



Waste Authority

# Waste Avoidance and Resource Recovery Strategy 2030

Western Australia's Waste Strategy



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#### Acknowledgements

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This document is available in alternative formats and languages on request to the Waste Authority.

#### Statutory context

The Waste Authority is charged with promoting better waste management practices in Western Australia under the *Waste Avoidance and Resources Recovery Act 2007*. One of the Authority's functions under the Act is to draft, for the Minister for Environment's approval, a long term waste strategy for the whole of the State for continuous improvement of waste services, waste avoidance and resource recovery, benchmarked against best practice and targets for waste reduction, resource recovery and the diversion of waste from landfill disposal. This strategy takes a ten year and beyond view and must be reviewed at least every five years. This Strategy was approved by the Minister for Environment and replaces Western Australia's inaugural waste strategy, *Creating the Right Environment*, approved and published in 2012.





A photograph of a seagull standing on a sandy beach. In the foreground, the top of a green recycling bin is visible, partially filled with plastic bottles. The background shows the ocean and a clear sky.

# Contents

Invitation from the Minister	4
Introduction by the Chair	5
Key strategy elements	6
Setting the direction	7
Our starting point	8
Vision	10
Objectives	11
Targets	12
Guiding concepts	13
Our principles	17
Our approach	18
Our roles and responsibilities	20
Opportunities and focus materials	22
Our objectives, targets and strategies	25
<b>Objective 1: Avoid</b> – Western Australians generate less waste	<b>25</b>
<b>Objective 2: Recover</b> – Western Australians recover more value and resources from waste	<b>29</b>
<b>Objective 3: Protect</b> – Western Australians protect the environment by managing waste responsibly	<b>33</b>
<b>Foundation strategies</b> that apply to multiple objectives	<b>37</b>
Next steps	40
Glossary	41
References	42

# Invitation from the Minister



Western Australia is a spectacularly beautiful place with a vibrant and growing population.

It's because of this that we all have a significant opportunity in terms of how we live our lives and the impact we have on our environment.

We can make a significant impact by acting on the waste we generate and how we manage resources from extraction through to manufacturing, use and disposal.

Right now, Western Australia is close to leading the "wrong lists". National figures from 2014–15 (the latest available as at September 2018) show Western Australia had the highest rate of waste generation *per capita*<sup>1</sup> in the nation, and the equal second lowest rate of resource recovery – 13 percentage points below the national rate.

We have an obligation to our current community and generations to come to generate less waste, extract more from our valuable resources and to better manage the disposal of our waste.

*Waste Avoidance and Resource Recovery Strategy 2030* rises to address that challenge and the opportunities that better choices and better waste management present.

We will have to work hard to meet the ambitious targets set out in this Strategy and deliver against long-standing issues in the waste community. We won't, for example, be able to meet our 2025 recovery targets without all metropolitan local governments adopting a three-bin FOGO system, and I will work with those local governments to achieve this.

I acknowledge that with this comes significant environmental, social, cultural and economic impacts and opportunities associated with improved waste management.

Across Australia, the waste sector contributes more than \$10 billion a year to the economy. At the same time, materials worth hundreds of millions of dollars are lost to landfill each year (ABS, 2014).

High-performing waste and recycling systems which see materials recovered, reused and recycled can and do reduce this impact. The creation of a circular economy has the potential to harness the economic value of these materials that would otherwise be lost, and drive investment in infrastructure and jobs.

Reducing the amount of waste disposed of to landfill can also generate significant economic opportunities for the Western Australian community. It is estimated that for each 10,000 tonnes of waste recycled, 9.2 full-time equivalent jobs are created compared to only 2.8 jobs for landfill (Access Economics, 2009).

With an increasing population and our current waste management performance, maintaining the status quo is not an option.

But there is an upside; we can make waste work for us – and enjoy the environmental, social, cultural and economic benefits improved waste management can deliver.

Waste is everyone's business – individuals, households, neighbourhoods, community groups, schools, small and big businesses, local governments, waste managers, the State Government and the media.

There's a big challenge ahead of us all and this strategy is about finding a united way forward.

The McGowan Government will continue to show leadership in the waste arena for the benefit of all Western Australians now and into the future.

As WA's Environment Minister, I encourage everyone to act on waste and own your impact – whether it's in your role as a consumer, producer, waste manager or regulator.

We've made good progress in recent years and there's great momentum building.

Let's harness that commitment and energy in the years ahead and work towards a cleaner future for all Western Australians.



<sup>1</sup> Dr Joe Pickin and Paul Randell, *Australian National Waste Report 2016*, Department of the Environment and Energy, Energy and Blue Environment Pty Ltd. Figures exclude fly-ash (a by-product of coal-fired power stations)



# Introduction by the Chair



Western Australians are consciously reusing, reprocessing, recycling and avoiding waste at an increasing rate. We are generating less waste and recycling more. However, to protect our unique environment from the impacts of waste and litter, and to maximise the benefits of good waste management, more work needs to be done.

Building on and updating the first *Western Australian Waste Strategy: Creating the Right Environment* published in 2012, this strategy introduces significant transformations aimed at Western Australia (WA) becoming a circular economy, with a greater focus on avoidance as well as moving to targets for material recovery and environmental protection in addition to landfill diversion.

A circular economy means transitioning from the current take-make-use and dispose system to a material efficiency approach which aims to keep products, components and materials at their highest utility and value for as long as possible.

In 2014-15, WA's recycling rate was 48 per cent, which is lower than other mainland states.

Waste collection and processing arrangements vary considerably across WA. Long-term planning for waste processing and recycling facilities and local recovery options would benefit resource recovery and promote the most efficient use of resources assisted by economic incentives, modern regulations, compliance and enforcement.

Community engagement, acceptance and awareness is as important as the provision of physical infrastructure and collection systems. Consistency of messaging across homes, workplaces and public areas is a key *fundamental* that needs to be tailored to local recovery infrastructure and systems.

The waste management sector is in a transitional phase and will require clear direction and guidance going forward that may include more directive approaches over voluntary ones. This could be aligned with careful reinvestment of waste levy funds into programs and alternative delivery methods to support implementation of our waste strategy.

There needs to be commitment by all stakeholders of adopting best practice management and engagement and ensuring transition and waste plans are implemented in a timely manner.

The approach taken in this strategy is founded on working collaboratively across all levels of government, industry, the social enterprise sector and the community, supported by government leading by example in areas such as sustainable procurement, minimum levels of recycled content and underpinned by targets and action plans.

The focus of this strategy, including priorities and targets, is on solid waste. However, the principles and approaches in this strategy apply to waste management across WA, regardless of the type, form or source of waste.

Minimising waste and protecting our environment is important to all West Australians and with this renewed focus I am confident we will move towards a more sustainable, low-waste, circular economy.

I look forward to sharing this journey with you.



# Key strategy elements

VISION	Western Australia will become a sustainable, low-waste, circular economy in which human health and the environment are protected from the impacts of waste.			<b>Supporting documents</b>  Other documents which align with or support this strategy <i>Waste Avoidance and Resource Recovery Strategy 2030</i> include the:  1. <i>Waste Avoidance and Resource Recovery Strategy 2030 Action Plan</i>  2. <i>Waste Authority position and guidance statements</i>  3. <i>State Waste Infrastructure Plan</i>  4. <i>Annual Business Plan</i>  5. <i>Waste Data Strategy</i>
OBJECTIVES	<b>Avoid</b> <i>Western Australians generate less waste.</i>	<b>Recover</b> <i>Western Australians recover more value and resources from waste.</i>	<b>Protect</b> <i>Western Australians protect the environment by managing waste responsibly.</i>	
TARGETS	<ul style="list-style-type: none"><li>2025 – 10% reduction in waste generation per capita</li><li>2030 – 20% reduction in waste generation per capita</li></ul>	<ul style="list-style-type: none"><li>2025 – Increase material recovery to 70%</li><li>2030 – Increase material recovery to 75%</li><li>From 2020 – Recover energy only from residual waste</li></ul>	<ul style="list-style-type: none"><li>2030 – No more than 15% of waste generated in Perth and Peel regions is landfilled.</li><li>2030 – All waste is managed and/or disposed to better practice facilities</li></ul>	
HEADLINE STRATEGIES	<ul style="list-style-type: none"><li>1. Develop state-wide communications to support consistent messaging on waste avoidance, resource recovery and appropriate waste disposal behaviours.</li><li>2. A consistent three bin kerbside collection system, which includes separation of food organics and garden organics from other waste categories, to be provided by all local governments in the Perth and Peel region by 2025 and supported by State Government through the application of financial mechanisms.</li><li>3. Implement sustainable government procurement practices that encourage greater use of recycled products and support local market development.</li><li>4. Implement local government waste plans, which align local government waste planning processes with the <i>Waste Avoidance and Resource Recovery Strategy 2030</i>.</li><li>5. Review and update data collection and reporting systems to allow waste generation, recovery and disposal performance to be assessed in a timely manner.</li><li>6. Undertake a strategic review of Western Australia’s waste infrastructure (including landfills) by 2020 to guide future infrastructure development.</li><li>7. Review the scope and application of the waste levy to ensure it meets the objectives of <i>Waste Avoidance and Resource Recovery Strategy 2030</i> and establish a schedule of future waste levy rates with the initial schedule providing a minimum five year horizon.</li><li>8. Provide funding to promote the recovery of more value and resources from waste with an emphasis on focus materials.</li></ul>			



# Setting the direction

Waste is Australia's most rapidly increasing environmental and economic metric, according to the Australian Bureau of Statistics<sup>2</sup>.

Western Australian's per capita waste generation rates are higher compared to other jurisdictions, while our recovery rates are lower. This poor performance partly reflects some of the unique characteristics of WA such as our geographical size, isolation from markets, vast regional and remote areas, and a heavy reliance on mineral and resource industries. Despite this, there are significant opportunities to improve our waste and recycling practices and performance.

The Australian waste sector contributes over \$10 billion a year to the economy. Materials worth hundreds of millions of dollars are lost to landfill each year (ABS, 2014). High performing waste and recycling systems in which materials are recovered, reused and recycled can reduce this impact. The creation of a circular economy has the potential to harness the economic value of materials and drive investment in infrastructure and jobs.

Reducing the amount of waste disposed of to landfill can generate significant economic opportunities for the WA community. It is estimated that for each 10,000 tonnes of waste recycled, 9.2 full time equivalent jobs are created compared to only 2.8 jobs for landfill (Access Economics, 2009).

Most importantly, waste can have a significant impact on the environment and public health through greenhouse gas emissions, pollution, biodiversity loss and resource depletion (Environmental Protection Authority, 2015). Reducing the volume of waste generated is the best way to manage those risks. It is also critical that where waste cannot be recovered it is safely disposed.

The *Waste Avoidance and Resource Recovery Act 2007* requires the development of a long-term waste strategy for the state to drive continuous improvement in waste services, waste avoidance and resource recovery; and set targets for waste reduction, resource recovery and the diversion of waste from landfill.

This new waste strategy sets a direction to guide such decisions and builds on the state's previous *Western Australian Waste Strategy: Creating the Right Environment*. It has been developed in



consultation with the WA community, industry and government and builds on the *Western Australian Waste Avoidance and Resource Recovery Strategy consultation paper*. Stakeholder feedback confirmed an overall desire for WA to do more and improve its waste management performance relative to other Australian jurisdictions.

Given this need, this waste strategy has been developed to set the direction for all Western Australians and guide their decisions with regards to waste. To do this, the waste strategy includes a vision for Western Australians to strive for, which is supported by principles, objectives,

targets, priorities and strategies to provide stakeholders with clear guidance on how to align their decision making with the intent of the waste strategy's vision.

The waste strategy will also be supported by an action plan that will outline specific actions to be implemented to achieve the objectives of the strategy. The action plan will be prepared by the Waste Authority in consultation with relevant State Government agencies, for consideration by the Minister for Environment. The waste strategy will be reviewed in five years, while the action plan will be reviewed on a more regular basis.

<sup>2</sup> Pickin and Randell, 2017.

# Our starting point

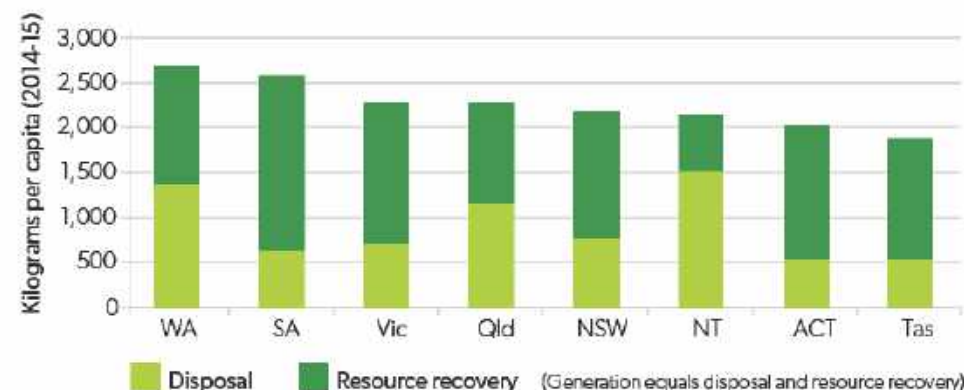
This strategy builds on Western Australia's previous waste strategy *Creating the Right Environment*, which was introduced in 2012 and achieved significant improvements in recycling, reducing waste generation, diverting construction and demolition waste, and better managing commercial and industrial waste.

The achievements were encouraging, but not enough.

In 2014-15 Western Australians:

- generated more waste than people in other Australian states and territories (2,623 kilograms per capita per annum, all waste excluding fly ash);
- disposed of the second highest amount of waste to landfill (1,358 kilograms per capita per annum, all waste excluding fly ash); and
- had the equal second lowest rate of resource recovery (48 per cent)<sup>3</sup>.

Figure 1: Waste disposal and resource recovery by state (Pickin and Randell, 2017)



Western Australia has some challenging features when it comes to waste management but these cannot be an excuse. Our state is vast and located a considerable distance from waste end-markets, which can impact investment in waste and recycling infrastructure and overall recycling rates. This vastness also means it can be difficult to prevent environmental impacts from waste, through activities such as illegal dumping.

However, we have encouraging waste management results and momentum on which to build. In the nine years to 2014-15, total waste generation in Western Australia increased by about 20 per cent – or an average of 2.1 per cent per year<sup>3</sup>. However, our population also increased over that time and, on a per capita basis, waste generation actually decreased marginally by 0.3 per cent per year.

In terms of waste recovery over the same period, the state's overall picture also improved – waste to landfill declined and resource recovery rose. In particular:

- resource recovery rate increased from 34 per cent to 48 per cent;
- recycling tonnages rose an average of 6.8 per cent;
- the amount of waste disposed of declined by 6 per cent, by tonnage, or an average fall of 0.7 per cent per year; and
- waste disposal in WA dropped by 24 per cent on a per capita basis, or 3 per cent per year on average, which was the nation's largest fall in waste disposal per capita over the period<sup>4</sup>.

<sup>3</sup> Pickin and Randell, 2017

<sup>4</sup> ASK Waste Management, 2017



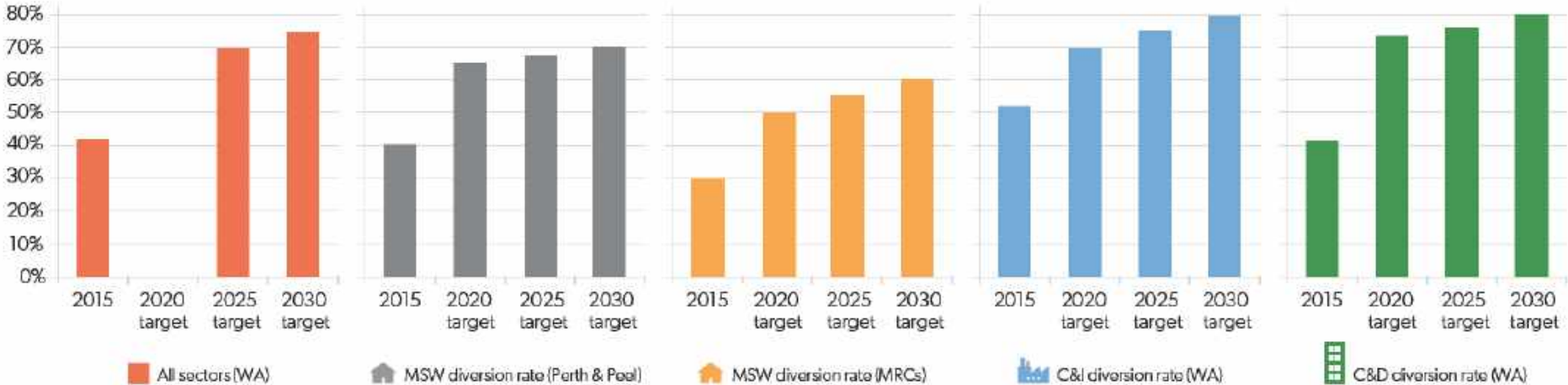
**Table 1: Changes in waste generation and landfill in Western Australia, 2010–11 and 2014–15 (Hyder, 2013 & ASK Waste Management, 2017)**

	2010–11	2014–15	Percentage change
Generation – total	6.53 million tonnes	6.23 million tonnes	↓ 5%
Generation – per capita	2,764 kilograms	2,437 kilograms	↓ 12%
Waste to landfill	4.49 million tonnes	3.61 million tonnes	↓ 20%
Resource recovery	2.04 million tonnes	2.62 million tonnes	↑ 28%

The 2017 *Recycling Activity Review* commissioned by the Waste Authority reported generally encouraging trends in waste management in Western Australia between 2010–11 and 2014–15. Note: National and State data differ due to hazardous waste being included in national data sets and some overlap in data collection and attribution.

The journey to becoming a circular economy will not be easy and, as shown in Figure 2, there is a substantial gap between our current performance and the performance required to achieve our waste generation and material recovery targets.

**Figure 2: Material recovery performance in 2015–16 and waste strategy targets for 2020, 2025 and 2030 (ASK Waste Management 2017)**





## Vision

Western Australia will become a sustainable, low-waste, circular economy in which human health and the environment are protected from the impacts of waste.

As Western Australians, we live in a unique environment and we recognise its value and importance. We share a desire to be environmentally sustainable.

To be sustainable means to be a low-waste society. Waste avoidance is a priority, which means we strive to avoid the unnecessary generation of waste.

This waste strategy recognises that some level of waste generation is unavoidable and so encourages a circular economy approach, where any waste that is generated is valued as a resource that can be reused or recycled for the benefit of the Western Australian economy.

A sustainable, circular economy also means we manage waste to protect the environment. Such management needs to occur through the entire life cycle – from design and manufacture, through to use and then disposal options consistent with the waste hierarchy.

*Waste Avoidance and Resource Recovery Strategy 2030* recognises that individuals, governments and industry all generate waste and can play an important role in avoiding waste, recycling and disposing of waste correctly to protect the environment. The waste industry has an important role to play in terms of maximising the recovery of resources and then managing the disposal of residual waste, or waste that cannot be practically recovered.



# Objectives

This strategy includes three objectives to guide the Western Australian community and enable the development of a sustainable, low-waste and circular economy.

These objectives frame the priorities and strategies that will contribute to delivering on the vision:

## Objective 1

### Avoid

*Western Australians generate less waste.*

## Objective 2

### Recover

*Western Australians recover more value and resources from waste.*

## Objective 3

### Protect

*Western Australians protect the environment by managing waste responsibly.*





# Targets

*Waste Avoidance and Resource Recovery Strategy 2030* provides a long-term strategy for the State for continuous improvement of waste management benchmarked against best practice.

It includes targets for waste avoidance, resource recovery and environmental protection, including the diversion of waste disposed to landfill.

Under each objective, high-level targets have been set for the state that are Specific, Measurable, Achievable, Relevant and Time-bound (SMART).

Targets have been set with reference to performance in other jurisdictions and knowledge about local performance and barriers.

These targets will support our move towards becoming a sustainable, low-waste and circular economy and allow progress to be monitored.

Establishing baseline data is an ongoing challenge in waste management and ensuring data is provided by key sources is an important focus of this strategy.

Improved data collection and analysis will better enable the measurement and evaluation of waste management programs and initiatives. In turn, we will

be able to ensure funding and other resources are directed where they are most needed and can be most effective.

For the purpose of this strategy, targets have been set using 2014–15 national data. This data was the latest available during the consultation and development of the strategy. More recent waste data, which became available in the *National Waste Report* in November 2018, is less accurate than the 2014–15 data, due most significantly to waste stockpiling.

Data improvement to address accuracy issues is a headline strategy in this waste strategy, and will be addressed as a priority.

## Overall objectives and state targets

Avoid	Recover	Protect
<i>Western Australians generate less waste.</i>	<i>Western Australians recover more value and resources from waste.</i>	<i>Western Australians protect the environment by managing waste responsibly.</i>
<ul style="list-style-type: none"> <li>2025 – 10% reduction in waste generation per capita</li> <li>2030 – 20% reduction in waste generation per capita</li> </ul>	<ul style="list-style-type: none"> <li>2025 – Increase material recovery to 70%</li> <li>2030 – Increase material recovery to 75%</li> <li>From 2020 – Recover energy only from residual waste</li> </ul>	<ul style="list-style-type: none"> <li>2030 – No more than 15% of waste generated in Perth and Peel regions is landfilled</li> <li>2030 – All waste is managed and/or disposed to better practice facilities</li> </ul>







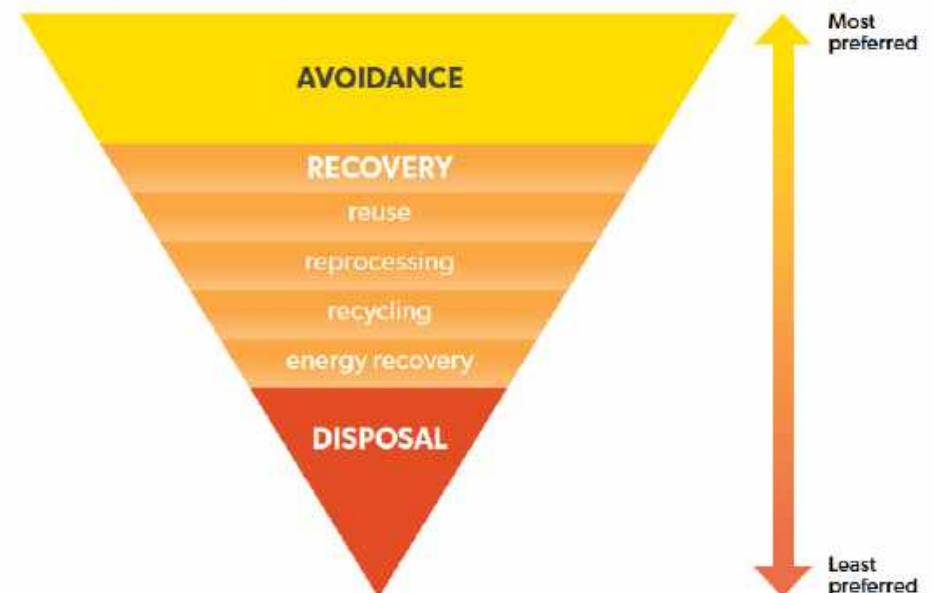
# Guiding concepts

## Waste hierarchy

*Waste Avoidance and Resource Recovery Strategy 2030* applies the waste hierarchy, which is a widely accepted decision making tool which is set out in the *Waste Avoidance and Resource Recovery Act 2007*. The waste hierarchy ranks waste management options in order of their general environmental desirability. The waste hierarchy is used alongside other tools (including economic, social and environmental assessment tools) to inform decision making.

Waste avoidance is the most preferred option in the hierarchy.

Figure 3: Waste hierarchy



Resource recovery options recover value from materials, thereby offsetting the environmental impacts of extracting and processing raw materials. Energy recovery is the least preferred recovery option.

Disposal is the least preferred option. Disposal generally recovers the least value from materials and delivers the least environmental benefit.





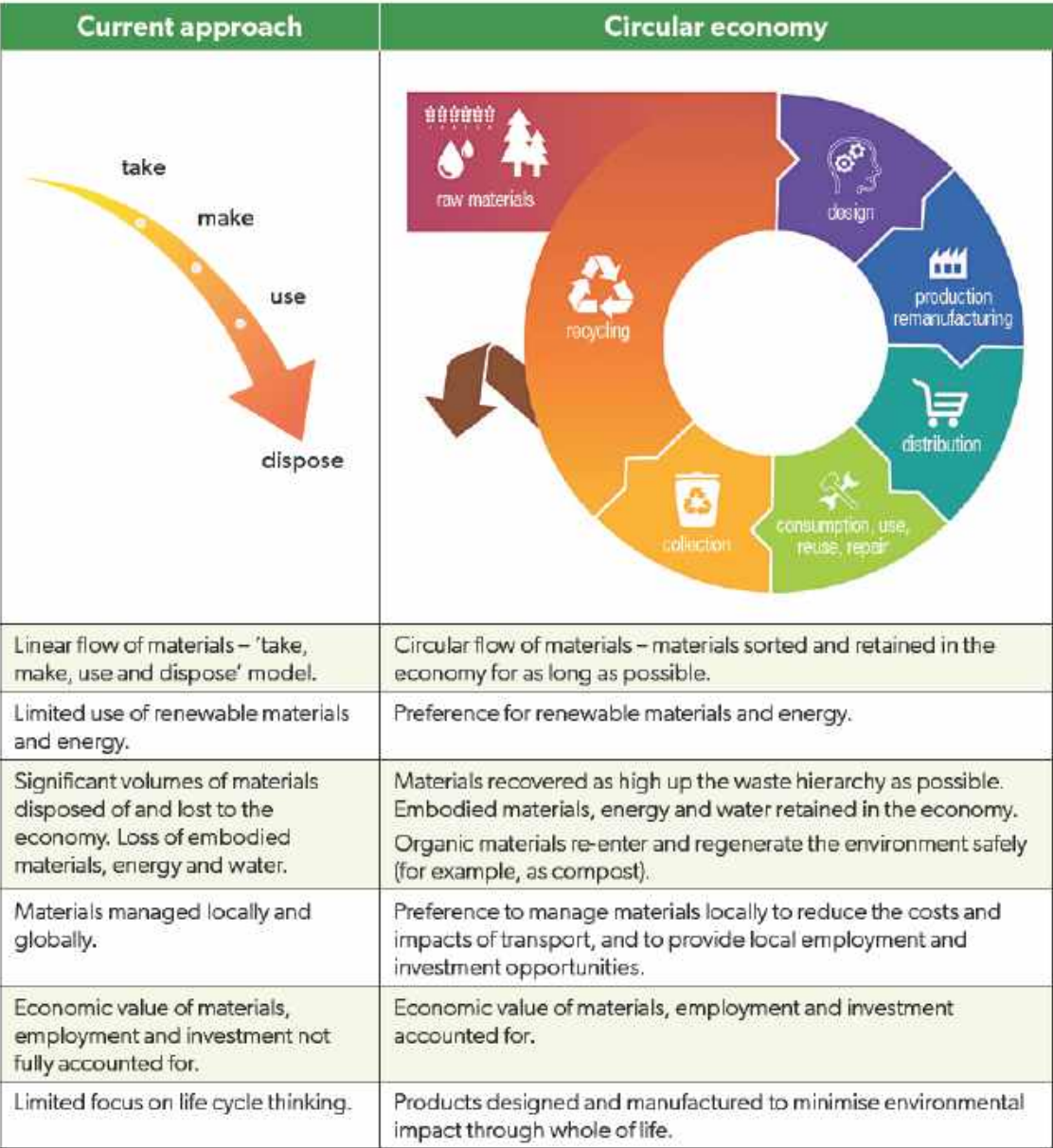
Circular economy

A circular economy builds on long-standing sustainability concepts, including life cycle thinking and resource efficiency, and it complements the waste hierarchy. A circular economy refers to the flow of both materials and energy – it moves away from the linear ‘take, make, use and dispose’ model to one which keeps materials and energy circulating in the economy for as long as possible.

A circular economy presents opportunities for increased local recycling activity. Local solutions create local jobs, and minimise the costs and impacts of unnecessary transport.

Local solutions are particularly important in a state as large as WA where access to markets is limited, and transport costs and impacts are high. WA has an opportunity to benefit from greater local recycling activity. If local recycling options are not available, solutions within Australia will be preferred.

Figure 4: Current waste approach versus circular economy





### Behaviour change – knowledge, enabling infrastructure, incentives

Building on the Western Australian Waste Strategy: *Creating the Right Environment* (2012), *Waste Avoidance and Resource Recovery Strategy 2030* aims to change behaviour through a combination of strategies grouped around knowledge, enabling infrastructure and incentives.

Knowledge plays an important role in getting individuals and organisations started on behaviour change, but it is only a start. Knowledge needs to be complemented with the incentives and practical support individuals and organisations need to act on their decision to change behaviours.

Access to appropriate enabling infrastructure is critical in allowing individuals and organisations to engage with waste management options to improve their effectiveness and efficiency. Enabling infrastructure includes the physical facilities necessary to manage waste, as well as the organisational structures of government and legislation applying to individuals and organisations.

Appropriate knowledge and enabling infrastructure can assist in removing barriers to behaviour change, and incentives can provide a driving force for change. Incentives can be positive, such as funding, or negative, such as penalties and compliance actions.









# Our principles

Five key principles, aligned with legislation, guide the thinking behind *Waste Avoidance and Resource Recovery Strategy 2030* and will drive future decision making.

## **Shared responsibility and partnership – owning your impact**

The state's environmental resources belong to all Western Australians and we all have a role to play in protecting them. The State Government will lead by example by working collaboratively with the community, industry and governments to improve waste management outcomes.

We will support product stewardship and extended producer responsibility as part of our approach to shared responsibility.

## **Innovation and growth**

Western Australia will encourage, embrace and celebrate innovation in all forms that enables and expands our waste management capacity and know-how.

## **Better practice**

Western Australians will pursue better practice approaches in waste management that takes into account the full costs, benefits and impacts of waste management decisions.

This strategy will inform priorities for developing better practice approaches to waste and recycling services. Better practice will be outcome-focussed, evidence-based, informed by performance achieved in other jurisdictions, developed in consultation with key stakeholders, and set out in guidelines that are framed to reflect the varying resources and capacities of the users of those guidelines. We will stay abreast of national and international best practice and responsibly measure, evaluate and benchmark our own performance against it.

Better practice guidelines will inform stakeholders, such as waste managers and local governments, about preferred systems to achieve the targets in

*Waste Avoidance and Resource Recovery Strategy 2030*. Local government waste plans will have regard to better practice guidelines published or referenced by the Waste Authority.

When better practice waste management is promoted by State Government, stakeholders will adjust practices to meet or exceed this new benchmark.

## **Waste as a resource**

Western Australians will adopt and implement the waste hierarchy, avoiding the generation of waste where possible, maximising the recovery of waste that is generated, and protecting the environment from the impacts of disposal.

## **Intergenerational equity**

Western Australians will make waste management decisions which ensure the health, diversity and productivity of our environment is maintained or enhanced for the benefit of future generations.





## Our approach

### Using your influence – owning your impact

As individuals, we make decisions in different roles and have different spheres of influence when avoiding and recovering waste and also when protecting the environment from the impacts of disposal.

In our different spheres of influence we can have a greater or lesser impact on what resources or materials are used, how long they stay in circulation, what waste is generated, what resources are recovered and, ultimately, the method of disposal and the impact that has on our environment.

An individual or single household can make positive choices to contribute to the circular economy. For example, being informed about how to source separate recyclables and purchasing recycled products for use in the home. When individuals act collectively, in our neighbourhoods, schools and community groups, there is an even greater potential to make a difference.

As manufacturers, industry can make significant contributions to the circular economy through shifts to more sustainable design and manufacturing methods, and enabling greater resource recovery. As waste managers, the sector can innovate to improve waste management outcomes and better protect the environment.

Local, State and Commonwealth governments can influence, educate and inform – and can also be significant consumers whose purchasing decisions and procurement policies can have very positive impacts and influence. They have important legislative and regulatory roles and develop and implement strategies. Australia is also part of global action on waste management.

### Local solutions and markets

*Waste Avoidance and Resource Recovery Strategy 2030* places a focus on identifying and prioritising local market solutions for those recyclable materials traditionally exported from the state. Local markets for large volume wastes, such as construction and demolition waste and organic waste lend themselves to being managed close to the source of generation for economic and environmental reasons. This is an example of the circular economy approach in action, supporting local innovation and local jobs.



For other priority materials such as plastics, it is not as straightforward to identify local reuse options across the state that make sense locally. This strategy places an increased focus on promoting procurement decisions that preference local markets and play a role in supporting the development of a remanufacturing industry within Western Australia, along with the employment and investment it can bring to the state.

Attracting investment into local reuse options requires a degree of certainty which has not been present under standard market conditions in Western Australia. This will rely on procurement decisions recognising the benefits that local reprocessing, and the use of products made locally from recycled materials, can offer compared to national or international export options.

### Waste generators and waste managers

*Waste Avoidance and Resource Recovery Strategy 2030* recognises the roles that different individuals and organisations have in generating and managing waste. This strategy recognises entities that are primarily generators of waste (community, local and state government, and industry), and entities that are primarily managers of waste (the waste industry, including private industry and local government).

This approach allows individual strategies to better target certain groups to help avoid, recover and protect the environment from the impacts of waste. For example, community members can make better purchasing decisions with more knowledge and information, and can influence industry in its packaging and production decisions with the choices they make; industry can make decisions about more circular design and production of goods; while waste managers can embrace technology and innovation to achieve improved waste management practices.

This waste strategy recognises circumstances where resources and capacities will be limited. The action plan and supporting better practice guidance documents will be framed to reflect this.

### Waste streams

Consistent with other jurisdictions, solid waste will continue to be categorised for the purpose of measurement and comparison against targets in the following three streams:

- **Municipal solid waste (MSW):** primarily waste collected from households and local governments through waste and recycling collections.
- **Commercial and industrial (C&I) waste:** waste that is produced by



institutions and businesses. It includes waste from schools, restaurants, offices, retail and wholesale businesses and industries, including manufacturing.

- **Construction and demolition (C&D) waste:** waste produced by demolition and building activities, including road and rail construction and maintenance, and excavation of land associated with construction activities.

These waste stream descriptions are consistent with the previous Western Australian Waste Strategy (2012), and are consistent with the way Australian jurisdictions categorise and report on waste and recycling performance. The stream descriptions are carried forward to *Waste Avoidance and Resource Recovery Strategy 2030* from the previous strategy to maintain continuity and enable waste

and recycling data to be effectively benchmarked against other jurisdictions.

### National context

Western Australia contributes to national strategies aimed at increasing the recovery of materials from waste, including:

- The *National Waste Policy: Less waste, more resources, 2018* and the *Product Stewardship Act 2011* support national approaches to problem wastes such as televisions, computers, paint, tyres and packaging.
- The Australian Packaging Covenant and the Environment Protection (Used Packaging Material) Measure are national programs aimed at reducing generation and encouraging the reuse and recycling of used packaging materials.

# Our roles and responsibilities

## Collective responsibility – waste is everybody's business

All Western Australians generate waste, and while there are some businesses that manage our waste for us, we can all take a bit more responsibility for better managing the impacts of our own waste. Whether large or small, waste is generated by households, schools, workplaces, local government authorities, government departments, businesses and industry in large cities and remote towns around our vast state.

As a collective issue, waste demands a collective solution. To achieve this strategy's objectives and targets, a model of collective, shared responsibility and action must be adopted.

State Government will work collaboratively with all stakeholders to guide and develop collective policies and solutions. These solutions will be founded in behavioural change campaigns and leading industry policy and practices – starting from within, through leadership in government activities that minimise waste, such as procurement policies and disposal processes.

For local governments and industry, the collective partnership approach will mean adopting best practice approaches to waste minimisation, resource recovery and appropriate waste management.

For businesses, it may mean expanding recycling programs or reviewing outdated practices and policies to reduce waste impacts. For waste managers, it will mean embracing innovation, new technologies and best practice performance in waste management. For the Western Australian community, it will mean being informed about the impact different decisions can make on waste contributions and adopting positive waste behaviours.

As every individual and group contributes to the waste problem, everybody will contribute to the solution in a range of different roles and ways:

- **Commonwealth Government** can help influence outcomes through national waste legislation, strategies and policy frameworks that fulfil obligations under international agreements. The Commonwealth Government will continue to manage and monitor compliance with international conventions, administer the *Product Stewardship Act 2011* and related schemes, and work with jurisdictions to identify and address issues that warrant nationally consistent approaches. It will also establish forums for cross jurisdictional collaboration to improve national waste policy outcomes.
- **State Government** can influence outcomes through its policies and programs, but also generates waste through its operations. As the "system steward" State Government will provide waste management leadership. It will influence waste behaviours through legislation, regulation, policies and programs that align with national approaches. Through engagement and collaboration, the government will create an environment that encourages community to adopt positive behaviour change and businesses to invest and innovate in the waste and recycling sector to move Western Australia towards becoming a circular economy. Agencies will also lead by example by committing to actions and targets in this strategy and reporting on their performance to contribute to its delivery.
- **Waste Authority** can influence outcomes through its programs. Established under the *Waste Avoidance and Resource Recovery Act 2007*, the authority will provide waste management advice to Government and waste management leadership to the community. It will lead the delivery of this strategy by coordinating stakeholder commitment and collaboration on strategies,

administering the Waste Avoidance and Resource Recovery Account (fund), publishing position statements, and preparing annual business plan objectives, priorities and programs that align with this waste strategy.

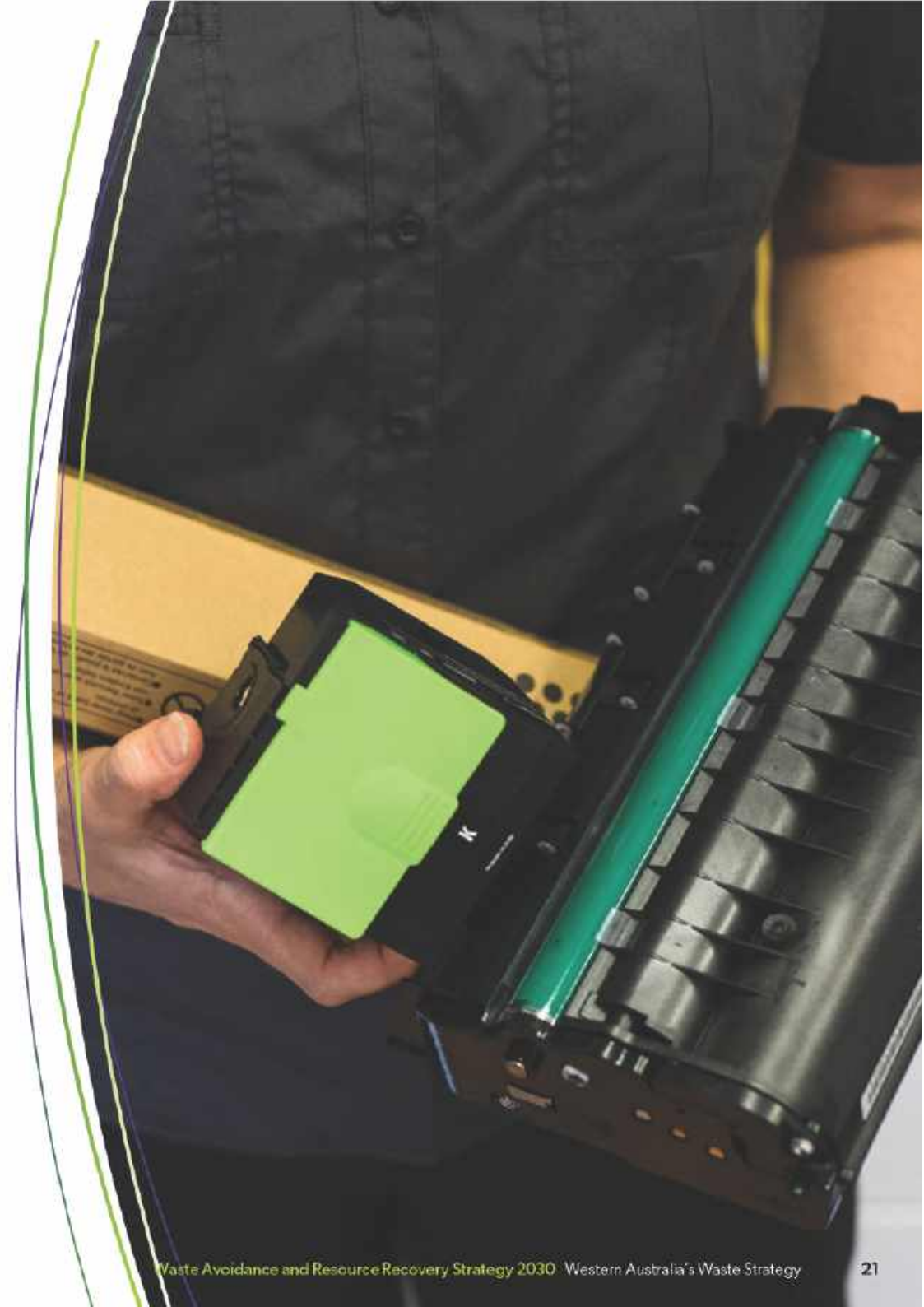
- **Local governments and regional councils** are primarily waste managers that provide household waste collection and recycling services, manage and operate landfill sites, and deliver education and awareness programs. Local governments and regional councils will provide information, infrastructure and incentives that encourage behaviour change and they will plan for the management of waste within their districts. The issues faced by local governments vary, particularly between metropolitan and regional areas, so there will be a need to identify local, fit-for purpose solutions that reflect better practice, align with this strategy and support a move towards becoming a circular economy. Local governments also generate waste resulting from the range of services provided to the community and can influence purchasing and practices to increase avoidance and recovery and maximise protection of the environment.



One of the headline strategies of this waste strategy is the implementation of local government waste plans. Waste plans will bring together the many different aspects of local government waste management, and provide local governments with a mechanism that aligns their waste services and contracts with the waste strategy and better practice. Waste plan requirements will be developed by the Department of Water and Environmental Regulation in collaboration with the Department of Local Government, Sport and Cultural Industries and the Western Australia Local Government Association. Guidance and templates will be provided to assist local governments in developing and reporting on their waste plans. Waste plan requirements and guidance will be developed in consultation with local governments and designed to reflect the varying resources, capacities and issues faced by local governments.

- **Business and industry** are primarily waste generators that can make decisions to reduce the generation of waste (e.g. by using reduced packaging) and increase recyclability. The business community often deals with large volumes of waste, as well as harmful types of waste, which requires responsible management.

- **Waste industry** is primarily the manager of waste and is responsible for waste management services including collection, sorting, processing (i.e. reuse or safe disposal). Waste managers can also play a key role in providing information to the community. The waste industry will be relied on to make informed infrastructure and technology investment decisions that meet waste and recycling market needs and move the state toward becoming a circular economy.
- **Community, individuals and households** are primarily waste generators who make decisions about purchasing and waste disposal. The community has a key role to play to avoid waste and then properly recover and manage waste once it is generated. Decisions by these individuals and groups regarding the purchasing of products or services can have a significant influence on the behaviour of many other entities.



# Opportunities and focus materials

Opportunities to avoid and recover waste and protect the environment through its responsible management exist for all materials and arise in many different situations. Even the smallest changes in behaviour at a personal level contribute to overall improvements in waste outcomes.

This strategy also identifies focus materials, which will be the focus of actions and measurement under this waste strategy. Significant improvements will need to be made for each of these focus materials if we are to meet the targets in *Waste Avoidance and Resource Recovery Strategy 2030*.

## Construction and demolition waste

Construction and demolition (C&D) waste makes up around half of Western Australia's waste stream and represents around 45 per cent of material recovered for recycling. C&D waste represents a significant opportunity for waste

avoidance and material recovery. As a waste generator, the construction industry can play a role in avoiding the amount of waste generated – for example through more efficient building processes – while waste managers can maximise recovery of waste that is generated.

## Organics: food organics and garden organics

Organic material, including food waste, represents nearly 20 per cent of material recovered for recycling. The National Food Waste Strategy estimates that over 5.3 million tonnes of food that is intended

for human consumption is wasted from households and the commercial and industrial sectors each year. Food waste disposed to landfill generates greenhouse gases, reduces landfill capacity, and represents a loss of valuable organic material which could otherwise be recovered for productive use.

## Metals: steel, non-ferrous metals, packaging and containers

Metals represent around 20 per cent of material recovered for recycling by weight. Metals are a high value commodity with significant embodied energy. While recovery rates are relatively

high compared to other materials, it is important to ensure these materials are only used where necessary and that as much value and embodied energy as possible is recovered from them.

## Paper and cardboard: office paper, newspaper and magazines

Paper and cardboard represent around 10 per cent of material recovered for recycling. Paper and cardboard is a high value commodity. When disposed to landfill, paper and cardboard generates greenhouse emissions and represents a loss of economic value.





**Glass: packaging and containers**

Glass packaging and containers contain significant embodied energy which is lost if disposed to landfill. Glass that is inappropriately disposed (littered or dumped) can also present direct risks and impacts to the environment and human health.

**Plastics: packaging and containers**

Plastic makes up a significant proportion of packaging materials in our waste stream. There are significant opportunities to avoid plastics, and in particular, single use plastics. Plastic is a high value commodity, particularly where contamination rates are low. Disposal to landfill represents an economic loss, and inappropriate disposal into the environment (litter and dumping) can result in significant harm to the environment and wildlife.

**Textiles: clothing and other fabric-based materials**

Textiles contain valuable materials and significant embodied energy. When disposed to landfill or illegally dumped, textiles represent a loss of resources and can negatively impact the environment.

**Hazardous waste**

Hazardous waste is described as unwanted products that are corrosive, flammable, toxic or reactive and present a potential risk to human health and the environment. Hazardous waste represents only a small percentage of the total waste stream, however it presents significant risks if not well managed. Opportunities exist to avoid hazardous waste through consumer purchasing decisions, and collect hazardous waste for recovery or safe disposal using best practice service infrastructure.







# Our objectives, targets and strategies

## Objective 1: Avoid

### Western Australians generate less waste

The waste hierarchy places waste avoidance at the forefront of approaches for managing waste. This waste strategy reflects that priority and recognises that reducing the amount of waste generated in our state requires significant and sustained behaviour change by government, industry and households if this objective is to be achieved.

National data for 2014–15 indicate that Western Australians generate more waste per capita than the national average and that generation per capita has remained static between 2010–11 and 2014–15\*. This is in spite of past efforts to reduce waste generation and it suggests that reducing our generation rate will be very challenging.

This waste strategy first aims to close the gap between our current generation rate and the national average. Given our unique characteristics relative to other jurisdictions (particularly in relation to our geography and economy), reducing our generation of waste to this level will be challenging, but is achievable. Once achieved, our per capita generation rates can then be benchmarked against the nation's best performing jurisdictions.

Waste avoidance is driven in a large part by purchasing behaviour; it relies on high levels of awareness and motivation by consumers, both individuals and organisations, about how to reduce the impacts of purchasing decisions.

Education and incentives are critical to increase awareness of waste avoidance and to support waste avoidance behaviours.

Waste avoidance can also be pursued through the product design and manufacturing phase. Industry has an opportunity to reduce the amount of material used in products to avoid generating waste, often in response to consumer demand. For example, there are significant opportunities across the packaging sector to avoid some wastes altogether or to minimise their use.

## AVOID TARGETS

- ⦿ 2025 – Reduction in waste generation per capita by 10% (from 2014/15 generation rate)
- ⦿ 2030 – Reduction in waste generation per capita by 20% (from 2014/15 generation rate)

Waste generators		Waste managers**
Community	Government and industry	Waste industry
<ul style="list-style-type: none"> <li>⦿ 2025 – Reduction in MSW generation per capita by 5%</li> <li>⦿ 2030 – Reduction in MSW generation per capita by 10%</li> </ul>	<ul style="list-style-type: none"> <li>⦿ Reduction in C&amp;D waste generation per capita by 15% by 2025, 30% by 2030</li> <li>⦿ Reduction in C&amp;I waste generation per capita by 5% by 2025, 10% by 2030</li> </ul>	<ul style="list-style-type: none"> <li>⦿ 2030 – All waste is managed and/or disposed using better practice approaches</li> </ul>

\* 2016–17 national data has not been used in this strategy. WA reportedly has significant waste stockpiling that is not reflected in the 2016–17 data but accurate assessment of this stockpiling is not yet available. Data improvement to address accuracy issues is a headline strategy in this waste strategy and will be addressed as a priority.

\*\* Includes local government, private industry and state entities.



### Focus materials

Achieving the avoidance targets will require an emphasis on the waste materials that, by weight, currently make up more than 90 per cent of the waste Western Australian's generate:

- **Construction and demolition materials:** concrete, asphalt, rubble, bricks, sand and clean fill
- **Organics:** food organics and garden organics
- **Metals:** steel, non-ferrous metals, packaging and containers
- **Paper and cardboard:** office paper, newspaper and magazines
- **Glass:** packaging and containers
- **Plastics:** packaging and containers
- **Textiles:** clothing and other fabric-based materials



Table 2: Avoid strategies

	Strategy description	Lead stakeholder	Strategy application					#
			Waste generators				Waste managers*	
			Community	Local government	State Government	Industry	Waste industry	
<b>KNOWLEDGE</b>	Coordinate consistent state-wide communication, engagement and education on waste avoidance behaviours with an emphasis on focus materials.	State Government	✓	✓	✓	✓	✓	1
	Investigate, develop and publish, in collaboration with stakeholders, locally relevant actions for reducing waste generation with an emphasis on focus materials.	Waste Authority	✓	✓		✓	✓	2
	Lead collaboration between State Government agencies on actions that reduce the waste generation with an emphasis on focus materials.	State Government		✓	✓			3
	Coordinate communications and education that leads to food organics and garden organics waste reduction behaviour change.	Waste Authority	✓	✓	✓	✓	✓	4
	Collaborate with decision-makers and opinion leaders to explore opportunities arising from circular economy approaches and communicate them publicly.	Waste Authority		✓	✓	✓	✓	5
<b>ENABLING INFRASTRUCTURE</b>	Develop mechanisms and platforms that enable the community to adopt avoidance behaviours, and explore reuse and low-waste alternatives.	State Government	✓	✓	✓			6
<b>INCENTIVES</b>	Provide support to community, government and industry initiatives that lead to waste avoidance and contribute to waste strategy targets with an emphasis on focus materials.	State Government	✓	✓	✓	✓	✓	7
	Introduce regulations to prevent unnecessary waste generation.	State Government	✓	✓	✓	✓		8

\* Includes local government, private industry and state entities.





## Objective 2: Recover

**Western Australians  
recover more value and  
resources from waste**

Where waste generation is unavoidable, efforts should be made to recover more value and resources from waste. Consistent with the waste hierarchy and circular economy approaches, material recovery is preferred over energy recovery. Energy recovery is preferable to landfill disposal but should only be applied to residual waste once better practice source separation approaches have been exhausted.

*Waste Avoidance and Resource Recovery Strategy 2030* supports the recovery of more valuable resources from the waste stream by applying a combination of strategies relating to knowledge, enabling infrastructure and incentives to encourage behaviour change by waste generators and waste managers.

The Waste Authority will produce better practice guidelines and encourage the sector to implement better practice

through mechanisms such as local government waste plans. Implementation of food organics and garden organics (FOGO) systems are a priority in this strategy, which will increase the recovery of material collected through kerbside services. Implementation of FOGO systems will be supported by State Government through the application of financial mechanisms to make it a cost competitive option for local governments.

### RECOVER TARGETS

- 2025 – Increase material recovery to 70%
- 2025 – All local governments in the Perth and Peel region provide consistent three bin kerbside collection systems that include separation of FOGO from other waste categories
- 2030 – Increase material recovery to 75%
- From 2020 – Recover energy only from residual waste

Waste generators		Waste managers*
Community	Government and industry	Waste industry
<ul style="list-style-type: none"> <li>○ 2020 – Increase MSW material recovery to 65% in the Perth and Peel regions, 50% in major regional centres</li> <li>○ 2025 – Increase MSW material recovery to 67% in the Perth and Peel regions, 55% in major regional centres</li> <li>○ 2030 – Increase MSW material recovery to 70% in the Perth and Peel regions, 60% in major regional centres</li> </ul>	<ul style="list-style-type: none"> <li>○ C&amp;I sector – Increase material recovery to 70% by 2020, 75% by 2025, 80% by 2030</li> <li>○ C&amp;D sector – Increase material recovery to 75% by 2020, 77% by 2025, 80% by 2030</li> </ul>	<ul style="list-style-type: none"> <li>○ 2030 – All waste facilities adopt resource recovery better practice</li> </ul>

\* Includes local government, private industry and state entities.



### Focus materials

In working towards these targets, this strategy focuses on the reuse, reprocessing and recycling of the following materials that present the greatest potential for increased recovery:

- **Construction and demolition materials:** concrete, asphalt, rubble, bricks, sand and clean fill
- **Organics:** food organics and garden organics (FOGO)

- **Metals:** steel, non-ferrous metals, packaging and containers
- **Paper and cardboard:** office paper, newspaper and magazines
- **Plastics:** packaging and containers

These focus materials reflect overall state priorities, however, it will be appropriate to consider local circumstances to increase recovery in different parts of Western Australia, and particularly between metropolitan and non-metropolitan areas. Local circumstances include factors such as

access to processing infrastructure and access to markets for recycled products. *Waste Avoidance and Resource Recovery Strategy 2030* encourages the adoption of solutions that reflect local circumstances and contribute to the overarching targets.

Just as local approaches based on local circumstances can lead to unique solutions, consistent services where similar conditions exist can lead to more efficient service delivery. Consistency in the provision of kerbside services

to households in urbanised areas is an example of where consistent systems, including three bin food organics and garden organics (FOGO) systems, can improve messaging to the community about how to recycle effectively and lead to better practice outcomes across large urbanised populations. Consistent collections also provide opportunities for service providers to establish processing options for clean and consistent streams of materials, which can reduce costs and improve product quality and therefore access to markets.

### Energy recovery

Resource recovery includes the recovery of energy from waste. However, energy recovery is considered to be the least preferred of all resource recovery options in the waste hierarchy as it merely releases embodied energy but does not preserve the material for reuse. For this reason, the waste strategy identifies that only residual waste (waste which remains following the application of better practice source separation and recycling systems) is to be used for energy recovery. Where better practice guidance is not available, an entity's material recovery performance will need to meet or exceed the relevant stream target (depending on its source - MSW, C&I or C&D) for the remaining non-recovered materials to be considered residual waste under this waste strategy.



Table 3: Recover strategies

			Strategy application					
			Waste generators				Waste managers*	
	Strategy description	Lead stakeholder	Community	Local government	State Government	Industry	Waste industry	#
<b>KNOWLEDGE</b>	Investigate options to recover and promote related local markets through State Government procurement actions with an emphasis on focus materials.	State Government			✓			9
	Develop and publish better practice guidance and standards for waste-derived products to build confidence in recycled products and ensure protection of the environment.	Waste Authority	✓	✓	✓	✓	✓	10
	Maintain a communications toolkit for local government on consistent messaging for better practice kerbside service delivery.	Waste Authority	✓	✓			✓	11
	Develop education and engagement resources to communicate the benefits of resource recovery and the use of recycled products, and to minimise contamination in collection systems.	Waste Authority	✓	✓	✓	✓	✓	12
	Develop and publish better practice guidance to support increases in recovery with an emphasis on focus materials.	Waste Authority	✓	✓	✓	✓	✓	13
	Identify and implement options for collaboration between industry and the State Government to support market development and recovery with an emphasis on focus materials.	Waste Authority			✓	✓	✓	14
	Investigate and improve reporting on material that is reused (as distinct from recycled) to better monitor the state's move toward becoming a circular economy.	State Government	✓	✓	✓	✓	✓	15
<b>ENABLING INFRASTRUCTURE</b>	Establish mechanisms, including funding approaches to support investments in local infrastructure for recovery with an emphasis on focus materials.	State Government					✓	16
	Develop and support measures to establish and maintain product stewardship schemes aligned with the State's waste priorities, commencing with a container deposit scheme.	State Government	✓	✓	✓	✓	✓	17

\* Includes local government, private industry and state entities.

Table 3: Recover strategies continued

	Strategy description	Lead stakeholder	Strategy application					#
			Waste generators				Waste managers*	
			Community	Local government	State Government	Industry	Waste industry	
<b>INCENTIVES</b>	Provide funding to local governments to introduce better practice services and extend the Better Bins program to include FOGO (food organics and garden organics services).	Waste Authority	✓	✓			✓	18
	Provide funding to promote the use of priority recycled products and support the establishment of local markets with an emphasis on focus materials.	State Government		✓	✓	✓	✓	19
	Support community, government and industry initiatives that promote resource recovery in the Perth and Peel regions, major regional centres and remote areas through grant programs.	State Government	✓	✓	✓	✓	✓	20
	Develop a legislative framework to encourage the use of waste derived materials, including product specifications, to build confidence in recycled products, increase their demand and develop relevant markets while protecting the environment.	State Government		✓	✓	✓	✓	21
	Implement sustainable government procurement practices that encourage greater use of recyclable and recycled products and support local market development.	State Government		✓	✓	✓		22

\* Includes local government, private industry and state entities.



### Objective 3: Protect

**Western Australians  
protect the environment  
by managing waste  
responsibly**

The transport, storage, processing and disposal of waste all have the potential to directly impact the environment.

Certain wastes, such as hazardous materials or materials that are commonly littered or dumped, can also pose significant risks to public health and the environment. Poorly managed waste infrastructure (including landfills and recycling facilities) and services, as well as adverse waste behaviours, all increase the risk of negative impacts on public health and the Western Australian environment.

In the event waste cannot be avoided, it is important that waste management systems – including recycling and disposal (landfill) facilities – protect the environment from the negative impacts of waste by adopting better practice.

Waste managers face different waste management challenges and have varying capacities to address these challenges. For example, better practice approaches in remote areas are likely to vary substantially to those in metropolitan areas, due to differences in populations,

infrastructure, resources and market access. Better practice guidance developed under this strategy will reflect these differences.

Litter and illegal dumping can significantly damage our environment. It is important that waste enters the correct waste management system so that it can be properly managed by better practice facilities, and is not littered or dumped in the environment.

#### PROTECT TARGETS

- 🕒 2030 – No more than 15% of Perth and Peel regions' waste is disposed to landfill
- 🕒 2030 – All waste is managed by and/or disposed to better practice facilities

Waste generators		Waste managers*
Community	Government and industry	Waste industry
<ul style="list-style-type: none"> <li>🕒 2030 – Move towards zero illegal dumping</li> <li>🕒 2030 – Move towards zero littering</li> </ul>	<ul style="list-style-type: none"> <li>🕒 2030 – Move towards zero illegal dumping</li> </ul>	<ul style="list-style-type: none"> <li>🕒 2030 – No more than 15% of Perth and Peel regions' waste is disposed to landfill</li> <li>🕒 2030 – All waste facilities adopt environmental protection better practice</li> </ul>

\* Includes local government, private industry and state entities.



### Priority areas

In working towards achieving these targets, Western Australia should focus on behaviours and materials that provide the greatest potential to protect the environment including:

- the transport, storage, processing and disposal of waste;
- problem wastes, including hazardous materials;
- poorly managed waste infrastructure, including landfills, recycling facilities and services;
- taking action early in a waste material's life cycle; and
- giving priority to reflect the risk posed by a waste material.

### National priorities

The management of some types of waste require an international approach. Initiatives that are the responsibility of the Commonwealth Government and to which WA contributes include the Basel Convention, an international treaty to reduce the movement of hazardous waste between countries with a view to protecting public health and the environment, and the Minamata Convention on Mercury, a global treaty to protect public health and the environment from the adverse effects of mercury.



Table 4: Protect strategies

	Strategy description	Lead stakeholder	Strategy application					#
			Waste generators				Waste managers*	
			Community	Local government	State Government	Industry	Waste industry	
<b>KNOWLEDGE</b>	Identify the data that is required to quantify and measure illegal dumping activity, collect the identified data on an ongoing basis and use the collected data to better target illegal dumping monitoring and enforcement activities.	State Government		✓	✓		✓	23
	Deliver a community engagement and education campaign to raise awareness of illegal dumping and its impacts.	State Government	✓	✓	✓	✓		24
	Investigate, document and publish options for avoiding waste plastic.	Waste Authority	✓	✓	✓	✓		25
	Review and report on approaches to the management of hazardous waste including controlled and liquid waste.	State Government				✓	✓	26
	Assess existing recovery facility and landfill siting and management practices and publish information to guide achievement of better practice approaches.	Waste Authority					✓	27
<b>ENABLING INFRASTRUCTURE</b>	Work with land owners and managers to build their capacity to tackle illegal dumping.	State Government	✓	✓	✓	✓		28
	Investigate and report on the role of funding approaches to drive the uptake of better practice approaches at waste management facilities.	Waste Authority		✓			✓	29
<b>INCENTIVES</b>	Support local governments to safely collect and manage hazardous materials generated by households that present a significant risk to public health and the environment.	State Government	✓	✓			✓	30
	Provide relevant funding and guidance to prevent the illegal dumping of waste at charitable recycler waste collection sites.	State Government					✓	31

\* Includes local government, private industry and state entities.

Table 4: *Protect strategies* continued

	Strategy description	Lead stakeholder	Strategy application					#
			Waste generators				Waste managers*	
			Community	Local government	State Government	Industry	Waste industry	
<b>INCENTIVES</b>	Implement the litter prevention strategy to reduce littering and manage its impacts.	Keep Australia Beautiful Council	✓	✓	✓	✓		32
	Detect, investigate and prosecute illegal dumping.	State Government	✓	✓	✓	✓		33
	Review and update the regulatory framework for waste to ensure it is appropriate and reduces the environmental impacts and risks from waste management.	State Government					✓	34
	Revise and publish waste classifications and definitions to reflect current knowledge to ensure waste materials are managed according to their risk and are treated and/or disposed of appropriately.	State Government			✓		✓	35
	Develop and revise legislative frameworks to encourage the use of waste derived materials and build confidence in recycled products.	State Government	✓	✓	✓	✓		36

\* Includes local government, private industry and state entities.



## Foundation strategies

### that apply to multiple objectives

*Waste Avoidance and Resource Recovery Strategy 2030* includes strategies which support multiple objectives and underpin the delivery of this waste strategy. These are referred to as foundation strategies.

Foundation strategies include:

- information and data – to provide high quality information to the community, government and industry to inform decision making.
- regulation and policy – to provide a level playing field and deliver efficient and effective waste management outcomes.

- education – to underpin behaviour change approaches for avoid, recover and protect, for waste generators and waste managers.
- planning – to provide support and guidance for waste services planning as well as infrastructure and land use planning.

The waste levy will continue to play a key role by providing a disincentive to dispose of waste, and by generating revenue to fund programs which

support the waste strategy. Reflecting this, a key foundation strategy is for the scope and application of the waste levy to be reviewed to ensure it meets the objectives of *Waste Avoidance and Resource Recovery Strategy 2030*, and to establish a schedule of future waste levy rates.

The range of strategies, both new and ongoing, that will allow Western Australians to achieve outcomes against all three objectives of the waste strategy are presented below.

Table 5: Foundation strategies

	Strategy description	Lead stakeholder	Strategy application					#
			Waste generators				Waste managers*	
			Community	Local government	State Government	Industry	Waste industry	
INFORMATION AND DATA	Review and update data collection and reporting systems to allow waste generation, recovery and disposal performance to be assessed in a timely manner.	State Government		✓	✓	✓	✓	37
	Collaborate with industry to develop a data strategy that includes actions to improve waste data collection, management and reporting, and guides their implementation.	State Government Waste Authority		✓	✓	✓	✓	38
	Investigate and report on the application of the circular economy in WA, including opportunities and barriers implementation.	Waste Authority	✓	✓	✓	✓	✓	39

\* Includes local government, private industry and state entities.

Table 5: Foundation strategies continued

			Strategy application					#
			Waste generators				Waste managers*	
	Strategy description	Lead stakeholder	Community	Local government	State Government	Industry	Waste industry	
<b>INFORMATION AND DATA</b>	Collaborate with the Commonwealth Government to develop local approaches to implementing the National Food Waste Strategy.	State Government	✓	✓	✓	✓	✓	40
	Provide support to local governments, recyclers and landfill operators for reporting under amendments to the <i>Waste Avoidance and Resource Recovery Regulations 2008</i> .	State Government		✓			✓	41
	Develop state-wide waste communications to support consistent messaging on waste avoidance, resource recovery and appropriate waste disposal behaviours.	State Government	✓	✓	✓	✓		42
<b>ENGAGEMENT AND EDUCATION</b>	Recognise and reward the adoption of positive behaviours, practices and innovation that contribute to reduced waste generation, increased resource recovery and protection of the environment.	Waste Authority	✓	✓	✓	✓	✓	43
<b>REGULATION AND POLICY</b>	Investigate options for developing a 'needs based' approach to the approval of new landfills and other waste infrastructure.	State Government					✓	44
	Contribute to national waste policy and programs aimed at waste avoidance, resource recovery and environmental protection.	State Government	✓	✓	✓	✓	✓	45
	Review the scope and application of the waste levy to ensure it meets the objectives of Waste Avoidance and Resource Recovery Strategy 2030 and establish a schedule of future waste levy rates with the initial schedule providing a minimum five year horizon.	State Government	✓	✓	✓	✓	✓	46

\* Includes local government, private industry and state entities.



Table 5: Foundation strategies continued

	Strategy description	Lead stakeholder	Strategy application					#
			Waste generators				Waste managers*	
			Community	Local government	State Government	Industry	Waste industry	
<b>REGULATION AND POLICY</b>	Review and revise regulations and policies to achieve a level playing field for industry which ensures entities that are compliant and apply best practice are not disadvantaged.	State Government		✓	✓	✓	✓	47
	Implement local government waste plans which align local government waste planning processes with the waste strategy.	State Government	✓	✓				48
	Lead and support initiatives that bring together agencies, local governments, industry and community to assist knowledge exchange and strategic waste planning.	Waste Authority	✓	✓	✓	✓	✓	49
<b>PLANNING</b>	Undertake a strategic review of Western Australia's waste infrastructure (including landfills) by 2020 to guide future infrastructure development.	State Government	✓	✓	✓	✓	✓	50

\* Includes local government, private industry and state entities.

# Next steps

## Supporting documents

### ***Waste Avoidance and Resource Recovery Strategy 2030 Action Plan***

This strategy is supported by an action plan which outlines specific actions to be implemented to achieve the objectives of the strategy.

The initial action plan has been prepared by the Waste Authority in consultation with relevant State Government agencies, and was approved by the Minister for Environment. Stakeholder consultation will be undertaken in the preparation of subsequent action plans.

### ***Waste Authority Position and Guidance Statements***

The Waste Authority publishes position statements from time to time. Position statements formalise the views of the Waste Authority and may be used to inform decisions relevant to the Waste Authority's role in implementing the strategy.

### ***Better Practice Guidance***

The Waste Authority recognises the importance of developing better practice guidelines, measures and reporting frameworks and supporting their adoption. The Waste Authority will publish better practice guidance from time to time, which sets out high-performing systems and outcomes benchmarked against comparable jurisdictions.

### ***State Waste Infrastructure Plan***

A state waste infrastructure plan will be developed together with key stakeholders to guide the planning and decision making for the establishment and maintenance of critical infrastructure. This will include the type and capacity of additional infrastructure that will be needed to meet the targets in this strategy, the areas in which infrastructure may be best located and forecast dates for when it is needed.

### ***Annual Business Plan***

The *Waste Avoidance and Resource Recovery Act 2007* (WARR Act) requires the Waste Authority to prepare a draft business plan to be submitted to the Minister each year. The business plan sets out objectives and priorities for government funding for the next five financial years, and must be consistent with this strategy.

### ***Waste Data Strategy***

A waste data strategy will guide the ongoing development of data definitions, collection mechanisms, management and reporting requirements to ensure progress on *Waste Avoidance and Resource Recovery Strategy 2030* can be monitored appropriately and that any revision of approach is based on sound information.

## Measuring progress

The Waste Authority will be responsible for evaluating *Waste Avoidance and Resource Recovery Strategy 2030*, including progress towards objectives and targets. The Waste Authority will publish annual reports against its business plan, and coordinate reports on behalf of the Minister against the outcomes of the action plan.

## Strategy updates

As Western Australia implements this waste strategy, new opportunities and priorities may be identified which may warrant a review of the scope and focus of the strategy. The WARR Act requires that the waste strategy be reviewed for currency at least every five years, including a full public consultation process. Minor amendments to the waste strategy can be made by the Waste Authority subject to the approval of the Minister.



# Glossary

Term	Definition
Better practice	Better practice refers to practices and approaches that are considered by the Waste Authority to be outcomes-focussed, effective and high performing, which have been identified based on evidence and benchmarking against comparable jurisdictions. Better practice will be supported by the Waste Authority through the development of better practice guidelines, measures and reporting frameworks, which will be developed to reflect the different capacities and challenges faced by waste generators and managers. Better practice is synonymous with the term best practice, but captures the dynamic nature of best practice.
Circular economy	An alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible – extracting the maximum value from them while in use, then recovering and reusing products and materials. Three core principles underpin a circular economy – design out waste and pollution; keep products and materials in use; and regenerate natural systems.
Commercial and industrial (C&I) waste	Waste produced by institutions and businesses, including schools, restaurants, offices, retail and wholesale businesses and industries, including manufacturing.
Construction and demolition (C&D) waste	Waste produced by demolition and building activities, including road and rail construction and maintenance, and excavation of land associated with construction activities.
Drop-off facility	Site where residents can bring their waste or recyclables for disposal.
Embodied energy	Embodied energy is the energy used to produce a material substance (such as processed metals or building materials), taking into account energy used at the manufacturing facility, energy used in producing the materials that are used in the manufacturing facility, and so on.
Food organics and garden organics (FOGO)	Food organics include waste food, inedible food, and parts of food that are not consumed and/or are considered undesirable (such as seeds, bones, coffee grounds, skins and peels). Garden organics include organic wastes that arise from gardening and maintenance activities, such as lawn clippings, leaves, cuttings and branches. FOGO can also include other organic wastes that may be compatible with FOGO collections and can include items such as paper and cardboard.

Term	Definition
Household hazardous waste	Products used in and around the home that have at least one hazardous characteristic (flammable, toxic, explosive or corrosive).
Hazardous waste	Waste that, by its characteristics, poses a threat or risk to public health, safety or the environment.
Illegal dumping	Premeditated littering where people go out of their way to dump waste in public places illegally, typically for commercial benefit or to avoid disposal fees.
Kerbside collection	A regular containerised service that collects waste from a residents' kerbside.
Litter	Waste that is left in public places and not deposited into a bin.
Litter Prevention Strategy	Litter Prevention Strategy for Western Australia 2015–2020.
Liquid waste	Wastes that are not solid or gaseous. May refer to sludges and slurries, or other liquids discharged to sewer. May also refer to waste water.
Major Regional Centre	Major Regional Centres: The cities of Albany, Busselton, Bunbury, Greater Geraldton and Kalgoorlie-Boulder, which are local governments outside the Perth and Peel region that have both a relatively large population and reasonable access to markets. Other major regional centres may be identified by the Waste Authority during the life of the waste strategy.
Municipal solid waste (MSW)	Waste primarily collected from households and local governments through waste and recycling collections.
Organic waste	Waste materials from plant or animal sources, including garden waste, food waste, paper and cardboard.
Perth and Peel region	The Perth region, or Perth metropolitan region, is the area defined by the Metropolitan Region Scheme. The Peel region is the area defined by the Peel Region Scheme. Municipal solid waste targets are set for the Perth and Peel region to reflect current urbanisation trends and to align with waste infrastructure servicing and planning needs.

# References

Term	Definition
Product stewardship	Product stewardship is an approach to managing the impacts of different products and materials. It acknowledges that those involved in producing, selling, using and disposing of products have a shared responsibility to ensure that those products or materials are managed in a way that reduces their impact, throughout their life cycle, on the environment and on public health and safety.
Residual waste	Waste that remains after the application of a better practice source separation process and recycling system, consistent with the waste hierarchy as described in section 5 of the <i>Waste Avoidance and Resource Recovery Act 2007</i> (WARR Act). Where better practice guidance is not available, an entity's material recovery performance will need to meet or exceed the relevant stream target (depending on its source - MSW, C&I or C&D) for the remaining non-recovered materials to be considered residual waste under this waste strategy.
Resource recovery	The process of extracting materials or energy from a waste stream through re-use, reprocessing, recycling or recovering energy from waste.
Vergeside service	Local government services that collect a range of materials from the verge for recovery or disposal.
Waste avoidance	Refers to the prevention or reduction of waste generation, or the prevention or reduction of the environmental impacts (for example toxicity) of waste generation.
Waste Avoidance and Resource Recovery (WARR) Account	In accordance with the <i>Waste Avoidance and Resource Recovery Act 2007</i> (WARR Act), each year the Minister for Environment must allocate not less than 25 per cent of the forecast levy amount to the WARR Account. Funds in the WARR Account are applied to programs for the management, reduction, reuse, recycling, monitoring or measurement of waste and to support implementation of the Waste Strategy.
Waste diversion	The act of diverting a waste away from landfill for another purpose such as re-use or recycling.

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