

Waste Management Strategy

2020–2024

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Shire of
Serpentine
Jarrahdale

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Prepared by

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Basis of Report

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Shire of Serpentine Jarrahdale (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

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1. Introduction

The Shire of Serpentine Jarrahdale (the Shire) is one of the fastest growing areas in metropolitan Perth. Increasing population provides challenges for waste management service delivery and requires the Shire to plan sufficiently for the future.

This Waste Management Strategy covers waste-related issues and opportunities in the Shire, which through consultation with the community, has been developed outlines the planned waste services and infrastructure that are required to provide a secure and cost-effective future waste management in the Shire.

The Shire aims to move towards a low waste and low carbon society and recognises that this will require a co-operative effort from industry, community groups, schools, households and individuals within the region. Ongoing engagement with the residents of and visitors to the Shire will be a critical aspect to achieving the Vision.

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1.1 The Shire's vision for management of waste

The Shire's vision for the management of waste is:

"To increase capacity to reduce, recover and recycle waste, improve sustainability and reduce impacts on the environment and landfill sites while establishing a means to address future demands".

1.2 The Shire's objectives for management of waste

The Shire's objectives for the management of the waste it handles are:

- Progress towards the State Waste Strategy recovery target by increasing the recovery;
- Reduce waste to the Shire's waste management facilities and reuse waste derived materials where possible;
- Plan for sustainable management of the community's waste and assets, reducing the overall reliance on Landfill disposal;
- Reduce greenhouse gas emissions from waste management operations;
- Provide the community with an acceptable waste management service that works to divert materials from landfill and is cost effective and equitable;
- Improve data collection of solid waste disposal and recycling volumes to inform management decisions;
- Be accountable and transparent in the management of the Shire's waste;
- Educate the community on solid waste minimisation and resource recovery to motivate behavioural change;
- Identify any remaining gaps in waste minimisation education, management and practice, enabling planning for further improvements in future years; and
- Inform and develop future Shire's waste initiatives, to offer recycling facilities for household derived waste streams.

2. Legislation, Policy Framework and Strategic Drivers

Governments are ultimately responsible for managing waste as governed by Federal and State legislation, which regulates the management of waste. This Strategy aligns the Shire with all of the relevant National and State Acts and policies with a focus of meeting the actions outlined in the Western Australian Waste Avoidance and Resource Recovery Strategy 2030 (WARRS 2030).

2.1 Federal Legislation and Regulation

Key pieces of Commonwealth legislation that have been considered in development of this Strategy include:

- Environmental Protection and Biodiversity Conservation Act 1999;
- National Greenhouse and Energy Reporting Act 2007;
- Clean Energy (Consequential Amendments) Act 2011;
- Clean Energy Legislation Amendment Act 2012;
- Product Stewardship Act 2011; and
- The Commonwealth Waste Policy, 2009.

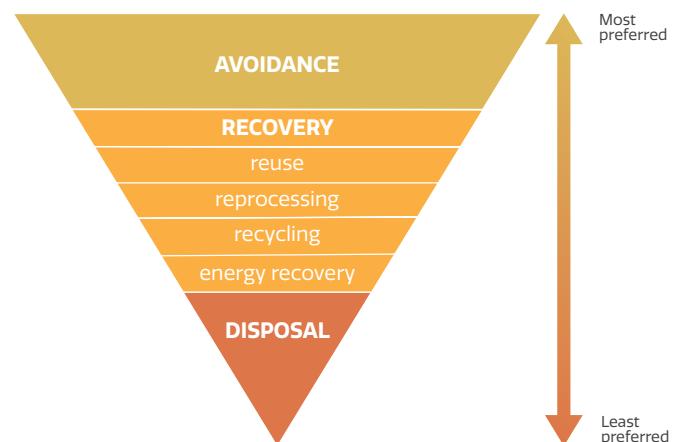
2.2 State Legislation and Regulation

The Local Government Act 1995 outlines the services which the Shire must provide, including the provision of waste removal services to Shire residents.

The major waste management legislation in Western Australia is the Waste Avoidance and Resource Recovery Act 2007 (WARR Act), which established the Waste Authority and prescribes local government mechanisms, including:

- Minimum level of Waste Services to be provided by local governments;
- Requirement for the development of Waste Plans by local governments;
- Requirement for Waste Local Laws; and
- Adherence to the principles of the waste hierarchy in local government decision-making (Figure 1).

Figure 1 Waste Hierarchy



The Waste Avoidance and Resource Recovery Levy Act 2007 is the economic instrument designed to reduce waste to landfill by imposing a levy on certain waste received at disposal premises. The levy discourages the use of landfill by:

- Increasing the cost to dispose of waste to landfill;
- Modifying behaviour in the waste management sector; and
- Supporting programs which aim to reduce waste going to landfill.

2.3 Regional

The Shire is part of the Rivers Regional Council's (RRC) which supports the waste management activities of its member councils. The RRC's vision is:

"To provide sustainable waste minimisation, recycling and AWT services for Member Councils in a way which will move their communities substantially towards a zero-waste environment."

The Shire, as part of the RRC, is contracted to deliver a minimum amount of its general and residual waste stream to the energy recovery facility (Avertas Energy) in Kwinana, over a 20-year term, plus two optional 5-year extensions.

2.4 Policy Framework

The Strategy has been developed to align with the State and Federal policy framework. Key State and Federal policies are described in this section.

2.4.1 Federal Policy

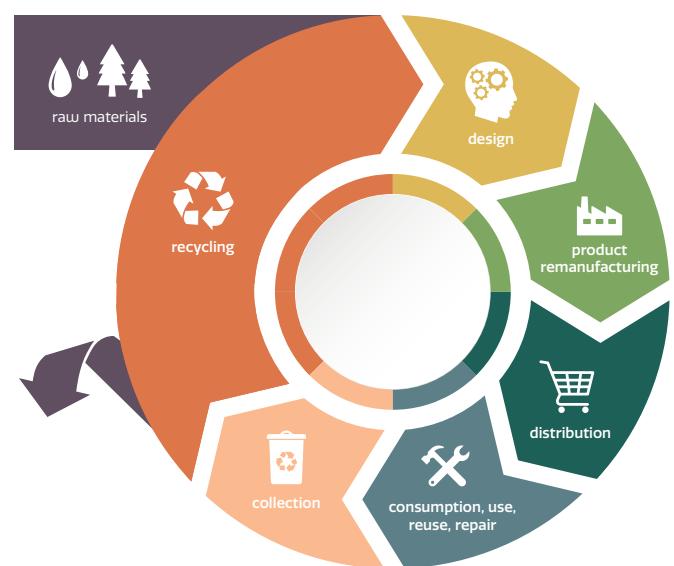
The National Waste Policy: Less Waste, More Resources (2009) sets Australia's waste management and resource recovery direction to 2020. The aims of the National Waste Policy are to:

- Avoid generation of waste, reduce the amount of waste for disposal;
- Manage waste as a resource;
- Ensure that waste treatment, disposal, recovery and re-use is undertaken in a safe, scientific and environmentally sound manner; and
- Contribute to the reduction in greenhouse gas emissions, energy conservation and production, water efficiency and the productivity of the land.

2.4.2 State Policy

The Western Australian Waste Avoidance and Resource Recovery Strategy 2030 has the vision for the State to become a sustainable, low waste, circular economy (**Figure 2**) in which human health and the environment are protected from the impact of waste.

Figure 2 Circular Economy



A circular economy aims to increase local recycling activity as well as minimise transport costs and create local jobs through the provision of local solutions, particularly relevant to regional councils in Western Australia.

Three objectives and corresponding targets are outlined below. The strategies to achieve these objectives are through the provision of knowledge to the community and industry, enabling infrastructure and are supported by incentives, including funding opportunities, and regulations.

AVOID the generation of waste.

The waste hierarchy places avoidance as the first priority for managing waste. Waste avoidance is driven by purchasing behaviours as well as product design.

By 2025:

- Reduction in waste generation per capita by 10% (from 2014/15 generation rate)
- Reduction in Municipal Solid Waste (MSW) generation per capita by 5%
- Reduction in Construction and Demolition waste (C&D) generation per capita by 15%
- Reduction in Commercial and Industrial waste (C&I) generation per capita by 5%

RECOVER more value and resources from waste

Where the avoidance of waste generation is not achieved or possible, the recovery of waste as a resource is preferable though reuse, reprocessing, recycling and least preferably, through energy recovery.

- By 2025 – Increase material recovery to 70%, by 2030 increase material recovery to 75%. The biggest gain in the Local Government sector to achieve the material recovery goals is to implement FOGO collections.
- 2020 – Increase MSW material recovery to 65% in the Perth and Peel regions, 50% in major regional centres
- 2025 – Increase MSW material recovery to 67% in the Perth and Peel regions, 55% in major regional centres
- C&I sector – Increase material recovery to 70% by 2020, 75% by 2025, 80% by 2030
- C&D sector – Increase material recovery to 75% by 2020, 77% by 2025, 80% by 2030
- By 2025 – All local governments in the Perth and Peel region provide consistent three bin kerbside collection systems that include separation of Food Organics Garden Organics (FOGO) from other waste categories
- From 2020 – Recover energy only from residual waste (organic fraction removed)
- By 2030 – All waste facilities adopt resource recovery better practice

PROTECT the environment by managing waste responsibly

The collection, storage, treatment and disposal of waste all have the potential to have an adverse effect on the environment.

By 2030:

- No more than 15% of Perth and Peel regions' waste is disposed to landfill
- Move towards zero illegal dumping
- Move towards zero littering
- All waste is managed by and/or disposed to better practice facilities.



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3. Shire of Serpentine Jarrahdale

3.1 About the Shire

The Shire is located approximately 45 kilometres from the Perth CBD and is the fastest growing local government in Western Australia. The rapid growth brings the challenge of delivering important services and facilities to support the needs of our diverse communities.

3.2 Shire profile

The Shire is home to over 31,000 people, an increase of 15,000 since 2011. Covering three wards across 905 square kilometres, the region is geographically diverse with forested hills and coastal flats, incorporating urban, suburban and rural communities. The majority of residents are located in the towns of Byford, Cardup Mundijong, Whitby, Serpentine and Jarrahdale, as well as in the rural residential areas of Oakford, Oldbury, Keysbrook, Karrakup and Darling Downs.

Between 2011 and 2026, the forecasts for the Shire of Serpentine Jarrahdale indicate a 152% increase in residents of retirement age, 150% in residents under working age and 154% of working age.

3.3 Shire waste services

3.3.1 Kerbside collection

Kerbside general waste and recycling collections are provided by the Shire. Residents are offered two combinations of bin sizes, comprising either:

- 1 x 140 litre general waste bin and 1 x 240 litre recycling bin; or
- 1 x 240 litre general waste bin and 1 x 240 litre recycling bin.

General waste bins are currently collected weekly, with recycling collected fortnightly on the same day as general waste collections in each area.

3.3.2 Organics

The Shire currently provides each property with two garden waste collections each year. These are currently scheduled for May and November or December. For each of the two collections, the equivalent of up to two 6x4 trailer loads of waste can be collected. Eligible materials and exclusions are shown in Table 1 below.

Table 1 Garden waste collection service

Eligible Items	Prohibited Items
<ul style="list-style-type: none"> ▪ Tree and shrub pruning's up to 1.8 metres in length ▪ Small shrubs and clippings placed in a cardboard box (no plastic bags or chaff bags) 	<ul style="list-style-type: none"> ▪ Large tree trunks, stumps or roots ▪ Items longer than 1.8 metres or wider than 300mm in diameter ▪ Lawn clippings or turf ▪ Chemical products, pots, or old reticulation ▪ Sand or soil materials ▪ General rubbish, junk or white goods

3.3.3 Hard waste

The Shire currently provides one collection per property per year. Up to the equivalent of two 6x4 trailer loads of waste will be collected. Eligible materials and exclusions are summarised in Table 2 below.

Table 2 Hard waste collection service

Eligible Items	Prohibited Items
<ul style="list-style-type: none"> ▪ Household items including white goods (doors removed), bicycles, furniture, etc. ▪ Large pieces of wire (must be rolled) ▪ Drums (lids removed) 	<ul style="list-style-type: none"> ▪ Items longer than 2 metres ▪ Items too heavy to be lifted by two people ▪ Paint, building materials, or rubble ▪ Commercial, business waste, or pallets ▪ Car batteries, tyres, or gas bottles ▪ Broken glass, glass tables, asbestos, or ashes (including Super 6 fencing) ▪ Garden waste ▪ TVs and computers

3.3.4 Self-haul disposal

As the Shire does not have its own waste disposal site, residents are able to use the City of Armadale Landfill and Recycling Facility, which provides a 'user-pays' system for residents wishing to dispose of their rubbish.

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3.4 Shire current performance and targets

Table 3 outlines the current performance of the Shire and Targets set by the Western Australian Waste Avoidance and Resource Recovery Strategy 2030.

Table 3 Current performance and future targets

Waste Type / Service	2018/19 Value ¹	Target information	Target Value	Project #
Waste generation per capita	19 kg / person	2025 – Reduction in Municipal Solid Waste (MSW) generation per capita by 5%. (Based on 2014/15 State average of 19 kg / household)	18 kg / household.	1, 2, 5, 6, 7, 8
Kerbside bin waste recycled	21 %	2020 – Increase MSW material recovery to 65% in the Perth and Peel regions.	65 %	1, 2, 8, 10
Total waste recycled	26 %			1, 2, 4, 8, 10
FOGO Service	Not currently provided to residents.	2025 – provide consistent three bin kerbside collection systems that include separation of Food Organics Garden Organics (FOGO) from other waste categories	FOGO service by 2025.	1, 2, 3.
Waste Transfer Facility. (Watkins road)	Not currently provided within the Shire.	By 2030 – All waste facilities adopt resource recovery better practice	Watkins road Waste Transfer Facility to adopt resource recovery better practice by 2030.	1, 4, 5, 6, 7

¹Values from Serpentine Jarrahdale 2019 Census submission.

3.5 Shire Waste Projects

The following projects will allow the Shire to move towards reducing the effects of waste produced within the Shire on our environment and residents and meeting the targets outlined in Section 3.4.

Table 4 Projects

Number	Project	Project start	Project completion
1	Waste education and awareness	2020	Ongoing
2	Kerbside collections – FOGO service roll out appraisal	2021	2024
3	FOGO processing assessment	2022	2023
4	FOGO processing within the Shire – investigation	2023	2023
	Implementation upon feasibility	2024	2024
5	Waste Transfer Station reopening	2020	2021
	Waste Transfer Station optimisation	2021	Ongoing
6	Introduce Household Hazardous Waste program to the Shire	2021	2021
7	Reevaluate verge collections and offer Transfer Station drop off facility to recover, reuse and recycle	2020	2021
8	Provide resource and education program to schools	2021	Ongoing
9	Litter and illegal dumping prevention	2020	Ongoing
10	Data collection and reporting	2020	Ongoing

3.5.1 Waste education and awareness

State-wide communications and consistent messaging on waste avoidance, resource recovery and appropriate waste disposal behaviours form an integral part of the Waste Avoidance and Resource Recovery Strategy 2030.

A reduction in the waste generated, by both internal operations and external sources within the Shire, is an essential step in the protection of the environment. To achieve a reduction in the creation of waste, a major behavioural change is required by all waste generators.

The Shire will utilise the behavioural change programs provided or being developed by the State and relevant authorities to reduce waste generation and increase recovery of waste. These programs and initiatives include:

- Waste Authority;
 - "WasteSorted" communications toolkit to ensure consistent messaging relating to better practice kerbside services
 - Better practice priority identification and develop local government services
 - Household Hazardous Waste program
 - Position statements including FOGO, waste to energy and waste hierarchy messaging
 - Waste Wise Schools program
 - Waste Data Strategy
- DWER;
 - "Own Your Impact" program providing targeted and up to date information to the community
 - Online system for waste reporting to measure impacts of waste and success of initiatives
 - Guidelines for managing waste in regional communities
 - Litter Strategy
 - Illegal Dumping Strategy

In addition to informing waste generators, the Shire will also inform the community and lead on sustainable procurement practices, including the use of recycled products and materials in projects within the region.

To enable the development and roll out of various education initiatives, a review of the current communication methods utilised and potential need for a dedicated waste education position within the Shire will be conducted.

3.5.2 Kerbside collections – FOGO service roll out

In line with requirements within States Waste Avoidance and Resource Recovery Strategy 2030, the Shire will aim to roll out the FOGO service to its residents to align with the consistent three bin kerbside collection system. The FOGO service will divert the food organics and garden organics contained within the general waste bin to a separate facility where the material is converted to compost..

The Shire will investigate conducting a compositional audit of the kerbside bins pre and post implementation of the introduction of additional bins to inform the program, enable targeted and informed communications with residents, improved forecasting and budgeting, and meet State reporting requirements.

As part of the Rivers Regional Council, the Shire has committed to provide a minimum tonnage of waste material to the Kwinana waste to energy facility. The provision of waste to this facility will play a large part in increasing the Shire's diversion of waste from landfill. To ensure the Shire meets its contractual obligations, all waste management activities and projects require due consideration to ensure best practice and best value for money is achieved.

A staged rollout of the FOGO bins will be conducted following compositional analysis and mapping of the quantity of waste expected to be captured by the FOGO bin ensuring that the contractual obligations of the Shire to the Kwinana WTE facility are met.

3.5.3 FOGO processing within the Shire

Initially, the Shire will deliver the collected FOGO material to an existing processor. Currently there are a limited number of facilities able to treat this material although; the number of suitable processors are expected to increase over time.

Following establishment of the collection of FOGO and with knowledge gained from the provision of this service, a business case will be developed to investigate the potential to establish a FOGO processing facility within Shire.

3.5.4 Waste Transfer Station reopening and optimisation

The potential to reopen the Watkins Road Waste Transfer Station site as a drop off and recycling centre would alleviate many of the frustrations in the community regarding the availability of this type of facility and have the added benefit of reducing the occurrence of illegal dumping within the Shire.

It is anticipated that residents will be able to access the facility year-round for specified waste or recyclable materials. Illegal dumping currently costs the Shire, and consequently ratepayers, in excess of \$160,000 per annum. The provision of a convenient site within the Shire for residents to dispose of unwanted material is one way to work on reducing illegal dumping, protecting the environment and improving the amenity of the Shire.

The facility could accept a variety of materials in the first instance such as:

- Oversize green waste not suitable for the FOGO bin;
- Tyres;
- Car batteries;
- Scrap metal;
- Waste oil;
- cardboard;
- eWaste;
- Other recyclable items; and
- Serve as a recycling and transfer facility for illegally dumped waste collected by the Shire.

3.5.5 Verge side bulk waste collections

3.5.5.1 Bulk garden waste

A portion of garden organics currently collected as part of the verge side bulk collections are anticipated to be captured within the FOGO bin when implemented. The reopening of the Shire's Waste Transfer Station provides an opportunity to develop a business case to modify or cease the bulk garden waste collection service while ensuring a more efficient service is provided to residents of the Shire.

3.5.5.2 Bulk hard waste

A review of bulk hard waste collections following the reopening of the Waste Transfer Station is warranted and will be conducted in conjunction with the bulk garden waste review. In addition to the collection methodology, the Shire will review and implement systems to better capture and recycle components of this waste stream.

3.5.6 Litter

The Litter Prevention Strategy for Western Australia is anticipated to be reviewed in 2020. The Shire will review the revised Litter Prevention Strategy for Western Australia and in conjunction with Department of Water and Environment Regulation (DWER) guidance, implement systems that will improve the amenity of the Shire.

3.5.7 Data collection

The ultimate measure of success for this Strategy is if progress is being made towards the achievement of the WARRS 2030 targets. Reporting requirements for local governments in relation to the Strategy are partially captured in the Local Government Census.

The Shire will review and improve data collection systems in line with the

- Waste Data Strategy being developed by the Waste Authority, and the
- Online system for waste reporting being developed by DWER.

Development of comprehensive waste management data set is essential to enable the refinement of existing services and development of new services and allow the Shire to meet the reporting requirements stipulated within the WARRS 2030.

The Shire must effectively measure operational performance and service delivery in line with council policy and public expectations. Enhanced business analysis will ensure more useful operational, financial and statistical data is available to undertake business case development and financial model review, to ascertain the success and viability of each individual service line.

To ensure that service levels remain adequate the Shire will continue to engage the community to ascertain satisfaction levels in future, and act accordingly to make improvements where/when necessary to drive improved customer service.

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APPENDIX A

Preliminary Options Phase 1

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APPENDIX B

Waste volumes – Graphs

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