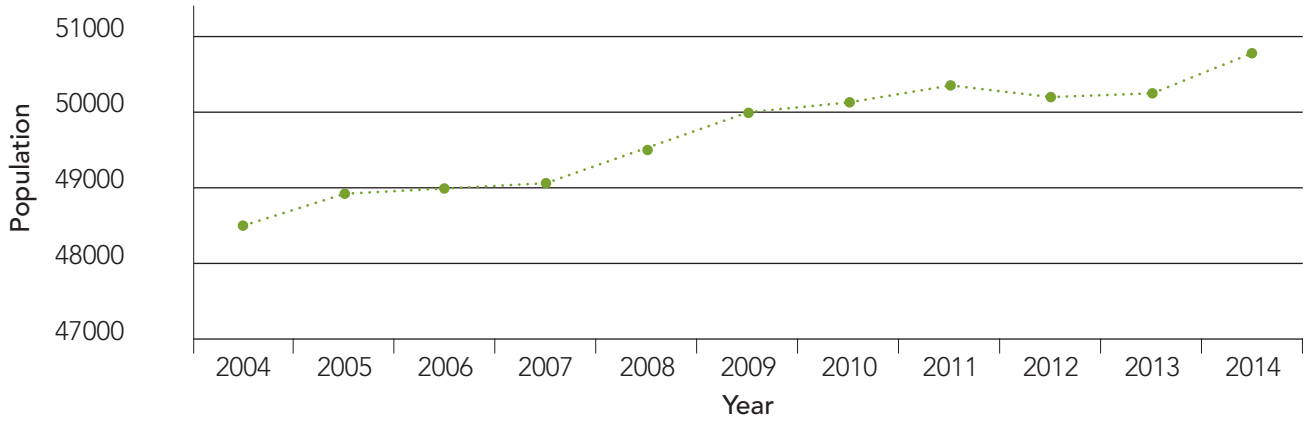

Figure 3 – Population of Hobart

60% of waste in household bins is organic material that should be removed from the waste stream.

2.3 CURRENT WASTE INFRASTRUCTURE AND SERVICES

The City currently operates/ provides the following facilities and services

- One Waste Management Centre, incorporating
  - an active Category 2 landfill
  - a transfer station
  - a resource recovery centre, incorporating recycling drop off and Tip shop
  - an organic waste composting facility
  - facilities for the recycling of engine oil, ewaste, appliances, batteries, tyres, concrete, paint, cardboard, comingled recycling and steel.
- Weekly kerbside waste collection (120L)
- Fortnightly kerbside recycling collection (240L)
- Twice yearly bulk green kerbside waste collection (up to $2m^3$)
- Up to five free entry weekends to the waste management centre for residents of the City.

2.4 KERBSIDE COLLECTION SERVICES

The City's current standard kerbside service provision to residents is a weekly collection of a 120L waste bin, and a fortnightly collection of a 240L recycling bin per rateable property. Commercial operators are provided a service upon request, as per the residential service. The City collects around 20,000 waste bins per week, predominately from the residential sector (95%). The City currently collects around 12,000 tonnes of waste via the kerbside system each year, representing almost 50% of all general mixed waste delivered to landfill. As such, waste reduction across the kerbside waste system will have a significant impact on achieving zero waste to landfill.

The City has undertaken detailed waste audits in preparing this strategy, for both the kerbside waste service and waste transported directly to the landfill. The City has a reliable set of data for the commencement of the strategy, and will continue to audit waste to landfill to inform program development and track progress towards waste reduction targets.

A typical domestic waste bin collected in the City weighs 11kg, with contents as shown in Figure 4 (A detailed composition analysis is included as Appendix A). The data shows that there is a low level of recycling ending up in the waste bin that should have been placed in the kerbside recycling bin (12%). However, it does indicate that there is work to do for the City to improve the clarity and delivery of messages to the community to ensure all recyclables are placed in the right bin over the course of this strategy.

The results also indicate that organics represent around 60% of the average bin. For this strategy to be effective it must implement measures to remove and recycle both garden and food waste as a high priority.

Improving recycling rates and implementing measures to remove organic waste will leave the average bin about a quarter full compared to current levels, with the remaining material a ready-made input source for waste to energy systems. There will be many issues to address including cost, processing options, location and regulatory requirements prior to adopting new services.

A sound approach, in terms of waste reduction, will be to introduce a garden waste collection service, by use of a 3rd kerbside bin, collected fortnightly, followed by expanding this service to include food waste after the garden waste service has been bedded down. Throughout this process, domestic recyclables will continue to be targeted to drive materials from the waste bin to the recycling bins.

A staged approach to recovering the organics and recyclables from household bins could reduce the average bin weight from 11kg down to 4kg.

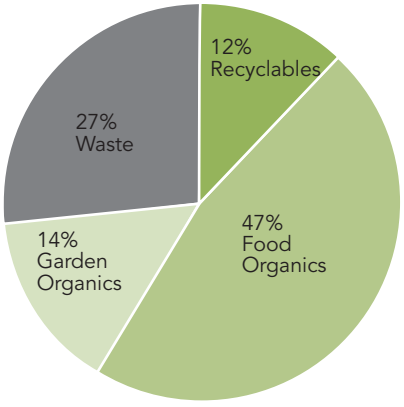

Figure 4 – Material composition in a kerbside waste bin (% by weight)

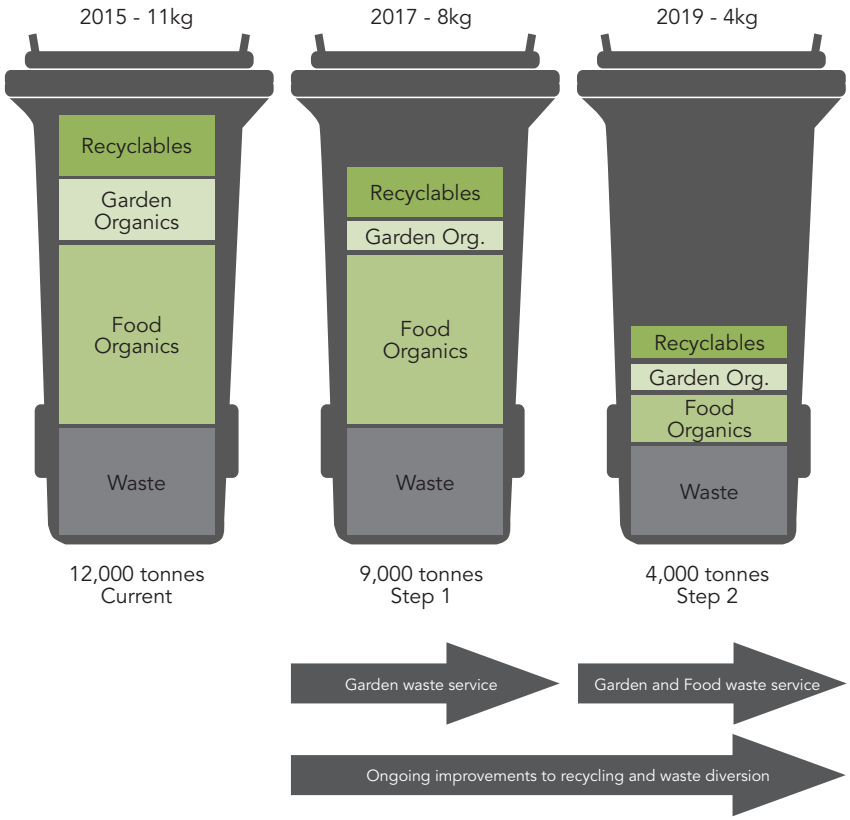

Figure 5 –Example staged process to reduce waste in kerbside waste bins

Hobart's recycling contamination rate of around 3%is consistently lower than national averages.

It may not be feasible to recover 100% of recyclables and organic waste from bins, however, even halving the amount of recycling entering waste bins and recovering 80% of organics, would result in a waste reduction of 8,000 tonnes per year in waste to landfill.

The City collects around 4,500 tonnes of material through its kerbside recycling service, through the fortnightly collection of a 240L bin from each residential property, and a small number of commercial properties. Kerbside collection systems across Tasmania generally perform well, and collect materials per person in excess of the national averages. This could be for a number of reasons, including increased commitment to recycling and knowledge, or a lack of a container deposit scheme, however whilst systems are in place and operating well there is little need to alter the current kerbside recycling system. The main issue will be to access the 12% of the general waste bin that should be going into the kerbside recycling bins and to continue to minimise the contamination levels in recycling bins through education.

Whilst there is room to improve the level of kerbside recycling, as far as recycling programs go it is one of the most successful ever implemented across Australia. The main types of materials in the domestic waste stream that should be collected through the recycling system are plastics, in particular food containers, plastic bottles, and paper waste.

Based on the current kerbside waste and recycling analyses, more can be done to educate residents about the range of recyclable materials that can be presented kerbside, in particular plastic containers and plastic food packaging, and paper products such as magazines, brochures, and cardboard packaging. Figure 6 details the types of recyclable materials ending up in household waste bins.

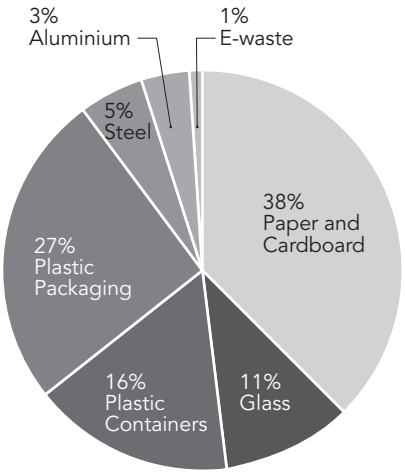

Figure 6 – Recyclable materials being placed in waste bins (kerbside collections)

The City has over a number of years achieved very low contamination rates within its kerbside recycling, ranging between 2-4% over the past 5 years. The main sources of contamination continue to be plastic bags and unclean recyclable material (e.g. glass jars full of food waste). A typical recycling bin collected in Hobart weighs around 8.5kg.

Residents have become accustomed to the kerbside recycling system, and it performs a vital waste reduction outcome, in addition to the associated reductions in use of virgin resources by avoiding the creation of new products from new inputs.

2.5 WASTE TO MCROBIES GULLY LANDFILL

The City has operated the McRobies Gully landfill since the mid 1970's, when it was identified as a site that could cater for the long term waste disposal needs of a growing City. The main wastes disposed of to the site include municipal solid waste (kerbside collections), construction and demolition waste (inert wastes such as clean fill and rubble) and commercial and industrial wastes. Waste to the landfill has steadily declined over the past decade, with waste to landfill historically being 50-60,000 tonnes, reducing to around 25,000 tonnes in recent years.

The reductions in tonnages in recent times can be attributed to 3 main factors

- Improved waste classification, data management, and reporting.
- Increased recycling programs such as kerbside recycling, organic waste, and inert waste.
- Increased competition and landfill availability within the region.

There is no doubt that highly successful recycling and waste diversion programs have been implemented, however there is a relative over supply of waste acceptance facilities within the Southern Tasmanian region, including both transfer stations and landfills. As a result, residents and commercial operators have several options for waste disposal in the Greater Hobart area and can easily compare factors such as cost, proximity, amenity, and customer service in deciding where to dispose of waste.

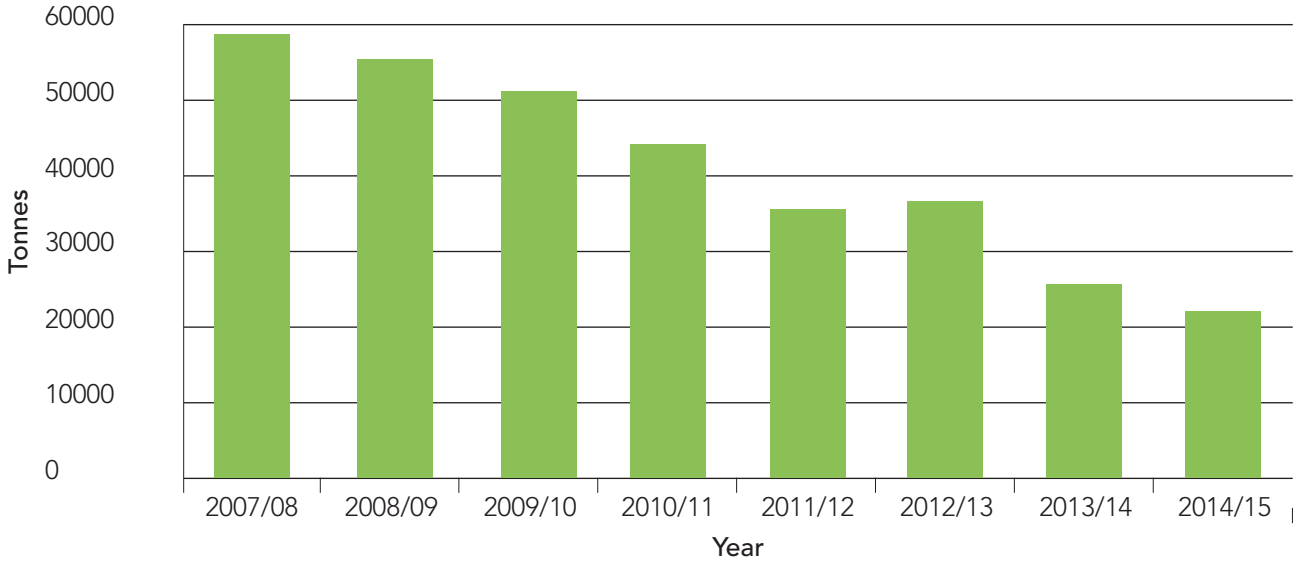

Figure 7 – Waste to landfill 2007/08 to 2014/15

A decline in waste to landfill would generally be considered favourable in terms of waste reduction outcomes, but landfills have historically been seen as a significant source of revenue for their operators, and declining inputs perceived as having a negative impact on the bottom line. In the case of a council owned landfill, an unprofitable landfill or one that doesn't at least meet its operating and ongoing costs leads to it requiring subsidisation by ratepayers. It is vital that the costs associated with the operation of the landfill are recognised and fees are set accordingly.

An important influencing factor is that the Council has become increasingly aware and involved in the management of waste in recent times, and understands that the landfill should no longer be seen as a long term significant revenue generating activity. The value of the landfill is now being measured by its worth as a community asset, and in particular in its capacity to reduce long term transport and disposal costs.

Over the past 8 years to 2015, general waste to City of Hobart landfill has halved.

Figure 8 – Landfill and Transfer Station locations in Southern Tasmania

In 2025 the City of Hobart will be a city that is recognised for its natural beauty and quality of environment

The City has undertaken comprehensive reviews of the waste streams entering its landfill, both from the commercial and industrial sector delivering direct to the landfill, from the waste transfer station on site, and from deliveries to the Resource Recovery Centre. The landfill accepts a wide array of material, much of which could be diverted for recycling or reuse. Detailed information on the breakdown of materials to landfill is included as Appendix B, and the most predominant materials disposed to landfill by weight are:

- Masonry materials, such as concrete and bricks (32%)
- Unpackaged food waste (10%)
- Garden organics (7%)
- Treated/painted timber (7%)

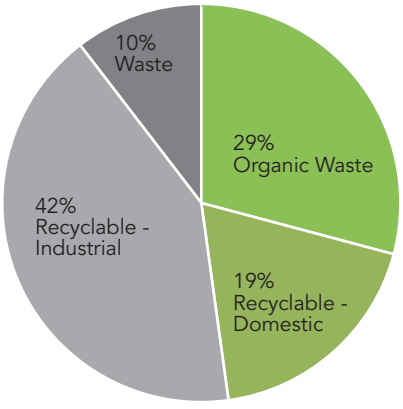

Figure 9 – Waste to Landfill – by category

There is currently a high volume of materials being landfilled that simply don't need to be.

The reasons for this include a lack of source separation and financial encouragement to recycle, and the ease of disposing to landfill. A look at the detailed material composition entering the landfill reveals significant opportunities to reduce waste to landfill. Broadly grouped, there are 4 main categories of materials entering the site.

- Organic waste – Organic material that could be treated through composting or other organic method. Includes food waste, garden waste and timbers.
- Recyclable Domestic – Materials that can be recycled at the domestic level. Includes items such as cardboard, paper, plastics and ewaste.
- Recyclable Industrial – Materials that could be recycled through commercial and industrial programs and facilities. Includes items such as bricks, concrete, and textiles.
- Waste – Those materials that at present have no viable reuse or recycling option.

The waste composition studies undertaken highlight that there are significant opportunities to reduce waste to landfill. Opportunities are material specific but include:

- Increased and improved source separation
- Increased commercial and industrial recycling
- Increased construction and demolition recycling
- Improved education and messaging about the materials that can be recycled through kerbside services
- Increased recycling at public events
- Improved waste management of City operations
- Increased cooperation and collaboration with government and industry

The City has a limited sphere of influence, and whilst there are many waste programs it can implement, the most sustainable waste reduction gains will come from ongoing collaboration with other stakeholders across government and industry. To drastically reduce the amount of waste disposed to landfill, detailed programs will need to be undertaken targeting specific wastes from a variety of sources.

2.6 STRATEGIC ALIGNMENT

The City has a number of strategic documents, plans and policies that interact with and impact upon waste management; these include the City's Strategic Plan, Corporate Plan, Annual Plan, and Long Term Financial Management Plan 2016-2036

The current vision and mission for the City of Hobart is that in 2025 Hobart will be a city that:

- Offers opportunities for all ages and is a city for life
- Is recognised for its natural beauty and quality of environment
- Is well-governed at a regional and community level
- Achieves good quality development and urban management
- Is highly-accessible through efficient transport options
- Builds strong and healthy communities through diversity, participation and empathy
- Is dynamic, vibrant and culturally expressive

Our mission is to ensure good governance for our capital City

The implementation of this waste strategy will assist the City to achieve its mission and visions, in particular the vision associated with quality of environment. In addition to strategic documentation, there are key groups within the Council that will interact with the waste field, including the Aldermen and the Executive Leadership Team. Waste management transgresses many units across council, and this strategy will seek to improve collaborations, in work areas such as Community Development, Events and Marketing, Bushland and Biodiversity, Civil Construction and Maintenance, Environmental Engineering, and Parks and Reserves.

In addition to internal alignments, the City has and will need to further develop strategic partnerships and alliances with external parties, such as other local government organisations, commercial operators and peak industry/community representative bodies.

60% of all waste generated across Australia is diverted from landfill

2.7 NATIONAL AND STATE WASTE POLICY INTEGRATION

There have been significant improvements in waste policy, regulation, and legislation in recent times, indicating the increased importance and action the community expects from all tiers of government in relation to environmental aspects impacting society. There are currently two overarching policies that impact directly on the City in this area:

- National Waste Policy
- Tasmanian Waste and Resource Management Strategy

These strategy documents set out National and State priorities and actions across a range of areas such as governance, coordination, regulation, data collection and waste minimisation. There are plans, polices, and legislation to which the City must remain cognisant throughout the life of this strategy in areas including product stewardship schemes, freight equalisation schemes, container deposit legislation, waste management laws and levies.

NATIONAL SNAPSHOT – RECYCLING RATES

At present there are approximately 29 million tonnes of material recycled, and 20 million tonnes of waste landfilled in Australia each year. The main sectors for recycling are the construction and demolition (25%), the commercial and industrial (18%) and kerbside recycling (15%). These sectors support a national recycling rate of just under 60%, being the amount of material that once generated, does not reach landfill.

The situation in Tasmania varies from the national averages. Current estimates are that the Tasmanian recycling rate is around 33%. Around 600,000 tonnes of waste is generated in Tasmania and 400,000 tonnes landfilled, with the main sectors for recycling being kerbside (17%), commercial and industrial (16%) and construction and demolition (1%). The kerbside recycling and commercial and industrial recycling rates for Tasmania are comparable with the national averages, and in fact the kerbside recycling performs better than the national average. The construction and demolition recycling data however suggests that either there is very limited construction and demolition recycling being undertaken, or, more likely, there are issues with the data collection impacting the results.

This highlights the need for consistent and accurate recording and reporting mechanisms to be implemented on regional, state, and national levels. The need to improve the coordination and extent of data collection systems in Tasmania was highlighted in the State Governments Tasmanian Waste and Resource Management Strategy, 2009.

For the City, the refinement of waste categorisation and the undertaking of regular waste audits are vital to support confident reporting of waste diversion rates.

WASTE REDUCTION TARGETS

At present all states and territories have dedicated waste reduction targets with the exception of Tasmania and the Northern Territory. Targets range from the ACT's 100% target, to WA's target of 65% by 2020.

This Strategy will support the City to deliver accurate and reliable data in regard to any future State waste targets, should they be initiated.


CAT
963D

3. WHERE DO WE WANT TO BE?

The city has committed to cease operating the McRobies Gully Landfill by 2030.

3.1 VISION

We want to close the McRobies Gully landfill operation and achieve zero waste to landfill by the year 2030. The current estimates are that the City's landfill at McRobies Gully will reach capacity by 2030. When the capacity of the McRobies Gully landfill is reached we want to be in the position where there is no material left for disposal to landfill.

The City does not intend to open any further landfills, and as such any residual waste would incur transport and disposal costs to an alternative facility. The closer to zero waste the City gets the lower the disposal to landfill costs to its ratepayers.

We aim to achieve our vision by working collaboratively and supportively with partners across the community, government, and industry to deliver economically, environmentally, and socially beneficial waste reduction programs.

3.2 KEY OUTCOMES AND PRIORITIES

The overarching target for this strategy is to achieve zero waste to landfill within the City of Hobart by 2030. There will be various milestones along the way, and key actions to be undertaken over the course of the strategy. Some of the Key outcomes and priorities of this strategy are;

- A better funded and regulated waste sector
- Maximised resource recovery
- A more waste aware community
- A reduction in organic materials disposed to landfill
- A better informed waste disposal fee structure
- More frequent and accurate waste to landfill and waste diversion data collection

Sections 4 and 5 of this Strategy detail the measures and actions required to enable progress towards zero waste.

The comprehensive reviews undertaken in developing this strategy indicate that the City provides a high standard of service, with a high level of community acceptance and represents good value for money. This strategy will enable the City to maintain those high service standards, whilst improving waste reduction and diversion from landfill.


PLEASE STOP
RING BELL FOR
ASSISTANCE

4. HOW WILL WE GET THERE?

4.1 STAKEHOLDER ENGAGEMENT AND PUBLIC CONSULTANCY

Prior to the development of this strategy the City undertook a thorough stakeholder engagement process, including one on one meetings with industry, government, and peak representative bodies. Public forums were also held for the residents and broader community and on-line surveys made available to identify waste related issues.

The objective of the pre strategy consultation process was to provide a comprehensive stakeholder analysis of current waste issues for the development of the City's Strategy. The stakeholder consultation was designed to provide the following information:

- Stakeholder type and interest point
- Any current waste issues to be considered
- The identification of potential actions that could be undertaken in order to address the issues raised.

The involvement and buy-in of stakeholders was very positive, and has provided insight into the community's expectations in relation to waste management and the development of this strategy. A series of potential actions were analysed qualitatively for their value for money (cost per tonne of waste diverted), range of impact and achievability prior to inclusion in the strategy.

4.2 GAP/NEEDS ANALYSIS

Through the analysis of previous strategies and programs, the stakeholder engagement process, and staff review, the City has been able to undertake a gap analysis to inform the options for achieving zero waste to landfill.

The City will have limited influence on some of the issues identified, such as waste levies, external landfill pricing, and consumption; however there are opportunities to lead and lobby in these areas. There are a range of issues the City can address, some on its own and some in partnership with others. The main gaps identified are as follows:

- An understanding of the full cost of disposing to landfill across the region
- An adequately resourced peak body to represent and support the waste sector at the regional/state level
- A state waste levy that increases landfill costs and as such the viability of alternative recycling programs
- Productive partnerships with the private sector to achieve shared goals
- Reliable, up to date and accurate baseline data across all areas of waste (tonnes landfilled, recycling rates, costs, litter collections, illegal dumping, resource recovery etc)
- Adequate source separation of waste prior to arrival at McRobies Gully Waste Management Centre

There are 8 key areas the city must focus on to achieve substantial waste reduction.

4.3 KEY FOCUS AREAS

The City has undertaken an audit of the waste entering the landfill and identified diversion and recycling options for materials where available. A list of materials currently being landfilled that have alternative options is provided in Appendix C – Alternative Treatment Options and Costs Analysis. Figure 10 provides a pictorial account of the material types with costs and the relative complexity and effort required for implementation. Materials closer to the bottom and left of the figure represent the best value for money to target for recycling programs. These are generally materials with low costs to recycle and/or a capacity to divert high volumes from landfill.

The City has identified 8 key focus areas that will result in improved waste reduction. The focus areas involve increasing recycling, diverting more waste from landfill, enhancing cooperation across industry and government and improving education.

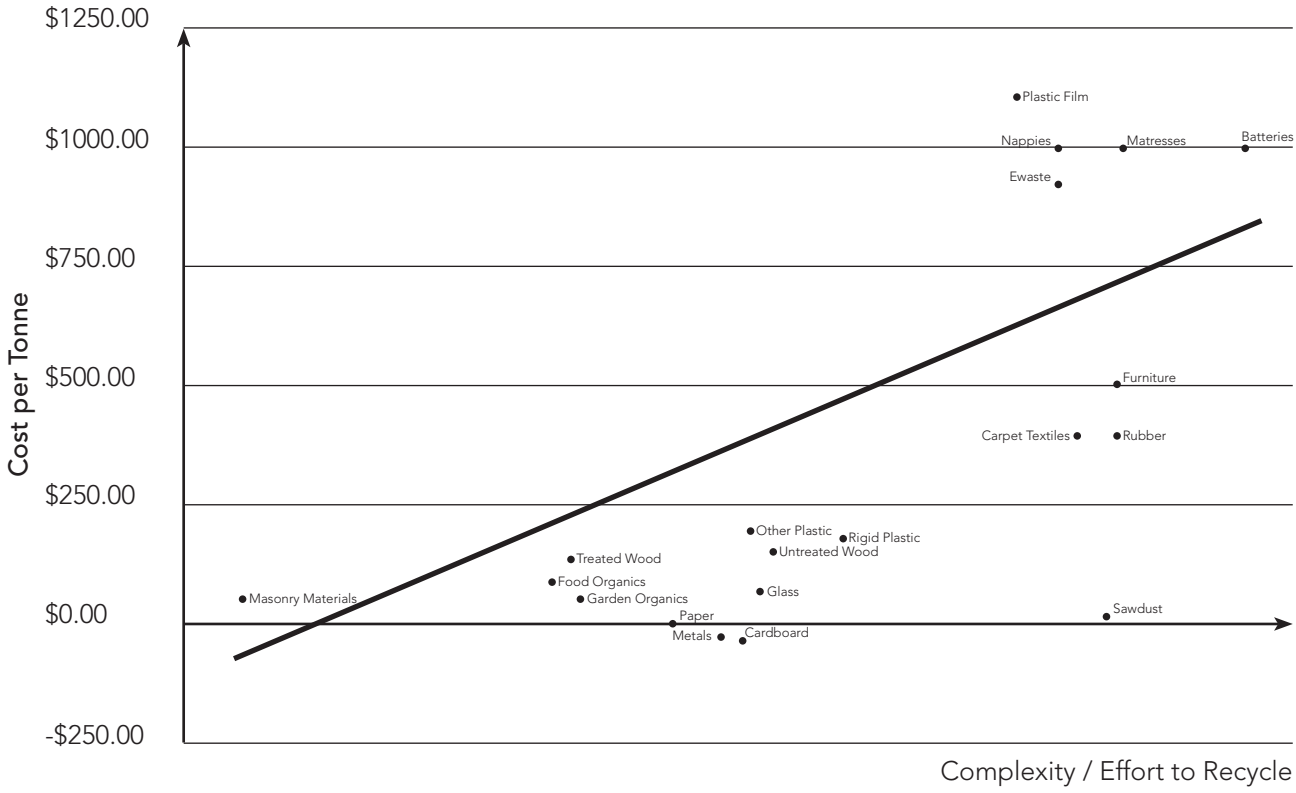

Figure 10 – Waste reduction cost, capacity, and complexity summary

4.3.1 ADVOCATING FOR CHANGE

Achieving broad behavioural change and waste reduction will require extensive cooperation and the City needs to collaborate with state authorities and other local governments to implement regional governance for waste management. The City must also advocate for the establishment of state waste reduction targets and the introduction of a state waste levy. It must investigate its capacity to impact on commercial and industrial operators through legislative processes such as development and planning applications, and also learn from progressive sectors of government and industry. In addition to advocacy functions, the City must ensure effective planning for the long term needs of the immediate community and broader region.

4.3.2 FINANCE

The City needs to improve its understanding of the costs of landfill and recycling programs, as an incorrectly costed landfill can result in long-term financial liabilities. Accurate and transparent accounting of all waste and resource recovery operations is necessary, as is working in partnership with government and industry to develop long term contracts and commercial opportunities. Through detailed financial analysis, materials that cost the least per tonne to divert from landfill will be able to be prioritised to provide the most effective value for money waste reduction.

4.3.3 EDUCATION AND ENGAGEMENT

An important component of education and engagement programs is securing the funding required to implement them, and ensuring regional consistencies. The establishment of appropriate regional governance and a state levy may provide the necessary resources for a successful education program; the City should continue to work towards establishment of both. However the City can still make significant improvements to the local education and community engagement processes, through programs and working collaboratively with community and environmental groups.

Community groups and projects often have a reach far greater than council programs, and generate local connections within and across communities. The City recognises the importance of a vibrant, engaged and proactive community, and will provide assistance and support to achieve shared goals of waste reduction.

Over 90 actions will be required to progress towards zero waste to landfill by 2030.

4.3.4 ORGANICS

Organics represents a significant proportion of waste to landfill at McRobies Gully, comprising around 60% of the kerbside waste bin contents. In addition, around 30% of the waste delivered direct to the landfill tip face is organic. Organics is one of the most significant waste inputs, and is also one of the most cost effective waste streams to divert from landfill. The costs of different technology types for composting, kerbside collection services and bin configurations must be investigated and appropriate services implemented as a priority. Organics represent a great opportunity to make substantial inroads into the zero waste targets.

4.3.5 LITTER AND ILLEGAL DUMPING

Currently there is limited measurement regarding the amount of illegal dumping and costs incurred by the City in the collection of illegally dumped waste and litter. A baseline needs to be established to inform the prevalence, make up, and resource implications associated with litter and illegal dumping. The City must also expand its vision and consult with neighbouring land owners to develop regional litter and illegal dumping monitoring and education and enforcement programs. Litter and illegal dumping can have a considerable impact on the environment and amenity of natural areas, and measures need to be taken to prevent the occurrences and impacts associated with illegal dumping and litter.

4.3.6 INERT WASTE

The City already conducts a range of inert waste recycling programs with materials such as concrete, clean fill, bricks and steel diverted from landfill at significant rates. The capacity of McRobies Gully Landfill is vital to the City, and inert wastes shouldn't be taking up valuable airspace. The City must proactively manage the inert waste types and volumes delivered to the site to ensure there is no oversupply of materials surplus to the ongoing needs of the site. Mechanisms to encourage source separation of construction and demolition waste need to be explored including legislative controls and landfill fee structures. Identification and support of alternative facilities for the acceptance and treatment of inert waste, either operated by the City, or externally, must also be investigated.

4.3.7 CITY WASTE

The City contributes a significant portion of waste to landfill, with the majority generated by the civil works area, however other arms of council also generate waste such as council owned buildings, offices, parks and reserves, and events. The City conducts some internal recycling programs, however, the range and scale of these needs to be significantly increased. An audit of City generated waste needs to be undertaken that captures the complete picture of waste generation from City services and facilities. Such an audit will provide baseline data and waste generation trends to enable targeted programs to be delivered. The City must take the lead and set the example for its community to follow. There are significant opportunities to reduce waste from City operations and services, and these must be explored as a priority.

4.3.8 INNOVATION, PROGRAMS AND SERVICES

Waste technology will develop throughout the life of this strategy and it is expected that new and innovative solutions will emerge for diversion and for post 2030 residual waste. The key for the City will be to assess options as they arise and determine the appropriate time to adopt proven technologies. Innovation brings with it considerable risk, and there are many examples across the country of advanced waste treatment facilities that have failed. The City needs to encourage innovation while continuing to monitor advancements in the waste technology and management fields. In parallel, the City must make inroads into waste reduction in preparation for implementing a solution for the residual waste stream when the appropriate options become clear.

The City must implement programs that target specific materials for removal from the waste stream. This strategy provides actions to target and reduce a range of materials currently entering the landfill such as:

- Organics
- Mattresses
- Plastics
- Wood
- Batteries
- Glass
- Ewaste
- Paper and cardboard
- Inert waste

There are viable options to recycle much of the waste that is currently landfilled. These may be more costly than current landfilling costs and require additional infrastructure and services to be implemented. However, more accurate landfill accounting models and a clear intent to reduce waste to landfill will see the viability of recycling programs increase.

For some materials methods to recycle are as yet unavailable or unsustainable. For these materials the City must monitor advancements in recycling technologies and processes, and where relevant support the development of programs that increase the accessibility and viability of recycling such materials.


BACKROADS
DS2400
ST SERIES
WILDFIRE
KENT

5. HOW WILL THE STRATEGY BE IMPLEMENTED?

5.1 OPTIONS APPRAISAL

Every waste type being disposed to McRobies Gully Landfill was reviewed to identify alternatives. Appendix C – Alternative Treatment Options and Costs Analysis provides a summary of the various treatment methods available for waste entering McRobies Gully Landfill. The estimated cost to divert all materials that currently have alternative recycling options is over $2m per year.

For each of the key focus areas a series of actions was identified and assessed for their suitability and appropriateness using a multi-criteria analysis. This approach has provided a listing of actions in order of priority.

The prioritisation of actions effectively provides a strategic blueprint for the implementation of the strategy, and considers factors such as the amount of waste stream reduced, cost effectiveness, the range of impact, and achievability. Appendix D - City of Hobart Zero Waste to Landfill Strategy Action Priority Listing provides a complete listing of all actions by their priority, with highest scoring actions listed first.

The City has identified 91 actions to be undertaken during the life of this strategy. Actions cover a wide range of areas and move from advocacy and developing partnerships, working collaboratively with others, through to on the ground actions completed solely by the City.

All actions have undergone a thorough assessment process to allocate a priority for action. The priority identification process encompassed the following aspects;

- the amount of waste reduced
- cost effectiveness
- the range of impact
- practicality and achievability

Actions outlined within this strategy will be subjected to regular review and reporting, and waste reduction rates will be reported and communicated to the community consistently.

It is the aim of this strategy to deliver the outcome of zero waste to landfill by 2030. Critical to the success of the strategy in reducing waste to landfill is the support of the Aldermen and senior management within the City of Hobart. All actions have undergone a robust analysis, and adequate resourcing levels to achieve the desired outcomes must be allocated for the life of the strategy if the vision is to be achieved.

This strategy is the driver for the City to implement wide ranging waste reduction programs over the next 15 years that will benefit both the environment and the community of the City of Hobart and Greater Hobart.

Table 1 details all Actions under each of the 8 Key Focus areas

TABLE 1 – ACTIONS OF THE WASTE STRATEGY 2015-2030

1. ADVOCATING FOR CHANGE

1.1	Advocate to the State Government for a state based waste levy
1.2	Implement internal procurement policies that favour recycled products and waste diversion including engagement of social enterprises in the waste area
1.3	Increase the capacity of the Resource Recovery Centre to divert waste from landfill. Provide assistance, facilities, and work together with the site operator to recover as much material as possible, including C&D wastes
1.4	Investigate the use of planning processes to improve source separation and recycling programs
1.5	Advocate to State Government to support a state wide Container Deposit System
1.6	Support the establishment of, and be represented on an adequately resourced Regional Waste Authority
1.7	Lobby for additional product stewardship programs to be regularly implemented through the National Waste Policy
1.8	Work with the EPA and other facilities to establish common definitions for waste
1.9	Evaluate the costs and benefits of joining existing or new Waste Authorities
1.10	Optimise the use of the Derwent Park site for regional waste infrastructure provision
1.11	Advocate to the State Government for the establishment of state waste reduction targets.
1.12	Provide assistance and advice to others looking to establish transfer stations and resource recovery facilities
1.13	Develop a regional waste managers network with representatives from government and industry
1.14	Monitor National Policy movements such as National Packaging Covenant developments and advocate for change when required
1.15	Engage with agencies that make recycling a mandatory component of contracts
1.16	Adequately Plan and fund post closure requirements, and work in accordance with the Landfill sustainability Guidelines, the sites Environmental Management Plan. Ensure all reasonable efforts are made to protect the ecology of the area surrounding the landfill
1.17	Work with other facilities to rationalise regional waste infrastructure, and investigate shared infrastructure and services
1.18	Promote existing take back schemes (tyres, ewaste, fluorescent globes) and lobby for the development of further schemes (mattresses, pallets, plastics)

2. FINANCE

2.1	Set fees and charges (annually) to encourage waste avoidance and investment in commercial recycling programs
2.2	Conduct a full cost accounting study of the landfill to review the pricing for current operations and long-term financial liabilities, including post closure requirements
2.3	Where possible, work with others towards joint procurement and purchasing in the waste management and resource recovery area, resulting in savings from greater economies of scale in relation to delivering the objectives of the strategy
2.4	Evaluate the cost effectiveness of the use of external facilities for waste disposal
2.5	Conduct a review into the pricing and the business model for green waste processing at the landfill

3. EDUCATION AND ENGAGEMENT

3.1	Implement mandatory recycling and waste diversion requirements on all City coordinated events
3.2	Support the development of regional recycling education strategies and programs
3.3	Support and encourage organisers to implement recycling and waste diversion programs for events, including food waste
3.4	Appoint a Waste Education Officer
3.5	Identify and provide viable recycling systems for difficult wastes such as polystyrene, batteries, oils, fluorescent light globes, paint, and effectively promote facilities and services to the community
3.6	Make available to residents an App that provides a range of information on Council services and facilities for recyclable products, and upgrade the City's internet pages to reflect the strategy implementation
3.7	Encourage and support School recycling and waste diversion programs and projects
3.8	Promote and support community reuse programs such as the Art From Trash Annual exhibition
3.9	Work to develop a regional kerbside recycling contamination reduction education program
3.1	Develop campaigns to promote the use of sustainable materials and recycled products
3.11	Progressively report to Council to seek funds to implement the strategy
3.12	Develop a Good Neighbour Agreement with the South Hobart Community
3.13	Undertake community engagement and education on the closure of McRobies Gully Landfill, and the potential post closure uses for the site
3.14	Implement branding across the City's waste services and infrastructure
3.15	Promote achievements in relation to waste minimisation programs as they are implemented
3.16	Conduct regular contamination audits of kerbside recycling
3.17	Ensure open and transparent communication with industry and residents through ongoing education and engagement programs
3.18	Provide details on the end markets for recyclables to the community

4. ORGANICS

4.1	Implement a fortnightly green waste kerbside collection service, to appropriate tenements
4.2	Implement a food waste kerbside collection service, after the successful introduction of the green waste kerbside collection service, and once appropriate receival infrastructure and facilities are identified
4.3	Encourage and support existing and new community gardens and at home composting programs
4.4	Investigate commercial food organics diversion, and identify alternative sites and technologies for organics processing (either regional or stand alone City facility)
4.5	Work with others to establish a regional organics quantity analysis and processing plan
4.6	Review the costs and benefits of providing home composting kits and education
4.7	Review the kerbside waste service frequency of collection and bin capacity following the introduction of other services such as kerbside green and food waste collection

5. LITTER AND ILLEGAL DUMPING

5.1	Support extended producer responsibility programs to address localised litter generation and removal
5.2	Continue to refine the public waste and recycling bin program, including locations, sizes, and collection frequencies, and increasing the number of recycling bins
5.3	Develop strategies to prevent illegal dumping within Hobart, and review processes for the issuing of fines for litter related offences
5.4	Work with other councils and industry on joint litter and illegal dumping prevention and monitoring programs
5.5	Investigate measures to refine the operation of public waste and recycling bin infrastructure, such as bin level sensors, solar powered compaction units and route optimisation
5.6	Monitor the quality and appearance of waterways through regular testing and litter reduction measures

6. INERT WASTE

6.1	Work with government and industry to establish regional C&D sorting facilities, and develop and promote C&D recycled materials markets
6.2	Investigate long term facilities for the sorting, storage, and recycling of inert waste, at McRobies gully or alternative locations
6.3	Implement programs to increase concrete recycling
6.4	Work with C&D recyclers to establish take back systems and back loading of recyclable materials

7. CITY WASTE

7.1	Secure approvals to operate a general waste landfill to 2030
7.2	Improve source separation of City generated waste
7.3	Implement a disposal strategy/policy for City assets that incorporates reuse and recycling
7.4	Conduct an audit of all City generated waste, and develop a waste minimisation plan with programs to increase recycling and reduce waste generation
7.5	Investigate disposal to alternative facilities for City generated wastes
7.6	Implement office recycling programs in all City work areas
7.7	Incorporate recycled products into City designed works where viable such as glass into concrete applications, the use of recycled plastics and replacement of sand with glass in civil works

8. INNOVATION AND PROGRAMS

8.1	Implement effective cardboard and paper recycling programs at the Waste Management Centre
8.2	Continue to provide kerbside recycling services and explore additional materials for inclusion when economically viable
8.3	Provide an annual Waste Reduction Grants Program, to fund public waste reduction initiatives and projects
8.4	Establish a regional long-term solution for glass recycling, including market options
8.5	Seek grant funding opportunities (for the City and the community)
8.6	Identify solutions and costs for residential services for the drop off and recycling of household hazardous waste, including oils, grease, paints, pesticides, and medicines
8.7	Improve signage at McRobies Gully to ensure diversion of waste to the Resource Recovery Centre
8.8	Consider implementing a 'waste reduction levy' to fund recycling programs for materials delivered to the waste management centre (in absence of a state based levy)
8.9	Develop recycling options for building materials such as plasterboard and masonry items
8.1	Increase the use of recycled products within City projects
8.11	Implement effective plastics recycling programs at the Waste Management Centre
8.12	Research, identify and commission feasibility studies into Alternative Waste Treatment and Energy from Waste facilities
8.13	Support regional, state, and national waste reduction and education programs such as the Garage Sale Trail, and National Recycling Week
8.14	Establish a mattress recycling program, locally or regionally
8.15	Review collection fleet to ensure optimum compaction, capacity, configuration and functionality
8.16	Review the frequency and appropriateness of the free entry weekends program
8.17	Review e-waste recycling options and continue to implement the most environmental and economic program available
8.18	Support and expand the flexible plastics recycling programs currently undertaken by the retail industry
8.19	Continue to separate steel from the waste stream for recycling
8.20	Conduct regular audits of waste to landfill, and kerbside waste and recycling composition
8.21	Review opening days and hours of the Waste Management Centre to suit the needs of the community and site operations
8.22	Improve tyre recycling programs and work to identify viable recycling options.
8.23	Investigate and conduct cost modelling for alternative treatment options for timber waste, such as pyrolysis
8.24	Develop improved systems for multi-tenement waste and recycling services
8.25	Implement a textiles recycling program
8.26	Support the retail industry to introduce waste avoidance and recycling strategies and programs

Table 1 – Actions of the Waste Strategy 2015-2030

6. HOW WILL PROGRESS AGAINST THE STRATEGY BE MEASURED?

6.1 TARGETS

A series of targets at 5 yearly intervals will be applied to monitor progress under the strategy towards the goal of zero waste to landfill by 2030. The current waste diversion rate from landfill is 32%, and all future targets will be assessed against current waste acceptance and recycling levels (2015).

2015 Rate	32%
2020 Target	50%
2025 Target	70%
2030 Target	100%

6.2 MEASUREMENT

A range of measurement processes will be required to track progress against the strategy and to appropriately define diversion rates of material from landfill. Key performance indicators will be derived from a range of measurement processes including

- Regular Audits (waste to landfill, kerbside)
- Contamination audits of kerbside collection services
- Environmental monitoring
- Litter control records
- Review of the number and types of services and programs provided
- Financial measurement and reporting
- Regulatory compliance

The measurement processes above will provide information to Council on economic and environmental performance, and community service provision in addition to providing waste diversion rates. All measurement processes will be undertaken annually as a minimum, and in many instances quarterly and monthly measurement will be required.

This strategy will be formerly reviewed at 5 year intervals, to ensure it remains relevant to the City and on track to meet diversion targets.


NFS
NO ENTRY

APPENDICES

APPENDIX A – COMPOSITION OF CITY OF HOBART KERBSIDE WASTE BIN

CATEGORY	PRODUCT	% of BIN
PAPER AND CARDBOARD	Paper - Newspaper and Magazines	1.31%
	Paper - Office Paper	1.77%
	Cardboard - Pizza Box	0.21%
	Cardboard - Corrugated	2.21%
	Liquid paper containers	0.25%
	Paper towel	1.43%
	contaminated soil paper	0.11%
ORGANICS	Food - kitchen	46.81%
	garden organics	14.53%
	Kitty Litter organic	4.11%
	wood	1.01%
	Textiles - organic	3.44%
	leather	0.06%
	rubber - organic	0.33%
	oils	0.20%
GLASS	Glass - packaging/containers	1.90%
	glass - mixed fines	0.20%
PLASTICS	PET #1	0.70%
	HDPE #2	0.57%
	PVC #3	0.05%
	LDPE #4	0.07%
	Polypropylene #5	0.77%
	Polystyrene #6	0.18%
	Rigid plastic #7	0.64%
	plastic bags	0.07%
	plastic packaging	4.90%
	Polystyrene (non container)	0.16%
METAL	Steel Cans	0.54%
	Steel aerosols	0.04%
	Ferrous other	0.41%
	Ferrous composite	0.00%
	Aluminium cans, aerosols, foil	0.57%
	Non ferrous (other copper, brass etc)	0.05%
HAZARDOUS	Household Hazardous - flourescent globes	0.29%
	Household Hazardous - Dry cell batteries	0.00%
	Household Hazardous - chemicals and pharmaceuticals	0.01%
	Household Hazardous - other	0.02%

CATEGORY	PRODUCT	% of BIN
EARTH BASED	Ceramics	0.78%
	Dust/dirt/rock/inert	2.38%
	Ash	0.21%
OTHER	Ewaste	0.27%
	Nappies - disposalble paper nappies	4.41%
	Toner Cartridges	0.03%
	Electrical items	0.25%
	Coffee pods	0.05%
	Liquids	0.08%
	Photo paper	0.23%
	Plasterboard	0.26%
	CD's/DVD's	0.28%
	Textiles - Carpets	0.05%
	Miscellaneous	0.80%

APPENDIX B – COMPOSITION OF WASTE TO LANDFILL – MCROBIES GULLY

WASTE CATEGORY	WASTE PRODUCT	% of Landfill
Organics 29.18%	Food organics – unpackaged	10.43%
	Wood – treated/painted	7.85%
	Wood – treated - pallets	0.60%
	Garden organics	7.24%
	Wood – untreated	1.70%
	Food organics – packaged	1.11%
	Other - sawdust	0.13%
	Wood – untreated - pallets	0.12%
Recycling 19.39%	Paper – other	2.18%
	Plastic – other	2.15%
	Cardboard – dry – loose	1.92%
	Plastic – film packaging	1.58%
	Glass – packaging	1.50%
	Metal (ferrous) – non-packaging – LD	1.19%
	Glass – non-packaging	1.19%
	Metal (ferrous)– non-packaging – HD	1.14%
	Cardboard – wet /wax – loose	0.80%
	Metal (ferrous) – packaging	0.77%
	Paper – office	0.73%
	Plastic – rigid packaging	0.59%
	Metal (non-ferrous) – packaging	0.57%
	Metal (non-ferrous)– non-pack – LD	0.47%
	Paper – packaging	0.23%
	Plastic – EPS foam	0.22%
	Cardboard – wet /wax – compacted	0.14%
	Metal (non-ferrous)– non-pack – HD	0.07%
	Cardboard – dry – compacted	0.02%
	Other – batteries	0.02%
	Textiles – mattresses	0.43%
	Electrical – TVs	0.40%
	Electrical– computers and peripherals	0.37%
	Electrical – other	0.35%
	Electrical – whitegoods	0.36%

WASTE CATEGORY	WASTE PRODUCT	% of Landfill
C&D 42.18%	Masonry materials – concrete/bricks	32.12%
	Masonry materials – other	6.70%
	Textiles - covered furniture	0.69%
	Textiles - carpet	0.56%
	Rubber	0.48%
	Textiles and leather	1.63%
Waste 9.25%	Other - nappies	1.59%
	Other - insulation	0.30%
	Other - fines	0.23%
	Other - clinical	0.20%
	Other - asbestos	0.03%
	Other - miscellaneous	6.90%
		100.00%

APPENDIX C – ALTERNATIVE DISPOSAL OPTIONS AND COSTS ANALYSIS

WASTE PRODUCT	% OF STREAM TO MCROBIES	PROCESS	WASTE REDUCTION OPTION(S)
Cardboard	2.88%	Recycling	Kerbside recycling service, paper and cardboard recycling facilities at WMC bale on site and sell
Paper	3.14%	Recycling	Kerbside recycling service, recycling facilities at WMC, increase education about paper recycling. Consider adding paper to composting processes
Metal	4.21%	Recycling	Kerbside recycling service, recycling facilities at WMC collect and sell to metals recyclers
Wood – untreated	1.82%	Recycling	Collect for re-sale, shred to sawdust or add to composting processes.Consider take back scheme on pallet manufacturers. Consider collection and transport to pyrolisis facility
Sawdust	0.13%	Compost	Include in composting process, ensure all loads delivered to organics area
Batteries	0.02%	Recycling	Recycling facilities at waste management centre, and other locations for collection and recycling
Plastic – rigid packaging	0.59%	Recycling	Increase community education to ensure materials which can be recycled are promoted. Collect on site and send to Victoria for recycling
Rubber	0.48%	Recycling	Collect, bale and transport to recycling facility in Victoria
Textiles - covered furniture	0.69%	Recycling	Sell through tip shop, or recycle components through deconstruction process
Glass	2.69%	Recycling	Kerbside recycling collection, recycling facilities at WMC, crush to aggregate and use in road constrcution applications and other civil construction projects
Textiles - carpet and leather	2.19%	Recycling	Consider shredding and exporting
Other - nappies	1.59%	Avoidance	Encourage use of organic nappies and associated products
Garden organics	7.24%	Avoidance and Recycling	Increase fees for green waste to encourage commercial composting. Increase advertising of green waste recycling and use of composting facility
Mattresses	0.43%	Recycling	Mattress recycling program - deconstruct and recover steel, bale textiles for transport to recycling facility. Work with other councils to provide a mattress recycling scheme
Plastic – other	2.37%	Recycling	Kerbside recycling service, recycling facilities at WMC, collect on site and deliver to recycling contractor
Electrical – TV's, whitegoods, Computers, other	1.48%	Recycling	Capture through ewaste recycling systems at WMC, and under National Product Stewardship Scheme
Food organics	11.51%	Compost	Residential and Commercial Kerbside Collection service. Increase information regarding at home composting and on site composting options
Wood – treated/ painted	8.45%	Compost	Consider collection and transport to pyrolysis facility
Plastic – film packaging	1.58%	Recycling	Bale on site and sell

COST PER TONNE ($)	LIKELY % OF STREAM REDUCED	COST TO REMOVE FROM LANDFILL (PER YEAR)	RELATED ACTION NUMBER(S)	CUMULATIVE COST (P/A)
-$50	2.50%	-$31,250	1.3,8.1,8.2	-$31,250
-$40	3.00%	-$30,000	8.1,8.2,1.11,8.11	-$61,250
$-	4.00%	$-	8.5,8.16	-$61,250
$160	1.50%	$-	8.8,3.18	-$61,250
$30	0.13%	$975	2.4	-$60,275
$1,000	0.02%	$5,000	2.5,7.3	-$55,275
$200	0.50%	$25,000	7.5	-$30,275
$400	0.25%	$25,000	2.5, 3.17	-$5,275
$400	0.25%	$25,000	8.17	$19,725
$75	2.00%	$37,500	8.3	$57,225
$400	0.50%	$50,000	8.17	$107,225
$200	1.00%	$50,000	8.21	$157,225
$60	6.00%	$90,000	2.1,2.2,2.4	$247,225
$1,000	0.40%	$100,000	3.11,8.17	$347,225
$200	2.15%	$107,500	2.5, 7.5	$454,725
$1,000	1.00%	$250,000	1.3,4.6	$704,725
$150	8.00%	$300,000	4.2,3.8,3.9	$1,004,725
$200	7.00%	$350,000	7.2	$1,354,725
$1,000	1.50%	$375,000	7.5,8.15	$1,729,725

WASTE PRODUCT	% OF STREAM TO MCROBIES	PROCESS	WASTE REDUCTION OPTION(S)	
Masonry materials – concrete/bricks	32.12%	Recycling	Crush to rubble either through on site machinery or sorting platform at McRobies or remove and crush contract. Consider source separation through DA's and other means	
Masonry materials – other (insulation, plasterboard, fines etc)	7.23%	Recycling	No current viable recyclable options for plasterboard, insulation, glues etc	
Other - asbestos	0.03%	N/A	No current viable recycling avenue	
Other - clinical	0.20%	N/A	No current viable recycling avenue	
Other - miscellaneous	6.93%	N/A	No current viable recycling avenue	
	100.00%			

	COST PER TONNE ($)	LIKELY % OF STREAM REDUCED	COST TO REMOVE FROM LANDFILL (PER YEAR)	RELATED ACTION NUMBER(S)	CUMULATIVE COST (P/A)
	$50	31.00%	$387,500	8.9,6.1	$2,117,225
		0.00%	N/A	8.8	
		0.00%	N/A	8.21	
		0.00%	N/A	8.21	
		0.00%	N/A	8.21	
		72.70%			

APPENDIX D – CITY OF HOBART ZERO WASTE TO LANDFILL STRATEGY ACTION PRIORITY LISTING

RANK	ACTION NO.	CATEGORY	ACTION
1	2.1	Finance	Set fees and charges (annually) to encourage waste avoidance and investment in commercial recycling programs
2	1.1	Advocating for Change	Advocate to the State Government for a state based waste levy
3	1.2	Advocating for Change	Implement internal procurement policies that favour recycled products and waste diversion including engagement of social enterprises in the waste area
4	1.3	Advocating for Change	Increase the capacity of the Resource Recovery Centre to divert waste from landfill. Provide assistance, facilities, and work together with the site operator to recover as much material as possible, including C&D wastes
5	3.1	Education and Engagement	Implement mandatory recycling and waste diversion requirements on all City coordinated events
6	8.1	Innovation and Programs	Implement effective cardboard and paper recycling programs at the Waste Management Centre
7	1.4	Advocating for Change	Investigate the use of planning processes to improve source separation and recycling programs
8	2.2	Finance	Conduct a full cost accounting study of the landfill to review the pricing for current operations and long-term financial liabilities, including post closure requirements
9	3.2	Education and Engagement	Support the development of regional recycling education strategies and programs
10	3.3	Education and Engagement	Support and encourage organisers to implement recycling and waste diversion programs for events, including food waste
11	8.2	Innovation and Programs	Continue to provide kerbside recycling services and explore additional materials for inclusion when economically viable
12	4.1	Organics	Implement a fortnightly garden waste kerbside collection service, to appropriate tenements
13	4.2	Organics	Implement a food waste kerbside collection service, after the successful introduction of the garden waste kerbside collection service and appropriate receival infrastructure and facilities identified
14	3.4	Education and Engagement	Appoint a Waste Education Officer
15	7.1	City Waste	Secure approvals to operate a general waste landfill to 2030
16	8.3	Innovation and Programs	Provide an annual Waste Reduction Grants Program, to fund public waste reduction initiatives and projects
17	8.4	Innovation and Programs	Establish a regional long-term solution for glass recycling, including market options

SCORE	WASTE STREAM IMPACTED	OUTCOME
13	ALL	Increased waste avoidance through alternative disposal/recycling programs
13	ALL	Creation of a fund to provide statewide waste minimisation programs
13	ALL	Reduced waste from City operations, support for community organisations
13	ALL	Increased waste diversion and recycling, in particular Construciton and Demolotion wastes
13	ALL	Increased recycling at community events organised by the City
13	Cardboard	Increased recycling of cardboard
12	C&D	Increased waste redcution in the building sector
12	ALL	Increased understanding of true costs associated with landfill, and ability to charge correctly
12	ALL	Improved consistency accross the region and increased communications
12	ALL	Increased recycling from public events
12	Recycling	Continued diversion form landfill of kerbside recyclables
12	Garden Organics	Increased waste diversion (of garden waste)
12	Food	Increased waste diversion (of food waste)
12	C&D	Increased education programs for waste reduction
12	ALL	Increased products recovered and recycled
11	ALL	Increased waste diversion through grant projects
11	Glass	Increased recycling of glass

RANK	ACTION NO.	CATEGORY	ACTION
18	1.5	Advocating for Change	Advocate to State Government to support a state wide Container Deposit System
19	1.6	Advocating for Change	Support the establishment of, and be represented on an adequately resourced Regional Waste Authority
20	1.7	Advocating for Change	Lobby for additional product stewardship programs to be regularly implemented through the National Waste Policy
21	2.3	Finance	Work with others towards joint procurement and purchasing, resulting in savings from greater economics of scale.
22	2.4	Finance	Investigate the use of external facilities for landfilling operations
23	2.5	Finance	Conduct a review into the pricing and the business model for green waste processing at the landfill
24	3.5	Education and Engagement	Identify and provide viable recycling systems for difficult wastes such as polystyrene, batteries, oils, fluorescent light globes, paint, and effectively promote facilities and services to the community
25	3.6	Education and Engagement	Make available to residents an App that provides a range of information on Council services and facilities for recyclable products, and upgrade the City's internet pages
26	3.7	Education and Engagement	Encourage and support School recycling and waste diversion programs and projects
27	3.8	Education and Engagement	Promote and support community reuse programs such as the Art From Trash Annual exhibition
28	4.3	Organics	Encourage and support existing and new community gardens and at home composting programs
29	5.1	Litter/Illegal Dumping	Implement extended producer responsibility programs to address localised litter generation and removal
30	1.8	Advocating for Change	Work with the EPA and other facilities to establish common definitions for waste
31	8.5	Innovation and Programs	Seek grant funding opportunities (for the City and the community)
32	7.2	City Waste	Improve source separation of City generated waste
33	7.3	City Waste	Implement a disposal strategy/policy for city assets that incorporates reuse and recycling
34	8.6	Innovation and Programs	Identify solutions and costs for residential services for the drop off and recycling of household hazardous waste, including oils, grease, paints, pesticides and medicines
35	8.7	Innovation and Programs	Improve signage at McRobies Gully to ensure diversion of waste to the Resource Recovery Centre
36	7.4	City Waste	Conduct an audit of all City generated waste, and develop a waste minimisation plan with programs to increase recycling and reduce waste generation

SCORE	WASTE STREAM IMPACTED	OUTCOME
11	Beverage Containers	Reduced litter, and increased recycling of beverage containers
11	ALL	Increased capacity to contribute to regional waste management programs
11	ALL	Increased national programs to reduce waste to landfill
11	ALL	Improved purchasing power, increased viability of recycling programs
11	ALL	Increased airspace capacity at McRobies
11	Organics	Increased accountability and knowledge of costs associated with composting
11	ALL	Increased recycling of household waste items
11	ALL	Increased information provision to the community
11	ALL	Increased recycling from schools and school events
11	ALL	Increased awareness of waste reduction and associated programs
11	Organics	Increased organic waste reduction
11	litter	Reduced litter surrounding businesses
11	ALL	Improved data reporting
11	ALL	Increased revenue sources for waste reduction programs
11	ALL	Increased recycling
11	ALL	Increased emphasis on recycling rather than disposal of council assets
11	Household Hazardous	Inccreased diversion of household hazardous waste from landfill
11	ALL	Increased visitation to the resource Recovery Area, increased recycling
11	ALL	Increased data to enable wastes to be targetted, increased wasste diversion

RANK	ACTION NO.	CATEGORY	ACTION
37	8.8	Innovation and Programs	Consider implementing a 'waste reduction levy' to fund recycling programs for materials delivered to the waste management centre (in absence of s state based levy)
38	8.9	Innovation and Programs	Develop recycling options for building materials such as plasterboard and masonry items
39	6.1	Inert Waste	Work with government and industry to establish regional C&D sorting facilities, and develop and promote C&D recycled materials markets
40	1.9	Advocating for Change	Evaluate the costs and benefits of joining existing or new Waste Authorities
41	1.10	Advocating for Change	Optimise the use of the Derwent Park site, for regional waste infrastructure provision
42	1.11	Advocating for Change	Advocate to the State Government for the establishment of state waste reduction targets.
43	1.12	Advocating for Change	Provide assistance and advice to others looking to establish transfer stations and resource recovery facilities
44	3.9	Education and Engagement	Work to develop a regional kerbside recycling contamination reduction education program
45	3.1	Education and Engagement	Develop campaigns to promote the use of sustainable materials and recycled products
46	4.4	Organics	Investigate commercial food organics diversion, and identify alternative sites and technologies for organics processing (either regional or stand alone City facility)
47	4.5	Organics	Work with others to establish a regional organics quantity analysis and processing plan
48	5.2	Litter/Illegal Dumping	Continue to refine the public bin program, including locations, sizes, and collection frequencies, and increasing the number of recycling bins
49	6.2	Inert Waste	Investigate long term facilities for the sorting, storage, and recycling of inert waste, at McRobies gully or alternative locations
50	6.3	Inert Waste	Implement programs to increase concrete recycling
51	8.10	Innovation and Programs	Increase the use of recycled products within City projects
52	7.5	City Waste	Investigate disposal to alternative facilities for City generated wastes
53	8.11	Innovation and Programs	Implement effective plastics recycling programs at the Waste Management Centre
54	7.6	City Waste	Implement office recycling programs in all City work areas
55	1.13	Advocating for Change	Develop a regional waste managers network with representatives from government and industry
56	8.12	Innovation and Programs	Research, Identify and commission feasability studies into Alternative Waste Treatment and Energy from Waste facilities
57	8.13	Innovation and Programs	Support regional, state, and national waste reduction and education programs such as the garage sale trail

SCORE	WASTE STREAM IMPACTED	OUTCOME
11	ALL	Increased waste redcution
11	C&D	Reduced masonry waste to landfill
11	C&D	Increased C&D recycling
10	ALL	Increased long term security
10	ALL	Capacity of Derwent Park site to provide waste managment programs optimised
10	ALL	Increased state committment ot waste reduction
10	ALL	Increased knowledge sharing
10	Recycling	Reduced contamination in kerbside recycling bins
10	ALL	Increased use of sustainable materials
10	Food Organics	Reduced organic waste to landfill
10	Organics	Increased efficiencies across the region for organic waste processing
10	Litter	Increased public waste and recycling capacity
10	Inert Waste	Improved handling and increased recycling of inert waste
10	Concrete	Increased concrete recycling
10	ALL	Redcued use of new virgin resources
10	ALL	Increased landfil lcapacity for the communities waste
10	Plastics	Reduced plastic to landfill
10	Office Recycling	Increased recycling of office based waste such as paper, toner cartridges, beverage containers
10	ALL	Increased cooperation and collaboration between operators
10	ALL	Remain informed of state of play regarding alternative treament methods
10	ALL	Increased products recovered and recycled

RANK	ACTION NO.	CATEGORY	ACTION
58	3.11	Education and Engagement	Progressively report to Council to seek funds to implement the strategy
59	1.14	Advocating for Change	Monitor National Policy movements such as National Packaging Covenant developments and advocate for change when required
60	3.12	Education and Engagement	Develop a Good Neighbour Agreement with the South Hobart Community
61	4.6	Organics	Review the costs and benefits of providing home composting kits and education
62	8.14	Innovation and Programs	Establish a mattress recycling program, locally or regionally
63	8.15	Innovation and Programs	Review collection fleet to ensure optimum compaciton, capacity, configuration and functionality
64	8.16	Innovation and Programs	Review the frequency of the free entry weekends program
65	8.17	Innovation and Programs	Review e-waste recycling options and continue to implement the most environmental and economic program available
66	3.13	Education and Engagement	Undertake community engagement and education on the closure of McRobies Gully Landfill, and the potential post closure uses for the site
67	8.26	Innovation and Programs	Support the retail industry to introduce waste avoidance and recycling strategies and programs
68	8.18	Innovation and Programs	Support and expand the flexible plastics recycling programs currently undertaken by the retail industry
69	8.19	Innovation and Programs	Continue to separate steel from the waste stream for recycling
70	7.7	City Waste	Incorporate recycled products into City design processes, such as glass into concrete applications, and recycled plastic street furniture, bollards, and interpretation panels
71	3.14	Education and Engagement	Implement branding accross the City's waste services and infrastructure
72	3.15	Education and Engagement	Promote acheivements in relation to waste minimisation programs implemented
73	8.25	Innovation and Programs	Implement a textiles recycling program
74	1.15	Advocating for Change	Engage with agencies that make recycling a mandatory component of contracts
75	3.16	Education and Engagement	Conduct regular contamination audits of kerbside recycling
76	8.20	Innovation and Programs	Conduct regular audits of waste to landfill, and kerbside waste and recycling compostion
77	3.17	Education and Engagement	Ensure open and transparent communication with industry and residents through ongoing education and engagement programs
78	3.18	Education and Engagement	Provide details on the end markets for recyclables to the community
79	5.3	Litter/Illegal Dumping	Develop strategies to prevent illegal dumping within Hobart and review processes for the issuing of fines for litter related offences

SCORE	WASTE STREAM IMPACTED	OUTCOME
10	ALL	Increased funding capability to implement increased range of programs
9	ALL	Increased recyclnig programs on a national scale
9	ALL	Increased community connection
9	Organics	Increased organics recycling
9	Mattresses	Reduced mattresses to landfill
9	ALL	Improved collection service fleet
9	ALL	Improved customer service and efficiencies in operations
9	Ewaste	Reduced ewaste to landfill
9	ALL	Educated community
9	ALL	Reduction in retail waste
9	Plastics	Increased recycling of flexible plastics
9	Steel	Reduced steel to landfill
9	ALL	Reduced use of virgin materials
9	ALL	Increased profile and awareness of City services and facilities
9	ALL	Increased awareness of waste reduction acheivements
8	Textiles	Increased textiles recycling
8	ALL	Improved recycling provisions within city contracts
8	Recycling	Increased data collection to enable targetted education programs
8	ALL	Increased data collection to enable targetted education programs
8	ALL	Educated community
8	ALL	Educated community
8	Litter	Reduced litter

RANK	ACTION NO.	CATEGORY	ACTION	
80	5.4	Litter/Illegal Dumping	work with other councils and industry on joint litter and illegal dumping prevention and monitoring programs	
81	5.5	Litter/Illegal Dumping	Refine public waste and recycling bin infrastructure, with bin level sensors, solar powered compaction units and route optimisation	
82	6.4	Inert Waste	Work with C&D recyclers to establish take back systems and back loading of recyclable materials	
83	8.21	Innovation and Programs	Review opening days and hours of the Waste Management Centre to suit the needs of the community and site operations	
84	8.22	Innovation and Programs	Improve tyre recycling programs and work to identify viable recycling options.	
85	8.23	Innovation and Programs	Investigate and conduct cost modelling for alternative treatment options for timber waste, such as pyrolysis	
86	1.16	Advocating for Change	Adequately Plan and fund post closure requirements, and work in accordance with the Landfill Sustainability Guidelines, the sites Environmental Management Plan. Ensure all reasonable efforts are made to protect the ecology of the area surrounding the landfill	
87	5.6	Litter/Illegal Dumping	Monitor the quality and appearance of waterways through regular testing and litter reduction measures	
88	4.7	Organics	Review the kerbside waste service frequency of collection and bin capacity following the introduction of other services such as kerbside garden and food waste collection	
89	8.24	Innovation and Programs	Develop improved systems for multi-tenement waste and recycling services	
90	1.17	Advocating for Change	Work with other facilities to rationalise regional waste infrastructure, and investigate shared infrastructure and services	
91	1.18	Advocating for Change	Promote existing take back schemes (tyres, ewaste, flourescent globes) and lobby for the development of further schemes (mattresses, pallets, plastics)	

	SCORE	WASTE STREAM IMPACTED	OUTCOME
	8	Litter	Reduced litter
	8	ALL	Increased efficiency in public infrastructure collection services
	8	C&D	Increased transport efficiencies
	8	N/A	Improved customer service and efficiencies in operations
	8	Tyres	Increased collection and recycling of tyres
	8	Timber	Increased timber recycling, and increased energy production from waste
	8	N/A	Sufficient resources provided to cover post closure requirements
	8	Litter	Reduced litter in waterways
	7	ALL	Increased efficiencies in waste collection
	7	ALL	Reduced street clutter, improved security on use of facilities
	6	ALL	Improved collaboration with other service providers and infrastructure owners
	6	ALL	Increased products recovered and recycled

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